EAST DURHAM ACTION GROUP (EDAG)

THE CASE AGAINST THE PROLIFERATION AND CONCENTRATION OF GREEN ENERGY DEVELOPMENTS ACROSS EAST DURHAM

JANUARY 2026: UPDATE

Executive Summary

East Durham Action Group (EDAG): The Case Against the Proliferation and Concentration of Green Energy Developments Across East Durham

The East Durham Action Group (EDAG) presents this evidence-based report to highlight the growing threat to East Durham's landscapes, farmland, and communities caused by the proliferation of industrial-scale Solar Panel Arrays and Battery Energy Storage Systems (BESS). The document is addressed to Durham County Council (DCC) leadership and elected members, urging a strategic pause on new approvals and a fundamental review of planning policy, environmental safety, and long-term sustainability.

1. Scale and Imbalance of Development

Over **900 acres of East Durham farmland** and **3,400 acres county-wide** are already approved or pending approval for green-energy development. These installations are heavily clustered around the Hawthorn Pit and Carr's Farm sites, representing **26% of County Durham's total**. Developers exploit grid proximity and fragmented planning oversight to bypass Environmental Impact Assessments (EIAs) and achieve high profit margins, while residents face the erosion of local democracy as appeals repeatedly overturn local objections.

2. Environmental and Agricultural Damage

The concentration of solar farms and BESS facilities represents a long-term assault on agricultural capacity and rural heritage.

- **Soil compaction** from heavy plant, cable trenches and support infrastructure undermines the UK Government's 25-year Soil Recovery Plan. Compaction already costs **£1.2 billion annually** in lost productivity, and the impact of widespread racking systems could be irreversible.
- **No credible land-restoration method** exists: support structures and cables are buried up to **four metres deep**, meaning land reclamation to agricultural use is improbable.
- Once topsoil fertility is lost, recovery may take decades, contradicting both the **National Planning Policy Framework (NPPF)** and the **County Durham Plan's** protection of "best and most versatile" (BMV) farmland.

3. Technical Inefficiency and National and International Context

Despite government enthusiasm for solar expansion, the **UK is among the least favourable countries globally for solar PV production. The World Bank** report shows that many European countries (and the UK among them) **fall into the lowest tier of long-term daily PV output**: below 3.5 kWh/kWp/day **(World Bank Report)** One independent dataset ranked the UK at approximately **2.61 kWh/kWp/day (~10.9 %)**, the lowest recorded in the study. Seb Beck Solar Farm Requirements Map

Government projections further confuse units of power (GW) with energy (GWh) and thereby exaggerate achievable generation. Even if 47 GW of solar capacity is achieved by 2030, the actual contribution would amount to less than 13% of UK electricity needs, leaving high intermittency and low resilience. **Large-scale solar on farmland is therefore a misallocation of limited land resources, especially when rooftops, brownfield sites and industrial estates remain under-used.**

4. BESS: Hazards, Safety, and Cost

Battery Energy Storage Systems pose significant and poorly understood hazards.

- **Unit of Danger Assessment:** Calculation based on a **4MWh** BESS container. **Each container equates to 3.5 Tons of TNT**
- Fires produce intense heat, toxic **PFAS-laden smoke**, and chemical runoff that contaminates soil and groundwater. Fire-fighting requires thousands of litres of water, which becomes hazardous waste.
- **No statutory UK standard** governs BESS siting, firewater containment, or exclusion distances from homes and schools.
- The true carbon cost of battery production, shipping (mostly from China), and maintenance undermines the "net zero" claim.

- The **economic burden** is substantial: storage infrastructure costs roughly **£300 million per GWh**, yet the UK already holds over **three times the storage capacity required** for 2030 (Energy Storage News, 2025).

These factors make current BESS rollout environmentally risky, economically irrational, and operationally unsafe. (Helm, 2025)

5. Systemic and Security Risks

Contrary to government claims, resilience of the national grid is **diminished** by over-reliance on unstable renewable nodes. The **2025 Iberian blackout** demonstrated how inverter failure and grid instability can cascade across interconnected systems.

UK BESS designs use imported inverters and communication hardware vulnerable to **cyber-interference and remote manipulation**, as confirmed by investigations into "kill-switch" vulnerabilities in Chinese-manufactured components. Such risks directly threaten critical infrastructure, public safety, and emergency response capacity.

6. Governance, Oversight, and Planning Failures

Local planning authorities are overwhelmed by technically complex submissions—often exceeding 50 supporting documents—while statutory consultees such as Fire and Rescue Services have **no mandatory role** in BESS applications.

Developers routinely understate hazards, overstate employment benefits, and submit false or inconsistent information. The **piecemeal approval process** prevents the recognition of cumulative environmental and visual impacts, resulting in policy decisions contrary to the County Development Plan and NPPF sections 14–15 on climate, flooding, and natural environment protection.

7. Strategic Shift Required

EDAG proposes a pragmatic and forward-looking approach that supports renewable energy without sacrificing food security, safety, or heritage:

1. **Amend the County Development Plan (CDP)** to prohibit solar and BESS on productive farmland (Grades 1–3a).
2. **Implement a Strategic Spatial Energy Plan** to direct developments to brownfield, rooftop, and industrial locations.
3. **Mandate comprehensive EIAs** for all grid-linked projects within five miles of one another.
4. **Create a DCC Energy Safety Board** to review technical risk, cybersecurity, and environmental safeguards.
5. **Require full decommissioning bonds and soil-restoration plans** before construction begins.
6. **Seek national regulation** establishing BESS-specific fire, spacing, and contamination standards, including PFAS control.
7. **Encourage rooftop and community-level solar investment** consistent with CPRE's finding that 60% of UK solar capacity could be met on existing buildings by 2035.

8. Conclusion

East Durham's communities face an existential struggle reminiscent of past industrial exploitation—this time under a "green" banner. The present course threatens to destroy landscapes, compromise safety, and undermine national food and energy security.

EDAG urges DCC to demonstrate leadership by halting further approvals until safety, sustainability, and democratic accountability are restored. A truly **responsible transition to net zero** must safeguard the land, protect communities, and ensure that progress does not come at the expense of those who live within its shadow.

INTRODUCTION

This report has been prepared by *East Durham Action Group (EDAG)* with a view to developing a researched based factual body of evidence that can be utilised by local communities and their elected representatives to challenge the existential threat to East Durham landscapes and communities by the proliferation and concentration of green energy developments in the area. The report is targeted at *Durham County Council (DCC)* elected representatives and leadership with a view to securing support to halt further harm caused by green energy developers.

The *EDAG* campaign was established in response to the growing concerns expressed by East Durham residents about the growing threat to local landscapes and community life by external developers that have been uncompromising in their quest to acquire land to develop Solar Panel Arrays and Battery Energy Storage Systems (BESS). The *EDAG* is an inter-community campaign designed to give a voice to local residents across all East Durham communities.

The report highlights a number of concerns that residents believe should be given greater emphasis when the *Local Planning Authority* is considering green energy planning applications. A major concern is the **cumulative impact** of having so many green energy developments concentrated in a single area like East Durham. A survey of green energy development planning applications, granted, pending and awaiting appeal, indicated that approximately **1000 acres of arable agricultural land will be lost** for 30 years plus if applications go ahead. The situation worsens when considering **all planning applications across County Durham with around 4000 acres lost to developers** if all applications are approved. *The Campaign to Protect Rural England (CPRE)* report *Getting Solar Off the Ground: The Problem of Mega Solar in the Countryside (2025)* (CPRE, 2025) exposes the impact of over development and offers data to support an alternative approach.

Based on the *CPRE* data this report advocates for a strategic shift by *DCC* that redirects green energy developers to alternative sites that are less intrusive on local residents, valued landscapes and arable agricultural land. It is acknowledged that *DCC* leaders would need to change the *County Development Plan (CDP)* (Durham County Council, 2020) to accommodate this strategic shift and may encounter resistance by green energy developers who are currently proving successful at Planning Inspectorate Appeal Level. To mitigate this resistance the *EDAG* urge the *DCC* Leadership to seek a legal position based on the evidence base provided in this report. The *EDAG* campaign would endeavour to support the *DCC* Leadership in the cost of this legal guidance by undertaking fundraising activities. We have contacted the *Environmental Law Foundation* who have given us a case number with forms to complete with requests for information to show what has been done to date. We are still collating this, and this is by no means a decision to take on the case but we are hoping that with the addition of a robust report and additional research that we can get their support.

The East Durham communities are currently experiencing a ‘David vs Goliath’ encounter where resource rich developers are seducing landowners to secure development land with little or no consideration about the impact on residents in the areas affected. The communities of East Durham, indeed County Durham, have borne the brunt of the first industrial revolution therefore should not be expected bear the devastating impact of the green energy revolution.

1. THE CONTEXT: THE DEMISE OF LOCAL DEMOCRACY AND THE LANDSCAPE DESTRUCTION PROBLEM

> *'Landscape reflects the relationship between people and place, and the part it plays in forming the setting to our everyday lives. It is a product of the interaction of the natural and cultural components of our environment, and how they are understood and experienced by people.'*

An Approach to Landscape Character Assessment – (2014 – P6 (Gov.uk, v1 2014 and v2 2018).)

1.1. It is clear from the above statement that there is an intrinsic relationship between 'landscape' and 'people' in any locality, but perhaps more so in rural and semi-rural areas. **Landscapes are an integral part of our cultural heritage** and like many cultural aspects of our daily lives are 'felt' rather than measured. This qualitative characteristic is often not given sufficient weight in the context of *Town and Country Planning* procedures and in particular planning decision making.

1.2. In recent years the growth of green energy developments, (Solar Panel Arrays, BESS and Wind Turbines), on countryside landscapes, often involving the removal of huge swathes of agricultural land from food production, has brought developers and local communities into conflict. Moreover, *Local Authority Planning Departments* appear to show bias in favour of the green energy developers linked to the *UK Government* Net Zero policy. Too often planners justify their decision by stating that inevitably harm to the landscape will occur, but the benefits of the development outweigh the harm, so it is recommended that planning permission be granted.

1.3. The issue of landscape destruction in the pursuit of Net Zero is not unique to the UK but is global. One example near to the UK is the *L'Amassada* eviction associated with the ZAD (Zone-to Defend) constellation in France. The *L'Amassada* campaign was a reaction to a planning proposal for a Convertor Transformer Station on what locals perceived as an irregular land deal. The protest was in response to the mayor of *Saint-Victor-et-Melvieu* signing a contract with the energy company in violation, according to local residents and city council members, of local procedures. The contract organised the expropriation of farmland to build the transformer and corresponding access roads. The contract spurred a legal struggle, and local residents formed the campaign group *L'Amassada.* The group occupied the site for five years before being forcibly evicted by police.

1.4. The *L'Amassada* campaign is just one of many occurring across the UK and Europe. It demonstrates the ability of private investment and the State to dismiss local people's concerns that in effect destroys local democracy. A further example of local democracy being disregarded is the campaign organised by the *Murton Residents Action Group (MRAG),* County Durham, UK. The group campaigned in 2022/23 to stop a 120-acre Solar Panel Array being developed on agricultural land with loss of the scenic landscape/natural habitats/local amenity and serious health and safety risks. The campaign submitted a comprehensive and detailed report to counter the arguments put forward by the developers. Elected members on the *DCC Planning Committee* agreed with the residents and the planning application was denied for valid reasons. The developers appealed to the *Planning Inspectorate* and were successful. **This is a stark example of the demise of local democracy.** The disregard for local democracy is epitomised by the *Morvern Green Link*

development on the *Hawthorn Pit* site. *Morvern* have applied for a *Development Consent Order (DCO) Planning Act, 2008.* The order facilitates the **bypassing of the local authority** planning application procedure allowing the developer to **apply directly to the *Planning Inspectorate.*** Consultation with the local authority and local communities is merely a courtesy but there is no process of objection. Also, the order allows compulsory purchase of land that can involve **more destruction of local countryside landscapes.**

1.5. Many communities draw attention to the power imbalance that exists between 'developers' and the 'communities' affected by green energy developments discussed above. The fact that developers appear to have unlimited resources so can use financial incentives to seduce landowners to agree to a change of land use without any consideration of the impact on local communities is a major concern. Legislation says class A agricultural use has to remain agricultural. But in 2020 they amended the act to include light industrial use. But this still has to be for an agricultural purpose. That would mean there is a case for the requirement of an approval by the local planning authority for change of use. Has *Durham County Council* issued change of use permits in consultation with *Natural England?* If that is the case does that mean that *Durham County Council* is on board will the proliferation of these developments across the county? Permitted development rights don't include building a solar farm so the developer/landowners need planning permission.

Developers are able to generate comprehensive detailed planning applications supported by expert reports, for example, *Ecological Impact Report,* that seem unchallengeable as every box is ticked thus leaving local people shocked, isolated and unsure how to challenge. Does the LA check the validity of the statements and reports made by the applicants or do they trust that they are all true and correct?

1.6. The relationship between landscapes and communities must be given higher weighting within the planning process where local residents are afforded more say in how landscapes are changed if local democracy is to survive.

1.7. This point is well made in the report *'Getting Solar Off the Ground'* (CPRE, 2025). The geographic spread of solar energy generation on farmland is uneven, dependent more on the ease of connection to the grid and the profit margin for developers, than a location determined strategically by holistic energy planning or that makes sense to affected communities. **In some areas, the countryside is being eroded at an accelerating rate, causing adverse landscape impact.** A situation made worse if the developments are concentrated or clustered, causing **cumulative and 'in combination effects' on more than one landscape/community. Too many people in these communities feel unheard and their voices marginalised.**

1.8. The next section outlines magnitude and scale of landscape destruction both nationally and locally with reference to East Durham.

2. THE MAGNITUDE, SCALE AND CUMULATIVE IMPACT OF GREEN ENERGY DEVELOPMENTS ON AGRICULTURAL LAND/COUNTRYSIDE LANDSCAPE

2.1. The scale of landscape destruction in the UK is well documented in the report *Getting Solar Off the Ground* (CPRE, 2025). The research revealed that **59%** of England's largest operational solar farms are **located on productive farmland,** while almost a third **(31%)** of the area covered is classified as the nation's **'best and most versatile' (BMV)** agricultural land. The research considered 38 large solar farms in current operation, each generating over **30MW** of energy. Despite planning policies designed to protect high-quality farmland, **over half (53%) of these sites include BMV land**—graded 1 to 3a on the official Agricultural Land Classification system (Natural England, 2021).

2.2. The report found that solar development currently covers **827 hectares of BMV** land across all operational sites. That equates to around **1,300 football pitches.** This includes **45 hectares of Grade 1 'excellent' land, 216 hectares of Grade 2 'very good' land, and 566 hectares of Grade 3a 'good' land.** Solar panels also cover another 755 hectares of Grade 3b 'moderate' quality farmland. Three operational solar farms – Sutton Bridge in Lincolnshire, Goosehall in East Cambridgeshire, and Black Peak Farm in South Cambridgeshire – are located **entirely on BMV farmland**.

2.3. The UK faces a big challenge in scaling solar capacity from **16.6 GW** to **45-47 GW by 2030.** Under current policies, 60-65% of this could come from large solar farms but would **effectively remove key agricultural areas from food production** for up to 60 years, **threatening the UK's food supply** amid global uncertainty. Eastern England's concentration of high-quality farmland has led to a surge in mega solar farm applications. Despite government claims that solar will cover just 0.4% of UK land, the spread is far from even. In Sleaford and North Hykeham, for example, solar farms already cover 7% of land.

2.4. The above discussion portrays **a bleak outlook for agricultural land and landscapes particularly across Eastern England.** A survey of Solar Panel Arrays/Battery Energy Storage System, (BESS), planning applications across East Durham reveals that **901.6 acres** of agricultural land/landscapes has been granted or pending planning agreement. The situation across County Durham is dire with **3483.12 acres** of agricultural land/landscapes either granted or pending planning agreement.

2.5. The scale and clustering of green energy developments across County Durham will have a **cumulative impact on agricultural land/landscapes and communities.** East Durham in particular accounts for **26 percent,** (if all agreed), of green energy developments**. The cumulative effect of green energy developments represents an existential threat to local communities and residents that can no longer be ignored.** It is not now acceptable to state *that 'each planning application must be considered on its individual merit(s)'.* The true cost of this threat will be borne by local people who **rely on their elected representatives as custodians of their communities to repel this 'blot on the landscape'.**

Note: EDAG have produced a County Durham map that provides a visual impact for the proliferation and concentration of the green energy developments.

2.6. The cumulative and visual impact on landscapes is acknowledged in the *National Planning Policy Framework* (NPPF - Ministry of Housing, Communities & Local Government, 2024) states in Par. 165:

'renewable and low carbon energy and heat, plans should:
a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts).'

2.7. A booklet produced by *CPRE* in association with 16 Parish Councils/Campaign Groups, *The Problem With Solar Farms* (CRPE Herts, 2021), highlights the drivers for developers to cluster developments. **Developers only advocate for the cheapest options, claiming that close proximity to the National Grid is essential for connectivity, thus disregarding other viable alternatives.** The EGL1 pipeline is 196km long traveling from Scotland to Hawthorn is evidence that this is simply not true. One example, that dispels this myth is Great Wilbraham solar farm, Cambridgeshire, that is connected to a sub-station 11km from the site so demonstrating that there is no technological barrier to connecting sites at a range of locations. The clustering of green energy developments around sub stations like the *Hawthorn* site is purely driven by developer's preference for least cost options.

2.8. The *CPRE* (CRPE Herts, 2021) booklet challenges the future bonds/commitments assured by developers, stating;

> *'Will the land ever revert to agricultural land?* ***Probably not.***
>
> *Will the equipment be recycled?* ***Probably not.***
>
> *What condition will the land be in after 40 years time?* ***Unknown.***
>
> *Bonds are mostly worthless. Do you know who is providing the bond …? Do you know how much it is for? Do you know what it covers?* ***Probably not to all three.***
>
> ***What is known however, is that the Bond doesn't even have to be entered into until the plant has been operational for 15 years when circumstances will have inevitably changed.'***

2.9. Given the concerns articulated in the above discussion coupled with the future uncertainty it is **essential** that that *Durham County Council (DCC)* as the *Local Planning Authority* acts now to **avoid irreparable damage to our valued agricultural land/landscapes** and the growing frustration and disharmony evident in our communities.

2.10. The **Question is what can be done?** The next section will consider how a strategic shift by *DCC* might ameliorate this growing threat.

3. APPLICATION METHODS FOR CIRCUMNAVIGATING THE SYSTEM

3.1. Slicing of Solar and Solar BESS locations to circumnavigate the cumulative impact, Environment Impact Assessment & Ribbon planning

The producing BESS and approved Solar BESS installations at *Hawthorn Pit* have an accumulated BESS of approx. **114 MW** and that combined with the application for *Carr's Farm* **200 MW** would mean that the combined BESS requirement connecting to the *National Grid* at *Hawthorn Pit* is **311 MW** which is **above the 300MW threshold of the mandatory requirement for an Environmental Impact Assessment (EIA).** As the BESS and Solar BESS sites connect to the *Hawthorn Pit* site they should be classed as one. There appears to be a deliberate plan of eating up mostly arable land while not focusing on placing the BESS units closer to the *Hawthorn Pit* site on non-arable land away from residencies.

3.2. False Statements in Applications

DM/25/01835 states there will be 30 full time employees, where other larger scale BESS sites state there will be 1 remote employee and ad hoc site maintenance visits. It also stated that there is to be no hazardous substances on the site.

Other applications have stated that they are not a commercial site, yet they are buying and selling electricity at a profit.

3.3. Temporary parking and equipment storage

Most applications include a paragraph regarding the temporary use of additional land for car parking and equipment storage. The photograph below shows a temporary storage compound; the height of the fence is approx. 2m.

Figure 1

3.4. Flagrant abuse of guidelines and biodiversity

Hawthorn Pit BESS started operating in the last quarter of 2024. A variation was approved by the DCC planning department which gave permission for an increase of 28.5% to the energy capacity, this was because the facility rearranged equipment layout. Part of the variation was to increase biodiversity 'net gain'. The facility has no fire water storage tanks which is against the guidance given by the Department for Energy Security and Net Zero (DESNZ) in 2023.

The below is from the Hawthorn Pit BESS site showing the attempt at replacing the hundreds of mature trees that were felled to create the site. Lost trees and shrubs and gained twigs that if not eaten by the animals may mature in 15 years.

Figure 2

3.5. Exceeding the application which exceeds government guidelines

DM/25/01881/FPA document **3823621** paragraph 6.13 states:

At the current time, *Eden Renewables* typically overplant by around 1.5 and this is typical of Solar Farms in the UK. This is equivalent to ~74.85MWp on a 49.9MWac connection. This appears to be normal practice for *DESNZ* applications, **would any other application be allowed to add 50% to their development?**

The increase above 50MW takes the Solar farm above the government threshold.

Solar farms with a generating capacity above **50 MW** need development consent from the *Secretary of State*, (Legislation.Gov.uk, 2008), for *Energy Security and Net Zero,* **because they are nationally significant infrastructure projects' (NSIPs).** (UK Parliament, 2025).

4. RETHINKING GREEN ENERGY DEVELOPMENT SITES A STRATEGIC SHIFT

4.1. The discussion so far has focussed on how the current approach to land use is short-sighted. Primarily driven by ease of connection to the grid and profit margins of developers.

4.2. Alternative approaches do exist; it only requires 'political will' to implement. A report by the *CPRE Shout from the rooftops* (CRPE, 2023) demonstrates that **excessive misuse of valuable land is unnecessary** when so much space on homes, brownfield sites and warehouses remain unused that could generate the needed clean power, enough for **117GW. It is within the realms of possibility for 60% of all installed solar to be on roofs by 2035**

– matching the ambition of many other countries who are successfully minimising the impact of solar energy generation on the finite supply of land.

4.3. Previous *CPRE* research has shown that installing solar panels on the roofs of suitable domestic and industrial buildings, as well as on car parks, hospitals and schools could deliver **40-50 GW by 2035** and up to **117 GW by 2050.** It is realistic to expect the government to set a target for at least 60% of solar energy to come from rooftops, car parks and brownfield land **that would ban ground-mounted solar on scarce on farmland.**

4.4. Incidentally Solar Panel Arrays are not the most efficient method of generation. By comparison with Offshore Wind, Solar Farms are hugely inefficient. A 140-acre solar park is said to be capable of supplying electricity to about 9,000 homes. **One wind turbine in the North Sea has the capacity to power 16,000 homes.** In terms of efficiency rating i.e. the amount of power exported to the grid, Solar's rating is between 11 and 15% whereas for off-shore wind the figure is 50%+. On one day last year it has been reported that 78% of the UK's electricity came from off-shore wind. (CPRE, 2025)

4.5. **The Government has confirmed that offshore wind will produce more than enough electricity to power every home in the country by 2030,** based on current electricity usage *(Build Back Greener)* (Gov.UK Business and the Environment, 2022). The UK government's *Solar Roadmap* (Gov.uk - DESNZ, 2025) details how green energy will be increased by the deployment of solar in all forms across available infrastructure in the UK.

4.6. A strategic shift that acknowledges that solar has only a partial role to play in energy generation in the UK would lead to lateral thinking about where solar panel arrays should be situated.

The *EDAG* would petition and encourage DCC leadership to look at the *County Development Plan (CDP*) (Durham County Council, 2020) with a view to adopting a visionary approach to siting future solar panel arrays. The *CDP* could incorporate a Strategic Spatial Energy Plan that identifies and designates sites across *County Durham* that would accommodate solar panel energy generation. Such an ambitious approach would undoubtedly go a long way to **redeeming the potential future damage to our landscapes and communities while at the same time embracing green energy projects.** As stated in *the NPPF Par.166 (2024)*: (NPPF - Ministry of Housing, Communities & Local Government, 2024)

'In determining planning applications, local planning authorities should expect new development to:
a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and
b) take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.'

4.7. The *EDAG* recommend this report for the consideration and deliberation of the *DCC Leadership.*

5. HEALTH & SAFETY RISKS ASSOCIATED WITH SOLAR PANEL ARRAYS & BATTERY ENERGY STORAGE SYSTEMS (BESS)

5.1. While solar panels are not in their infancy the Battery Energy Storage Systems (BESS), particularly large-scale lithium-ion facilities, are still *an **'immature technology',*** they continue to present significant danger to health, life and the environment. There are **no dedicated UK regulations** governing their deployment, operation, or decommissioning. For *Durham County Council* — where applications are increasingly targeting rural farmland and sites close to communities — **the risks are material and immediate.** This section of the report outlines the risks and associated risks, it demonstrates why extreme caution, if not outright refusal, should apply to BESS applications until adequate safety, planning, and environmental safeguards are legislated.

5.2. The applicants regularly state **'ALARP'** which is an acronym for 'As Low As Reasonably Practicable'. It refers to risk analysis, it is a guiding safety principal used by industry to manage risks. It requires the organisation to demonstrate that no further practical options exist to lower the risk. It will be seen that the applicants pay lip service to the principle, especially when it comes to the dangers to the workforce, wider public, communities, wildlife and environment.

➢ ACCESS

5.3. In three recent applications **DM/25/01345, 01881** and **01835**, near the villages of Easington, Hawthorn, Murton and South Hetton the applicant has stated that the main access route will be from the A19, along the A182, through South Hetton.

Each of the applications can significantly lower the risk by safely creating a new access road from a major road; application **DM/25/01345** new road from A182 to the site; **DM/25/01835** new road from the *CEGL1* road to the north; **DM/25/01881** new road from the *Jade Business Park* road to the north.

The new site roads will prevent the cumulative, unnecessary journeys of all works traffic, heavy goods vehicles, extra-long and or wide loads along the already very busy commuter route A182, and transit through a difficult junction off the A182 in the village of South Hetton, a residential area, various junctions, past a busy post office, then onto a narrow country road. **Especially when transporting class 9 hazardous goods, containers full of unstable lithium-ion batteries that may overheat after the journey from the port.** Note the BESS equipment at the *Hawthorn Pit* facility were shipped from Shanghai (China) to Felixstowe and transported by road from Felixstowe to Hawthorn Pit.

Each of the roads would provide the additional benefit of enabling the emergency workers, a fast primary route and a secondary route to the site from opposite directions. This is especially important to the *Fire Brigade* who would have the ability to fight the fire with the wind behind them, rather than blowing smoke, flames and toxic fumes into them and their equipment.

The three applicants have chosen the most dangerous alternative, putting cost saving before safety.

➢ DANGERS OF THE BATTERIES

5.4. The batteries of choice by the applicants in the grid scale BESS are lithium-ion and variants as they are the most economically viable. They are not the safest as can be seen below:-

5.5. **Classification:** the BESS units and batteries are Class 9 Hazardous Goods.

5.6. **Maintenance:** when the batteries get too, hot they are shutdown, a HAZMAT (hazardous materials) team go to site and manually vent the compartments if safe to do so. The power on site is shutdown, and standby diesel generators are used to run the heating and cooling systems. No warning of manual venting is given to the public.

5.7. **Susceptible to changes in temperature:** too cold and dendrites can form which can puncture the cell, too hot and the cells can overheat.

5.8. **Ageing:** the batteries are in a continuous cycle of being charged and discharged, with each cycle the battery ages, losing a minute amount of its power. There are no formulae to show when a battery is about to fail, each individual battery has the potential to fail. Batteries being stored at Tilbury **exploded before being installed,** most of the batteries will be required to be replaced for safety reasons before they are five years old, even less if they are second hand Electric Vehicle (EV) batteries.

5.9. **Thermal runaway:** Lithium-ion batteries are inherently prone to uncontrolled chain reactions, producing intense fires, explosions, and toxic emissions. Fires can burn for days and cannot be extinguished by conventional methods, (Dobson & Edwards, 2024).

5.10. **Explosion Vents and maintenance:** BESS units have deflagration vents, which are safety devices, that are burst pressure membranes. They burst releasing internal pressure from a deflagration which is a rapid flame front. The explosion panels are usually positioned on the roof; they are designed to try and prevent catastrophic failure and damage to equipment to the side of the unit. The roof panels enable the pressure, fireball of toxic and flammable fumes to be directed upwards to be released into the atmosphere.

5.11. **Unit of Danger Assessment:** Calculation based on a **4MWh** BESS container. **Each container equates to 3.5 Tons of TNT,** (Profs PJ Dobson and PP Edwards, University of Oxford – via email). Other BESS units have larger MWh capacities and **by default will be even more catastrophic on explosion.** TNT as well as fuel sources such as gas, petrol and hydrocarbon, are heavily regulated and not sited next to residences.

Energy stored in a Battery Energy Storage System (BESS) - HAZARD contained in one BESS container
Using information from the Planning Portal to calculate the HAZARD - Planning Portal Ref DM/25/01345/FPA

1	Number of containers is 98 containers arranged in pairs		98	number	(from portsl)
2	Power		200	MW	(from portal)
3	Power of each container (has the potential to be greater than this) is		2.041	MW	(Row2/Row 1)
4	Typical batteries are rated between 2 and 8 hours		2	h	hours (lowest time)
5	Energy stored in each container is		4.082	MWh	(Row 3 x Row 4)
	Converting MWh to Joules				
6	1 MWh	is equivalent to	3,600,000,000	Joules	
7	4.082 MWh	energy in one container is equivalent to	14,693,877,551	Joules	(Row 5 x Row 6)
	TNT equivalent energy				
8	Energy released in detonating 1,000 kilogrames (1 metric ton) of TNT is		4,184,000,000	Joules	
9	The potential energy available in each of the BESS containers is		3.512	**Metric tons of TNT**	(Row 7/Row 8)

Figure 3

➢ REAL INCIDENTS

5.12. The **Liverpool BESS** fire required **59 hours of fire service intervention** (Merseyside Fire and Rescue Service, 2022).

5.13. **Moss Landing,** California, produced heavy metal contamination in soils and residential complaints of illness up to **20 miles away** (Hunterbrook, 2025)

5.14. **Tilbury,** 19th February 2025 As reported by *BBC News*, (BBC News, 2025) earlier in February, campaigners contested plans for a BESS plant to be built on farmland near East Rounton over fears there would be a “very high risk” of fire breaking out at the site. ***NatPower* rejected the claim and said the safety of its BESS was of "paramount importance".**

Days after the statement by *NatPower,* batteries that were being stored on their site ignited taking the firefighters **over 20 hours** to bring under control. (Fire Protection Association, 2025)

5.15. **Cirencester,** Solar Panel Site Friday 29th March 2025. Fire broke out in the Battery Energy Storage System, **it required more than 40 firefighters,** various engines, tenders, high volume pumps and specialised equipment to control and eventually make the location available to handover to the facility owner. (EticaAG, 2025)

5.16. Certification of Equipment: Most of the equipment is shipped from China, the credentials of the certifying authority and inspection, prior to shipping is not known. The sites are not fully regulated, are not required to follow building regulations, and **there are no BESS Statutory Requirements.**

5.17. **Spacing of Equipment:** There appears to be no uniformity of spacing of the BESS units, each site has different spacings, some have fireproof panels between BESS units while the majority don’t. Each site appears to have different spacing known. Yet already the insurance industry is beginning to issue guidelines on BESS module spacing, shouldn’t the government take note of the industries who will be impacted directly when things go wrong? (Munno, 2025)

5.18. **Auxiliary equipment:** The BESS sites typically have transformers, switchgear, storage containers, cooling and heating systems, all of which have the potential for failure. In the case of the transformer near **Heathrow** airport it **required the evacuation of people in the area, loss of power to the international airport and 67,000 homes.** Due to the high energy power lines, it required the National Grid to be diverted before the fire service could start.

5.19. **Electrocution:** The maximum voltage is **66kV,** this is extremely high and dangerous to life. The sites have warning signs that state 

. The sites have security fencing, but signs and fences do not stop animals, birds or bats from entering the site.

5.20. **At the time of writing this report there have been 98 incidents worldwide of Energy Storage Failure Incidents** (storagewiki.epri.com, 2025)

'An 'incident' according to the Federal Emergency Management Agency (FEMA) is an occurrence, natural or man-made, that requires an emergency response to protect life or property'

➢ FIRE FIGHTING AND EMERGENCY SERVICES

5.21. Limited emergency response: County Durham's rural areas often lack the immediate resources, water supply, and specialist expertise required to safely manage BESS fires, **leaving residents and land exposed.**

5.22. **Means of ingress:** Each site should have two means of entrance to the site, a primary one for general site access and a secondary one for emergency vehicular access. Ideally situated opposite each other to enable the fire service to attack the fire with the wind blowing the flames and toxic fumes away from the emergency services. **This should be mandated;** however, a search of the current BESS applications shows that it is up to the applicant to decide.

5.23. **Loss of control:** The sites are unmanned, they are controlled remotely. StarLink appears to be the communication of choice. The batteries require constant monitoring to prevent thermal runaway. In the event that the signal is lost, there would be no monitoring or control. How can the safety of the facilities be guaranteed?

➢ FIREFIGHTING AND THE NATIONAL GRID

5.24. In the document supplied by the National Grid (link below)

https://publicaccess.durham.gov.uk/online-applications/files/E7E8DEE0FBFA3EE886E287D50E35E1AC/pdf/DM_25_01345_FPA-NATIONAL_GRID_SUPPORTING_INFORMATION-3803599.pdf

It states on page 05 that:

'Your Responsibilities - Overhead lines

Work which takes place near overhead power lines carries a significant risk of coming into proximity with the wires. If any person, object or material gets too close to the wires, electricity could 'flashover' and be conducted to earth, causing death or serious injury. You do not need to touch the wires for this to happen. ***The law requires that work is carried out in close proximity to live overhead power lines only when there is no alternative,*** *and only when the risks are acceptable and can be properly controlled. Statutory clearances exist which must be maintained, as prescribed by the Electricity Safety, Quality and Continuity Regulations 2002.'*

It states on page 10 that:

'National Grid does not recommend that any type of flammable material is stored under overhead lines. Developers should be aware that in certain cases the local fire authority will not use water hoses to put out a fire if there are live, high-voltage conductors within 30m of the seat of the fire (as outlined in ENA TS 43-8).

In these situations, National Grid would have to be notified and reconfigure the system – to allow staff to switch out the overhead line – before any firefighting could take place. This could take several hours.

We recommend that any site which has a specific hazard relating to fire or flammable material should include National Grid's emergency contact details (found at the beginning and end of this document) in its fire plan information, so any incidents can be reported.

Developers should also make sure their insurance cover takes into account the challenge of putting out fires near our overhead lines.

Note the lines that hang between pylons are called conductors because they are live (see page 4).

In the event of a fire on the site, for example a thermal runaway or transformer it may not be possible for the fire fighters to operate and provide cooling water until the National Grid had shut down and made safe the section of the Grid (see 30m in first highlighted paragraph).'

Should this be the case then there would be a potentially serious delay to the fire fighting with a very high possibility of the fire spreading and getting out of hand.

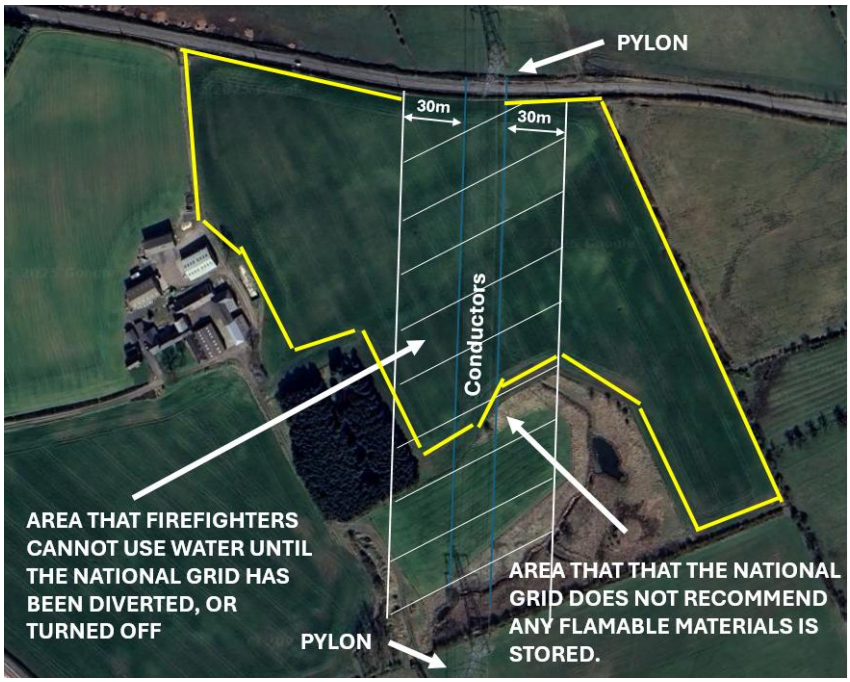


Figure 4

Plan on *Carr's Farm* proposed BESS site, showing the extent of the area where the firefighters cannot use fire water for safety reasons until the *National Grid* has been diverted or shutdown.

Grid scale BESS are currently categorised as infrastructure projects and progress through the planning system, rather than via a Building Regulations (as amended) consultation process from building control bodies, whom *FRSs* work closely alongside.

In 2023, *'Planning Practice Guidance for Renewable Energy'* (National Power Grid, 2025) published on the *Gov.UK* website was updated and encourages early discussion between developers of BESS and planners as well as the local *FRS*.

NFCC recognises the need for BESS to support the *UK Government* strategic objectives of energy independence and security whilst the country is transitioning to an environment that is less reliant on fossil fuels.

However, the *National Fire Chiefs Council* hold concerns that there are no duties on the bodies receiving comments to respond, or to demonstrate how any *FRSs* concerns have been satisfied or addressed.

NFCC's expectation is that a comprehensive risk management process supported with appropriate evidence will be undertaken by operators to identify hazards and risks specific to the facility and develop, implement, maintain and review risk controls. From this process a robust **Risk Management Plan** and **Emergency Response Plan** should be developed in conjunction with the local *FRS.*

➢ WATER RUNOFF, CONTAMINATION, FLOODING, HAZARDOUS MATERIALS & GROUND CONTAMINATION, ECOLOGY AND WATER ENVIRONMENT

5.25. While the applicants' sites are not classed as flood areas, this does not mean that the effect of the large land areas non-porous installation will not cause flooding of the surrounding lower-level roads, villages, existing water courses which run into SSSI's and the sea. The plans submitted by the applicants do not show any additional drainage or bund wall to prevent contaminated water runoff. This means that any contaminants will not be collected and treated but be free to damage and pollute the local Eco structure and environment.

The area/site designation is Groundwater Source Protection Zone / Groundwater Vulnerability Area. The area is part of the Magnesium Limestone Aquifer, it is hydrological significant, that is it is a vital source for public and domestic water supply, agriculture, and industry in the region.

➢ END OF LIFE EQUIPMENT DISPOSAL

5.26. The UK is inadequately equipped for recycling and the end-of-life disposal of the *DESNZ* equipment. Has the carbon dioxide footprint of disposing of the equipment been factored into the carbon footprint for all these sites.

➢ CARBON FOOTPRINT

5.27. The applicant has paid lip service to the environment, diversity, landscape of the location and environs. They have conducted the bare minimum of research to put forward an application that should not pass scrutiny of thorough government officials.

5.28. The applicant has failed to address the carbon footprint of the batteries, the materials and energy to manufacture the equipment, the transportation from China and other locations to site, the materials used to prepare the site, the transport of building materials and personnel to site, the increased traffic congestion, the power usage when building the site, the power usage of security lighting, the energy usage at the remote control location.

5.29. No energy conversion is anywhere near 100% efficient and the energy loses due to depth of discharge, heat loss, radiation, transfer of energy, resistance, energy required to keep the facilities at a safe temperature range 24 hours a day and the losses due to the

length of the cables (ohmic resistance), should be included in addition to the pollution for forty years.

5.30. The efficiency of the BESS units and infrastructure is likely to be in the region of 50% to 65%, these losses should be included in the calculations.

5.31. The below shows the carbon dioxide footprint of only the BESS units getting to site it does not include the cooling cabinets, many lorry journeys, many worker journeys, the knock-on effect to the national and local road infrastructure, the materials used, switchgears, transformers, storage cabins, work of the diggers, cement, fencing, acoustic panels and other works.

Carbon dioxide equivalent to fabricate and transport 36 No. BESS units

Shipping	1Kg	from	Shanghai	to	Felixstowe	=	0.58 Kg CO2
Road	1000Kg	from	Felixstowe	to	Durham	=	0.019 Kg CO2

Each BESS Unit weighs approx 14500 Kgs
There are 36 BESS units = 522000 Kgs

Total Shipping	=	302760 Kg CO2
Road	=	9918 Kg CO2
Total Transport	=	312678 Kg CO2

The carbon dioxide emissions associated with producing 1Kg of lithium ion battery material ranges between 16 to 32 Kg CO2 equivalent

Assume 24 Kg CO2 per Kg of lithium ion

1	2.5 MW BESS unit contains approx	800 Kg of lithium ion
36	2.5 MW BESS unit contains approx	28800 Kg of lithium ion
	which is equivalent to	691200 Kg CO2

The carbon dioxide emissions associated with producing 1Kg of steel ranges between1.8 to 2.5 Kg CO2 equivalent
Production of internal materials is approx 1.7 Kg CO2 equivalent

Assume 2 Kg CO2 per Kg of container materials other than batteries

1	2.5 MW BESS unit contains approx	13700 Kg of materials
36	2.5 MW BESS unit contains approx	493200 Kg of materials
	which is equivalent to	986400 Kg CO2

Total equivalnet CO2 1990278 Kg CO2

Figure 5

CO2 footprint for BESS units shipped to site

5.32. The figure above shows the calculation for carbon dioxide equivalent of getting **36 BESS** containers that each equate to **2.5MW.** Most of the applications have more containers than the example shown.

This shows approx. 2 million Kg of CO2 is required to get the containers to site. It does not include the site preparation or the CO2 footprint for the other equipment.

Is planting a few thin tree saplings that may be eaten by the animals, really a true biodiversity offset? Or is it lip service?

➢ HIERARCHY OF CONTROL - IDENTIFYING HAZARD CONTROL OPTIONS

5.33. The applicants typically have not embraced the hierarchy of controls and identified where changes should be made to mitigate any potential harm or danger.

Hazard control options are typically: -

- Eliminate
- Substitution
- Engineering controls
- Administrative Controls
- Personal Protective Equipment

5.31.1. **Eliminate**
This would have eliminated the possibility of any issues by locating the BESS power generating facility away from residencies and wildlife habitats such as wildlife ponds and woods.

Other elimination methods are: -

- End the use of hazardous batteries
- Install bunding, water containment and filtration with dedicated mains drain to prevent run off to protect the wildlife habitats and community from pollutants and flooding.
- Install equipment that is within the required pitch and decibel levels.
- Eliminate the dangers of building works traffic including carrying Class 9 Dangerous Goods from transiting the village by installing a dedicated roads from a major road, which would reduce the distance for the emergency services to get to the site and mitigate transiting though the village.
- Eliminate the potential for emergency vehicles and operators not to be able to access the site at West Lane due to parked traffic, ice, snow and flooding.

5.31.2. **Substitute**

- Use alternative safer methods of storing or providing energy.
- Reduce the size and height of transformers.
- Use less noisy equipment.
- Use sound proofing fencing instead of deer fencing.
- Use fireproof walls between battery units to reduce the effect of any potential fire.

5.31.3. **Engineering Controls**

The engineering controls provided cannot be 100% as there are still BESS fires throughout the world including new installations such as the BESS site in Tilbury that had to evacuate residencies and schools.

- Increase the spacing between battery units.
- Ensure that there are no batteries stored in the storage cabins as these have no ability to monitor the health of the batteries.

5.31.4. **Administrative Controls**

The industry is in its infancy and there is very little legislation. The BESS in operation at *Hawthorn Pit* **(DM/22/00747) has no fire water storage facilities at site.** How is this possible? No legislation creates a vacuum that empowers the owners to cost save at the expense of safety. **What other measures are they sacrificing for cost saving?**

5.31.5. Personal Protective Equipment

Is the applicant going to advise and provide residents and wildlife on the use of HAZMAT protection?

There is very little legislation and statutory requirements for the BESS facilities with a potential for major incident such as:-

- ☠ A *Grenfell Tower* type incident to occur.
- ☠ It was lack of legislation that allowed a chemical firm in Teesside to operate a facility that produced toxins that created the highest rate of breast cancer in the UK in the village of Norton.
- ☠ It was the lack of legislation that enable *Piper Alpha* to occur.

➢ PLANNING OFFICER CAPABILITIES AND TIMELINE RESTRICTIONS

5.34. The plans that are being submitted for Solar, BESS and combined projects are multiple, complex, lengthy, technical and scientific in nature. Planning officers are not qualified to analyse the complex scientific content of numerous, (typically 59 as counted on application DM/25/01345/FPA initially submitted), documents, some of which are drawn-out, (approx. 60 pages), with all of them biased to garner consent from the council who have many other varied applications to process. **Is it fair to expect officers to manage such specialised content?**

5.35. In addition to the expectation, (or reliance of the opposite), that planning officers are able to decipher all the scientific and technical data, those affected by the locations of these applications are expected to also respond to applications with a level of understanding in what can be considered a short space of time, (21 days), when taking into account many

have full time jobs that do not allow the time and capacity to trawl through all documents. **This again is an unfair bias for the application.**

➢ DISINFORMATION IN THE APPLICATION - THE TYPICAL INCREASE OF THE PLANTING OF SOLAR AND BESS DESPITE WHAT IS APPROVED

5.36. Hawthorn Pit BESS - DM/24/02139/VOC

The variation concentrated in the title on 'approved plans' and 'landscaping'. It added 4 additional BESS units, (**actually 4 pairs of BESS units, changed from 14 pairs to 18 pairs, a 28.5% increase in capacity),** by rearranging the site layout and added a few more saplings.

The applicant and the planning department did not mandate the installation of fire water tanks, rather increased the potential for an incident by installing additional BESS units.

The original application DM/22/00747 approved Nov 22, had **no provision for fire water storage tanks.** The DESNZ guidance brought out in 2023 recommended that all existing and new BESS should have sufficient fire water storage tanks on site and these should be installed retrospectively.

The biodiversity net gain fails to address the loss of biodiversity.

5.37. Carr's Farm BESS - DM/25/01345

The application at *Hawthorn Pit BESS* is approximately one third of that proposed *at Carr's Farm*. The *Hawthorn Pit BESS* has 1 No. transformer that is below 7m in height capacity not known. **The application for *Carr's Farm* has 3 No. transformers, each of which is 14m high.**

It is probable that each of the 3 transformers has approx. 3 times the capacity of the transformer at *Hawthorn Pit BESS.* This means that ***Carr's Farm BESS* which is 3 times the size of the *Hawthorn Pit BESS* has transformer capacity of 10 times *Hawthorn Pit BESS.***

There must be some reason for the applicant to have specified the size of the transformers, **is the *Carr's Farm BESS* planned to be used as a connection for additional capacity?**

5.38. Hallfield Farm Solar and BESS - DM/25/01881

In the document titled *'Planning, Design and Access Statement'* for the applicant, Eden Renewables have an *'Overplanting Statement'*. The language is potentially used to **misdirect the reader into thinking that 'overplanting' refers to biodiversity, when in fact it is the opposite. The term refers to the overplanting of non-recyclable solar panels.**

Further into the *'Overplanting Statement'* paragraph 6.13 confirms this by stating that:

> *'At the current time, Eden Renewables typically overplant by around 1.5 and this is typical of solar farms in the UK.'*

➢ SUPPLY-CHAIN & CYBERSECURITY RISKS (SOLAR/BESS INVERTERS, BATTERIES, AND GRID TRANSFORMERS)

5.39. **Why this matters for Durham** - BESS sites rely on inverters/PCS, battery management systems, and often cellular or IP-connected telemetry. Compromise of any of these can force unsafe operating states, disable protection functions, or coordinate simultaneous outages. For rural County Durham, where emergency response times can be longer, **a malicious remote shutdown ("kill-switch") or mass fault condition is a material public-safety risk.**

5.40. Evidence base - Undocumented comms hardware in inverters: In May 2025, U.S. energy officials disclosed investigations after finding rogue, undocumented communication devices (e.g., hidden cellular radios) inside Chinese-made solar inverters and batteries. Experts warned these components could bypass normal defences and enable remote manipulation of grid-connected assets. Chinese manufacturers denied malicious intent, but **the risk pathway is credible and being actively investigated.** (Reuters, 2025)

Widespread inverter vulnerabilities: Independent research (Forescout/Vedere Labs and others) has reported dozens of exploitable vulnerabilities in major inverter brands—several China-based—capable of remote sabotage or coordinated curtailment if left unpatched. (TechRadar, 2025), (Cybersecurity Dive, 2025)

UK national-security posture: The UK's *NCSC* instructs public bodies to treat supply chains as part of their attack surface and to apply structured controls across procurement, assurance, and lifecycle management (12 Supply-Chain Security Principles). Concurrently, ***MI5* has been reviewing Chinese technology in UK energy systems** (including industrial batteries), **highlighting strategic dependency and espionage risks.** (National Cyber Security Centre, 2023), (National Cyber Security Centre, 2023), (Financial Times, 2025)

Regarding **security,** whether or not a deliberate ***"kill-switch"*** is proven in any specific product, undocumented radios and exploitable firmware in grid-facing equipment **are now documented facts.** Durham should plan on the basis that remote compromise is feasible and design procurement/operational controls accordingly. (UK Parliament, 2025)

These **'kill switches'** embedded in critical power inverters have been documented in the US and Europe, with recent blackouts in Spain and Portugal highlighting system vulnerability. (The Times, 2025)

> *'Power inverters play a critical role in solar and wind farms by converting energy into a form compatible with the national grid, making them a key point of vulnerability if compromised.Tampering with this type of equipment allows China* ***the power to trigger blackouts across the West, and could be a way of destroying the grid.'*** *(Cyber Security Intelligence, 2025),*

For *Durham County Council* to approve these applications would place **disproportionate and avoidable risks on local residents, emergency services, firefighters, commuters, and the rural environment.**

➢ DOCUMENTED SECURITY ISSUES ON SOLAR FARMS

5.41. In addition to the report published in May 2025, the UK Solar Alliance also give evidence of the security issues that arise with Solar arrays on the ground. Solar panel and cable theft has become a growing problem in the UK and Europe, with organised gangs repeatedly targeting farms and installations.

Solar panel and cable theft has become a growing problem in the UK and Europe, with organised gangs repeatedly targeting farms and installations.

5.42. Examples of Solar Panel & Cable Theft

- Mass cable thefts at UK solar farms (2024)
- Over 750 km of cable stolen from solar farms between January–August 2024.
- Sites were often hit multiple times, with criminals returning soon after cables were replaced.
- Peak theft period in early 2025
- March–April 2025 saw 11 incidents across seven UK counties (Dorset, Sussex, Essex, Derbyshire, Lancashire, Worcestershire, Staffordshire).
- One site was broken into three times in a single month, showing how persistent gangs can be.
- Police reported a 48% rise in solar panel and cabling theft from homes and farms.

5.43. Organised crime network's

- Intelligence from DeterTech shows 70+ UK solar farm crime reports in six months and up to 5,000 thefts annually across Europe
- Copper cabling is especially attractive due to high resale value.

5.44. Solar farm vandalism and theft trends

- Safeguard Systems reports increasing incidents of panels stolen, cabling stripped, and equipment vandalised.
- Criminals exploit weak perimeter security and remote locations.

Why this matters!

- **Financial impact:** Losses run into millions, with repeated replacement costs and downtime.
- **Grid reliability:** Stolen cables disrupt connections, risking outages.
- **Insurance & security:** Farmers and operators face rising premiums and must invest in deterrents (CCTV, smart fencing, forensic marking).
- **In Short:** Solar panel and cable theft is now widespread, with organised gangs targeting both large solar farms and domestic installations. The problem is particularly acute in rural counties where repeated attacks have been documented.

Here's how a timeline of UK solar panel and cable theft incidents in March–April 2025 would look:

5.45. Timeline of Theft Incidents

- Early March 2025
    - Dorset: First reported theft of cabling at a solar farm.
    - Sussex: Panels and copper stripped from a rural site.
- Mid March 2025
    - Essex: Large-scale cable theft disrupting grid connection.
    - Derbyshire: Solar farm hit twice in quick succession.
- Late March 2025
    - Lancashire: Organised gang removed cabling; site left offline.
    - Worcestershire: Multiple thefts reported, including one site targeted ***three times in a single month***.
- Early April 2025
    - Staffordshire: Panels and cabling stolen, causing significant downtime.
    - Sussex & Essex: Repeat incidents, showing criminals returning after replacements.
- Mid–Late April 2025
    - Worcestershire & Derbyshire: Continued thefts, with police noting patterns of organised crime.
    - Lancashire: Second wave of cable thefts, reinforcing hotspot status.

5.46. Key Insights

- 11 incidents across 7 counties in just two months.
- Repeat attacks: Some sites hit multiple times
- Organised gangs: Theft patterns suggest coordinated groups targeting copper cabling and panels.
- Impact: Millions in losses, insurance hikes, and project delays.

Damage caused during battery/inverter theft could initiate a BESS thermal runaway fire. Theft could also increase the risk of pollution, as the BESS container doors would be forced open, allowing release of harmful chemicals.

Most developers specify the use of deer-proof fencing rather than high security fencing- this is clearly due to cost rather than safety or security.

Deer-proof fencing c. £10 per linear meter supplied and installed whereas moderate level LPS 1175 Level 3 fencing c. £300 per linear metre supplied and installed. The cost difference to the project can therefore run into millions.

➢ NATIONAL, GOVERNMENT & DURHAM COUNTY COUNCIL GUIDANCE

5.47. **NPPF Part 14 – Meeting the Challenge of Climate Change, Flooding and Coastal Change – Para 161** (NPPF - Ministry of Housing, Communities & Local Government, 2024)

'The planning system should support the transition to net zero by 2050 and take full account of all climate impacts including overheating, water scarcity, storm and flood risks and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.'

The applications: -

- amplify the flood risk,
- misshapes the local amenity
- increases the vulnerability
- decreases resilience removing productive land from use
- there is no additional requirement for solar or BESS

5.48. **NPPF Part 15 - Conserving and Enhancing the Natural Environment**

'Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) *protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*

b) *recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*

c) *maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*

d) *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs;*

e) *preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*

f) *remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.'*

The applications: -

- decreases and damages the natural and valued landscapes,
- through water runoff they pollute the **Groundwater Source Protection Zone / Groundwater Vulnerability Area. The area is part of the Magnesium Limestone Aquifer (provides water to residents and businesses), the surrounding countryside and villages. Some pollute Hawthorn Dene (SSSI), Cold Hesledon (SSSI), Hesledon Moor East (SSSI), Hesledon Moor West (SSSI), and Durham Coast Special Area of Conservation (SAC)**
- increases the vulnerability to food shortages.

5.49. **NPPF Part 9 Promoting Sustainable Transport**

Para 115

'In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

a) sustainable transport modes are prioritised taking account of the vision for the site, the type of development and its location;

b) safe and suitable access to the site can be achieved for all users;

c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code[48]; and

any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree through a vision-led approach.'

and Para 116

'Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios.'

The applications: -

- increase greenhouse gas emissions and congestion, with the cheapest option for the applicant, making road journeys through quiet villages and narrow country roads.
- The developments will create greater than significant movement and maximises the use of personal transport, creating unnecessary journeys.

5.50. **County Durham Plan (Adopted 2020)** (Durham County Council, 2020) **Policy 39 Landscape** states*…'that the council seeks to and support development that would not cause unacceptable harm to the character, quality or distinctiveness of the landscape, or to important features or view'*

- All the applications would cause unacceptable harm to the character and quality, with the majority will cause unacceptable harm to all the above.

5.51. **County Durham Plan Policy (Adopted 2020)** (Durham County Council, 2020) 10 **General Design Principles for all Development in the Countryside** states:

'New development in the countryside … must not

- *give rise to unacceptable harm to the heritage, biodiversity, geodiversity, intrinsic character, beauty or tranquillity of the countryside either individually or cumulatively, which cannot be adequately mitigated or compensated for,*
- *result in the merging or coalescence of neighbouring settlements,*
- *contribute to ribbon development,*
- *impact adversely upon the setting, townscape qualities, including important vistas …'*

All the applications give rise on the majority of the above, they all contribute to ribbon developments which cumulative far exceed the requirements for an Environmental Impact Assessment to be mandated.

5.52. **The County Durham Plan (CDP) Policy 33** (Durham County Council, 2020) *'supports renewable and low carbon energy development in appropriate locations.'*

The applications for numerous reasons stated earlier, are not in appropriate locations.

5.53. **The Department for Energy Security and Net Zero's document 'Guidance – Health and safety in grid scale electrical energy storage systems'** (DESNZ - Frazer-Nash, 2024) states: -

3.3.1 Site risks and environmental assessment

'There should be a full consideration of [site/project] risks including, but not limited to, accidental or intentional damage and natural phenomena' such as fire, weather (including snow and ice and access during severe weather), flooding, land subsidence, flora and fauna (including birds and mammals), *'and security. Note that risk assessment should be bidirectional – i.e. include both risks to the project and from the project. The planning process should assess the following risks and describe how the credible worst case has been mitigated.'*

The applicants subcontract companies who they pay to produce assessments that are sometimes completed by desk top studies. Especially if a field they need to pass through or survey has horses or cattle in it, this was the case with at least one planning application. A more thorough independent assessment should be mandated to provide the residents and planning department with fully detailed balanced reports, as per the below paragraph

'Depending on the size and location of a project there may be a requirement to undertake an Environmental Impact Assessment (EIA). An EIA aims to protect the environment by ensuring that a local planning authority when deciding whether to grant planning permission for a project, which is likely to have significant effects on the environment, does so with full

knowledge of the likely effects. The EIA will identify any specific measures required to mitigate the impact of the impact on the environment.'

5.54. **County Durham Plan (Adopted 2020) Policy 31 Amenity and Pollution** (Durham County Council, 2020)

'seeks to ensure no significant adverse impacts arise from development proposals on the amenity of occupiers and neighbours.'

Each of the various applicants proposed developments result in several significant adverse impacts on the amenity of occupiers and neighbours.

5.55. Proposal: Standard for Battery Energy Storage Systems (BESS) (UK Solar Alliance, 2025)

Richard Dunbar, a leading fire safety expert and Managing Director of *Park Lodge International Ltd,* calls for a new standard for Battery Energy Storage Systems (BESS) to **close dangerous gaps in UK regulation. International incidents prove that BESS can threaten lives, animal welfare, and the environment, yet fire safety protections have been eroded since the 2005 Regulatory Reform Order** removed fire authority oversight in planning—**failures later echoed in the Grenfell disaster.** With decades of global experience as a Chief Fire Officer, investigator, trainer, and author on fire, HAZMAT, and alternative fuel vehicle risks, **Dunbar urges urgent adoption of this standard to restore robust safeguards, strengthen emergency preparedness, and protect the public from escalating threats posed by new energy technologies.**

The document, outlines a proposed standard for BESS installations in the UK. The proposal addresses concerns that **existing UK regulations are inadequate regarding the safety and environmental risks of BESS,** citing international incidents and the erosion of fire safety standards due to previous regulatory reforms.

The document details requirements across several categories:

- **Site Access**: Requires at least two emergency access points (primary aligned with prevailing wind, secondary 180°±20° from primary), secure entry mechanisms with essential documentation, wind monitoring, and internal roads (minimum 5.5m wide, supporting 25-tonne vehicles) connecting access points. It also mandates turning facilities and designated rendezvous points.
- **Placement and Spacing of BESS Units:** Specifies a minimum 6-meter separation between units (reducible to 3 meters with approved fire spread mitigation), and exclusion zones of 5 miles from towns/villages, 1 mile from residential properties, and 10 miles from schools or medical facilities. It also requires explosion relief vents, fire detection systems capable of identifying thermal runaway, temperature sensors, and module-level fire suppression systems with remote water mist injection capabilities.
- **Ground Stability and Environmental Suitability**: Prohibits BESS on land with a history of subsidence and requires geotechnical surveys and consultation with local authorities.
- **Flood Risk Management:** Prohibits BESS on land with a history of flooding or in high flood risk zones, requiring comprehensive Flood Risk Assessments and consultation with local planning authorities.
- **Communication Systems:** Mandates a minimum of two independent communication systems (e.g., fiber optic, cellular, satellite) and requires incident details (wind direction, access routes, unit info, alarm type/severity) to be relayed to emergency services.

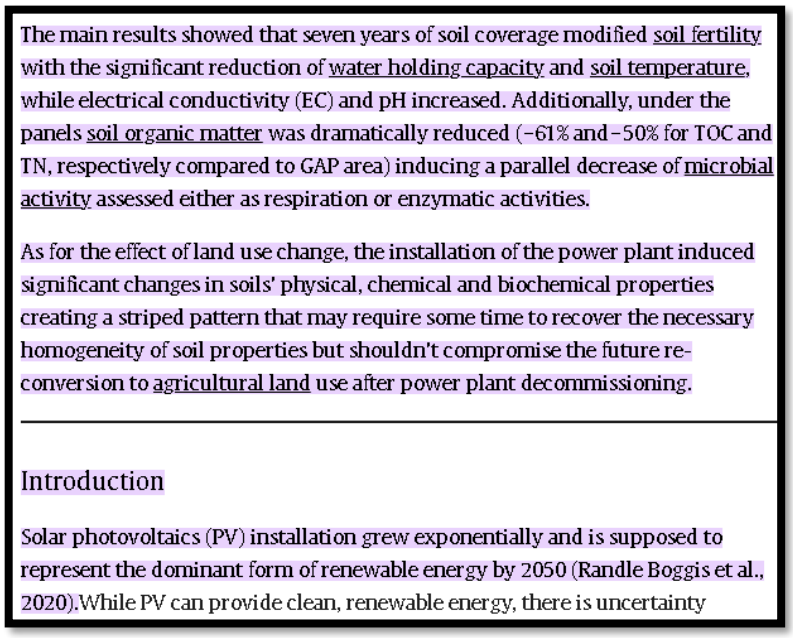
- **Emergency Planning and Compliance:** Requires operators to adopt COMAH Regulations 2015 protocols and develop emergency plans in coordination with various agencies (Fire and Rescue, Police, Ambulance, NHS, Local Authority). It also mandates gas monitoring equipment within two hours of request, a retained hazardous waste cleanup contractor, and the removal of defective battery modules within 48 hours. Operators must also maintain a fund or insurance for emergency housing, compensation, and personal financial guarantees by directors.
- **Water Supply and Firefighting Infrastructure:** Specifies external and internal hydrants with precise distances approved by the fire service, detailing their specifications (pillar type with specific couplings and screw threads, below-ground isolation, automatic drainage) and a minimum flow rate of 2000 L/min.
- **Environmental Safeguards:** Requires a detailed environmental risk assessment and measures to prevent firewater runoff from contaminating natural watercourses, SSSIs, and groundwater supplies. The relevant environmental regulator will determine and implement protection measures.
- **Required Stakeholder Engagement:** Mandates formal consultation with the Local Fire and Rescue Service, Local Police Authority, NHS/Health Authority, Ambulance Service, Environment Agency, Local Planning Authority, and National Highways (if applicable) for all planning and modification applications.

➢ RISKS ASSOCIATED WITH SOLAR PANEL ARRAYS

RISKS TO AGRICULTRAL LAND

Solar Panels are shown to decrease soil richness and increase compaction – if we allow land to be converted it will never be the same afterwards – whilst there is a rebuttal that this may be short-term, as a small island we should be taking this into serious consideration especially when farmland has gained its quality over hundreds of years of being worked. (Institute for Energy Research, 2024)

And …



The main results showed that seven years of soil coverage modified soil fertility with the significant reduction of water holding capacity and soil temperature, while electrical conductivity (EC) and pH increased. Additionally, under the panels soil organic matter was dramatically reduced (−61% and −50% for TOC and TN, respectively compared to GAP area) inducing a parallel decrease of microbial activity assessed either as respiration or enzymatic activities.

As for the effect of land use change, the installation of the power plant induced significant changes in soils' physical, chemical and biochemical properties creating a striped pattern that may require some time to recover the necessary homogeneity of soil properties but shouldn't compromise the future re-conversion to agricultural land use after power plant decommissioning.

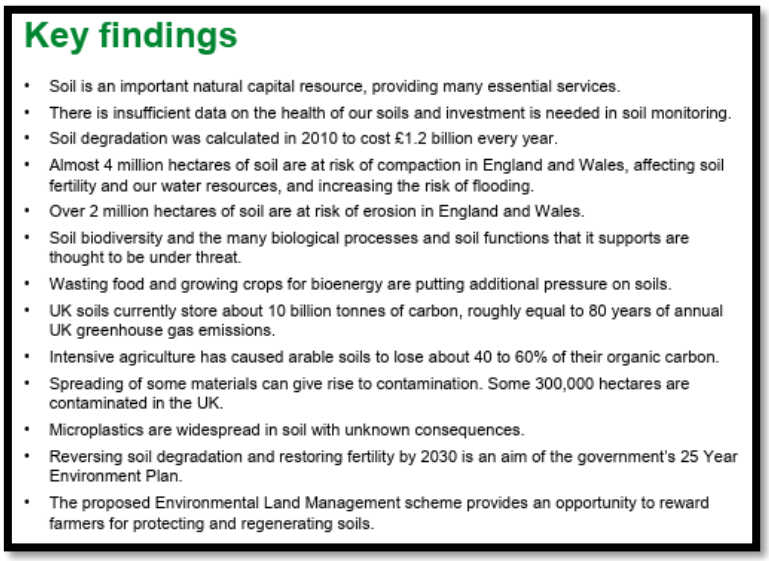
Introduction

Solar photovoltaics (PV) installation grew exponentially and is supposed to represent the dominant form of renewable energy by 2050 (Randle Boggis et al., 2020).While PV can provide clean, renewable energy, there is uncertainty

Figure 6: (Science Direct, 2022)

COMPACTION

In terms of Compaction this already costs the **1.2 Billion** a year and the UK Government already has a 25 year plan to address this - (Gov.uk - Environment Agency, 2019)

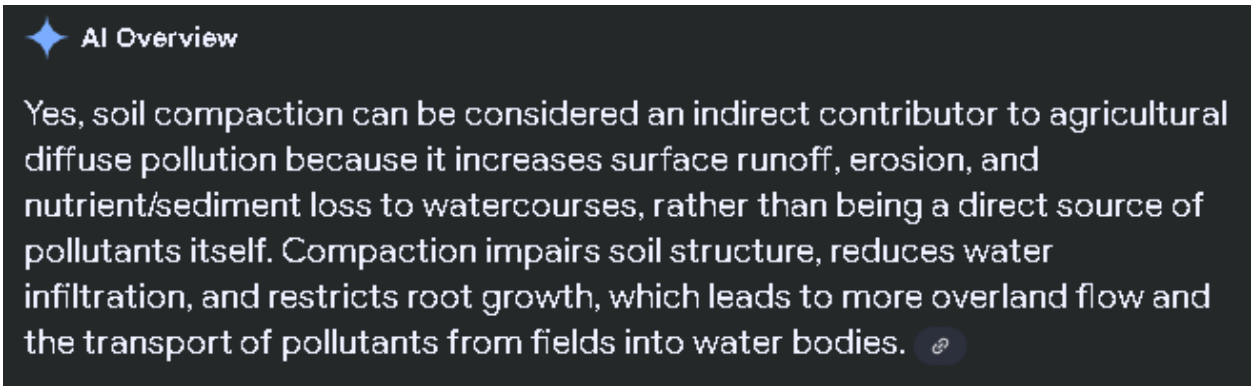


Key findings

- Soil is an important natural capital resource, providing many essential services.
- There is insufficient data on the health of our soils and investment is needed in soil monitoring.
- Soil degradation was calculated in 2010 to cost £1.2 billion every year.
- Almost 4 million hectares of soil are at risk of compaction in England and Wales, affecting soil fertility and our water resources, and increasing the risk of flooding.
- Over 2 million hectares of soil are at risk of erosion in England and Wales.
- Soil biodiversity and the many biological processes and soil functions that it supports are thought to be under threat.
- Wasting food and growing crops for bioenergy are putting additional pressure on soils.
- UK soils currently store about 10 billion tonnes of carbon, roughly equal to 80 years of annual UK greenhouse gas emissions.
- Intensive agriculture has caused arable soils to lose about 40 to 60% of their organic carbon.
- Spreading of some materials can give rise to contamination. Some 300,000 hectares are contaminated in the UK.
- Microplastics are widespread in soil with unknown consequences.
- Reversing soil degradation and restoring fertility by 2030 is an aim of the government's 25 Year Environment Plan.
- The proposed Environmental Land Management scheme provides an opportunity to reward farmers for protecting and regenerating soils.

Figure 7

In terms of affecting Soil quality, we have **two Government initiatives working against one another** – the UK Government working on Soil Compaction in which they are aiming to reverse soil degradation and restore fertility by 2030 whilst we also have the Net Zero Targets which serve to create soil degradation issues – **WE ARE ROBBING PETER TO PAY PAUL**



AI Overview

Yes, soil compaction can be considered an indirect contributor to agricultural diffuse pollution because it increases surface runoff, erosion, and nutrient/sediment loss to watercourses, rather than being a direct source of pollutants itself. Compaction impairs soil structure, reduces water infiltration, and restricts root growth, which leads to more overland flow and the transport of pollutants from fields into water bodies.

Figure 8

Regulation 11(1) and 10(5):

Failure to ensure that reasonable precautions are taken to prevent agricultural diffuse pollution resulting from land management and cultivation practices on agricultural land.

The standard criminal and offence specific responses are:

- warning
- formal caution
- prosecution

The civil sanctions we can impose are:

- compliance notice
- restoration notice
- fixed monetary penalty
- variable monetary penalty
- stop notice

Figure 9

(Gov.uk - Environment Agency, 2025)

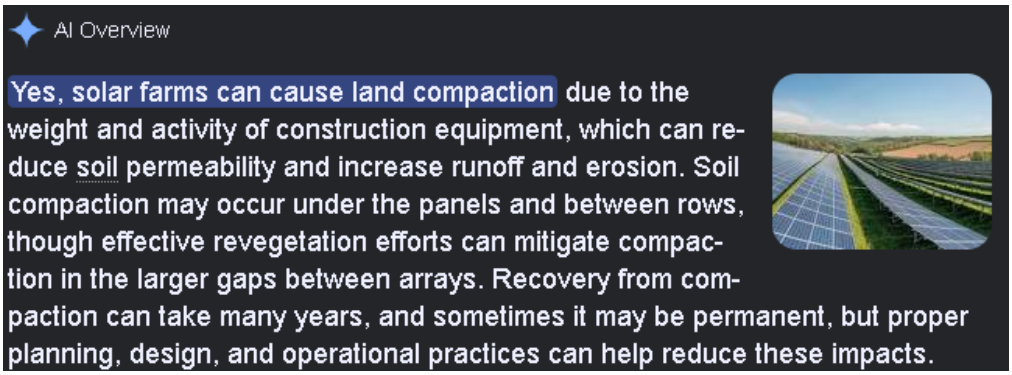


Figure 10

CONCLUSION

By allowing Solar Farms in County Durham we will not only be condoning the decrease in nutrient quality on a mass scale but also allowing soil compaction across multiple farmlands which is a **breach of regulation 11.1 and 10.5.**

We will be doing this **against the objectives** set out by the UK Government in their 25 year plan **to reverse soil degradation by 2030** and will merely be creating more issues which are currently – according to the 2010 report to be **costing 1.2 billion a year.**

SOLAR PANELS ARE NOT AS EFFICIENT AS HOME INSTALLATION

The purpose of this part is to show that grants should be made available to individual domestic properties over worsening a recognised soil quality issue via solar farms that is costing the UK Government 1.2 billion a year to resolve in vain, due to the rise in Solar Farms

These are the parts of a Solar farm

Figure 11

As can be seen the electricity travels from the panels to an inverter – THEN – via a Transformer – then interconnected – travelling along Cables as it goes as losing electricity – it is not efficient at all

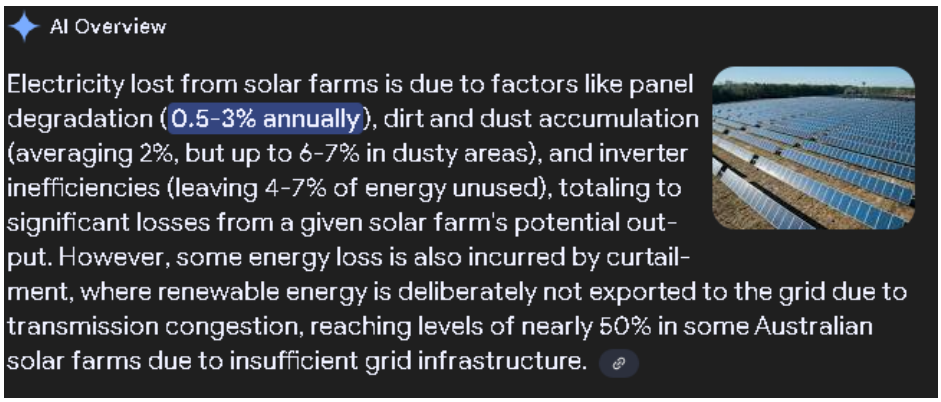


Figure 12

HOWEVER

If grants/ funding were provided to fund solar panels for people's homes instead – the entire process is handled within a building and excess fed directly back to grid – Usage would also likely decrease as people will be incentivised to use less electricity should they potentially be getting paid to do so, via renumeration for the excess electricity fed back to the Grid

If anyone was really serious about net Zero they would be imploring and incentivising the aid of the end user, ultimately their usage will be the determining factor on achieving 'net Zero' building Solar farms at a significant cost whilst not properly incentivising collaboration from the end user is akin to throwing a cup of water into the ocean – but – if the Government were to provide grants instead to the end user to get solar panels, they could

A. Provide a means of saving the end user money and encouraging less usage
B. Provide a more efficient means of getting electricity back to the grid
C. Could make a meaningful difference to the cost of energy Crisis
D. Could prevent the encouragement of soil compaction on agricultural land which is a breach of Regulations and **is already costing the Government 1.2 billion a year to put right.**

NPFF GUIDELINES

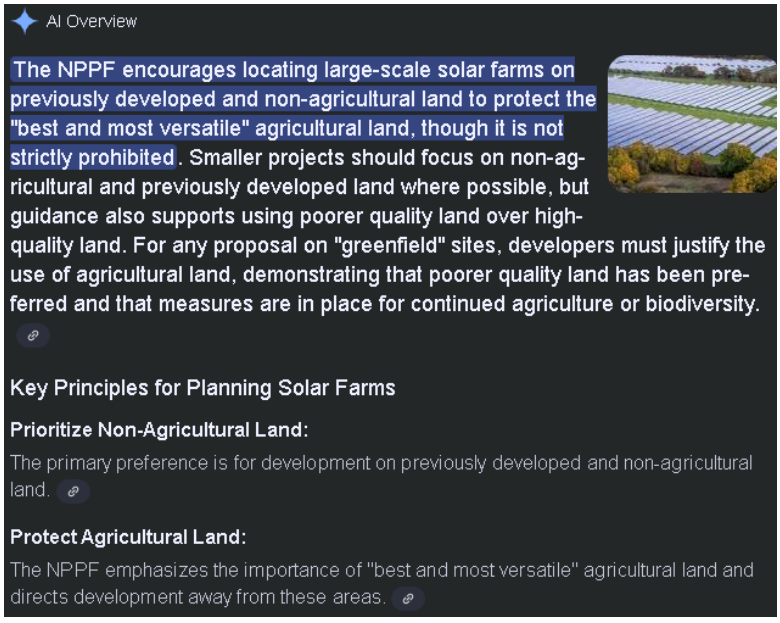


Figure 13

Currently although not strictly prohibited Agricultural land can be used for Solar farms – the applicants will no doubt aim to prove that the soil is substandard – however – isn't this the reason the UK Government are investing 1.2 Billion a year in putting it right – ultimately the development of Solar Farms is not sustainable, doesn't tackle the issue of assisting the end user and whilst it doesn't tackle or assist the end user**, net zero is never going to be fully supported by the end user – it doesn't help them. It is a typical story of millionaires making more profit, (to help us), and the end user seeing no benefit to these Schemes.**

If we are to talk about a real and meaningful step towards ‘net Zero’ **we need to have collaboration from all parties, including the end user,** which can be achieved at less cost and will incentivise green living via the installation of Solar panels on domestic properties instead of Solar Farms whilst not making a compaction and poor soil quality issue (again at a tune of 1.2 Billion a year) worse.

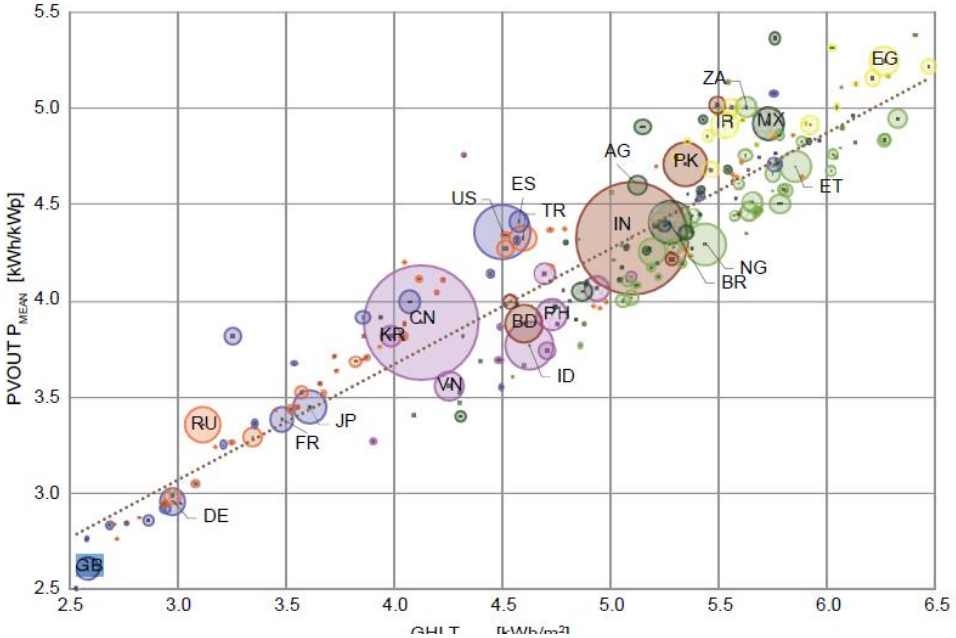
➢ THE INEFFICIENCY OF SOLAR FARMS

5.56. A briefing from the UK Solar Alliance in May 2025 argues that solar power performs poorly in the UK and that building large-scale solar facilities on agricultural land is unjustified. Key points include:

- **Low Efficiency:** UK solar installations averaged only 9.9% of their capacity last year, with the five-year average also just over 10%. This makes solar the worst-performing renewable energy generator in the UK.
- **Over-promising and Under-delivering:** Despite a current national installed capacity of 17.8GW, actual output is low. The report suggests that even if the government's 2030 target of 47GW is met, solar would contribute less than 13% of the UK's total annual electricity supply, with significant intermittency.
- **Farmland Usage:** Solar developers are reportedly over-scaling schemes on vast tracts of farmland to compensate for poor performance, with a projected 70% of the 2030 solar capacity target to be built on agricultural land. This could remove an area of agricultural land larger than Merseyside from food production, risking food security.
- **Supply Chain Concerns:** Many panels are cheap imports from China, raising concerns about forced labour issues in the supply chain, particularly regarding polysilicon.
- **Curtailment:** The National Energy System Operator may be forced to order solar facility switch-offs in the summer because solar power produces its highest yields when demand is lowest.
- **Alternative Opportunities:** The briefing highlights the potential for solar on rooftops, car parks, and other built-environment applications, rather than aggressive agricultural land rollout.

The report was produced by the UK Solar Alliance with input from Professor Peter Dobson OBE (University of Oxford) and Professor Michael Alder (University of Essex). (UK Solar Alliance, 2025)

In their study *'Global Photovoltaic Power Potential by Country'* (The World Bank, 2020), **The World Bank Group's** data shows that the **UK ranks among the least suitable countries for solar energy production,** with only Ireland performing worse (see pages 29–31 of the report).



Average Practical PV Power Potential at Level 1 (PVOUT) Compared to Theoretical Potential (GHI) - Figure 13

➢ PLANNING AND GOVERNANCE GAPS

No BESS-specific law: UK legislation does not regulate BESS safety or environmental impact. Planning authorities like Durham are therefore exposed to high-risk approvals without statutory protections (Hansard, 2025). (UK Parliament, 2025)

Lack of mandatory consultees: Fire and rescue services are not statutory consultees on BESS planning applications — yet they carry the operational risk (Hansard, 2025). (UK Parliament, 2025)

Community engagement failures: Too often, BESS applications provide limited or inaccessible consultation. Under the **Gunning Principles,** consultation must be early, meaningful, and open to change (Local Government Association, 2023). (Local Government Association, 2019) That there is **no mention of Lithium in the consultation material** from the applicants at open events or on websites is disingenuous and misleading the public and goes against these principles. Burying these facts in multi-layered and complex documents submitted to planning that DCC publish on their website is daunting for a large proportion of society.

6. HOW MUCH IS ENOUGH?

6.1. Solar

The government target for solar generation by **2030** is **45** to **47GW.** The UK currently produces just over **21GW,** there is **25GW** of utility scale ground solar approved, and **15GW** awaiting decision or at appeal (no figures given for approved roof top solar). (Solar Power Portal, 2025)

The UK will reach its target once the approved solar farms are built, and by a large margin, especially if the applicants typically add 50% to the approved application.

6.2. BESS

It was reported that **UK councils approved 5GW/10GWh of BESS in July** (Energy Storage News, 2025). This brought the total quantity of approved projects in the UK to **68.915 GW** by power rating / **143,678 GWh** by energy storage capacity which includes projects under construction**, it does not include projects that are operational.** The total operational grid-scale BESS capacity in the UK at the end of June 25 was **6.745 GW** by power rating and **9.796 GWh** by energy storage capacity (Energy Storage News, 2025). When the approved projects come online, likely to be before the end of 2030, there will be approx. **75.66 GW** by power rating / **153.47 GWh** by energy storage rating.

In the House of Commons Library – Research Briefing – Battery Energy Storage Systems (BESS) (UK Parliament, 2025). It states that 'the government's (Gov.uk - DESNZ, 2025) stated that it expected **23–27 GW of battery storage to be needed by 2030** to support clean power'.

The figure for energy storage expected to be online (see above) is expected to be **more than 3 times the figure required.**

7. BESS/SOLAR DEVELOPMENTS FINAL RISK ANALYSIS

All of the above discussion highlights the lack of EIA has enabled applicants to pick and choose what information is included, they adopt 'selective use' of the myriad of planning documentation available and wording to divert laypeople away from planning matters that the applicant has failed to highlight and address. Such as the *Department for Energy Security & Net Zero* guidance document *'Health and safety in grid scale electrical energy storage systems.'* (Gov.uk - DESNZ, 2024)

There is a flood of *DESNZ* applications cascading through the *Durham County Council Planning Portal*, **overpowering and burying the public** under a mountain of drawings, reports and other documents. From the above it can be seen that they have known risks, and potential long-term risks that are yet to be discovered. **The residents in East Durham have a sense of unease, vulnerability, no longer feeling safe in their own homes and their communities.**

They believe that the *Durham County Council,* and guidance by the government to the planning authority which give the **ostensible** 'net zero' applications a cursory glance, then giving a green light to Screening Opinion, Full Planning Application and subsequent

variations, is damaging to the resident's safety, health, mental wellbeing and wealth as well as local democracy as a whole.

Given the **demonstrated risks of fire, toxic contamination, regulatory gaps, and threats to farmland,** *Durham County Council* has clear justification **to resist siting Solar Panel Arrays and BESS near communities or on agricultural land.**

Regarding **security,** whether or not a deliberate ***"kill-switch"*** is proven in any specific product, undocumented radios and exploitable firmware in grid-facing equipment **are now documented facts.** Durham should plan on the basis that remote compromise is feasible and design procurement/operational controls accordingly. (UK Parliament, 2025)

These **'kill switches'** embedded in critical power inverters have been documented in the US and Europe, with recent blackouts in Spain and Portugal highlighting system vulnerability. (The Times, 2025)

> *'Power inverters play a critical role in solar and wind farms by converting energy into a form compatible with the national grid, making them a key point of vulnerability if compromised. Tampering with this type of equipment allows China* ***the power to trigger blackouts across the West, and could be a way of destroying the grid.'*** *(Cyber Security Intelligence, 2025),*

For *Durham County Council* to approve these applications would place **disproportionate and avoidable risks on local residents, emergency services, firefighters, commuters, and the rural environment.**

8. ECOLOGICAL & ENVIRONMENTAL CONCERNS ASSOCIATED WITH GREEN ENERGY DEVELOPMENTS

8.1. The hypocrisy and duplicity of the *Net Zero Green Energy* policies was exposed in an article by *Clean Energy Frontier* (Sept. 2025) that reviewed an assessment undertaken by a coalition of campaign groups and research organisations (*Forests & Finance Coalition, 2025*) https://forestsandfinance.org/. It was found that Banks and investors involved in funding the extraction of raw materials required for the Net Zero green energy transition are **failing to meet the social and environmental risks of mining.**

8.2. The assessment looked at the policies of 30 major financial institutions on their clients' management of the environmental, social and governance (ESG) risks of mining these institutions included the policies of *Bank of America, BlackRock, BNP Paribas, HSBC, JP Morgan Chase* and *Santander* among others. It revealed **widespread gaps and loopholes in policies to mitigate the risks of mining for deforestation, water protection, waste management, human rights and ensuring a living wage for workers along the supply chain.** This investment in raw materials needed for green energy transition is against a backdrop of **blatant exploitation by ignoring the rights of local indigenous people, displacing communities and destroying biodiversity.**

8.3. These failings run counter to the concept of **'responsible investing'** (See: *Principles for Responsible Investing, 2006)* that is now almost **mandatory for all organisations wanting to attract investment funding.** It must be deemed unethical for any UK institution to support green energy developments that employ materials made from the exploitation described above, therefore justified to withhold planning permission.

8.4. **Unethical mining** - Lithium-ion is mined in Australia, Zimbabwe, Chile, Argentina and China and for **every ton of lithium mined results in 15 tons of CO2 emissions in the environment, add this to the 500,000 litres of water needed.** Plus, these areas of the world are already arid. It is rather hypocritical to rape areas of the world to ensure we are meeting these targets. There are countless reports and statistics that illustrate how bad for the environment lithium mining is. (Greenmatch, 2024)

This is supposedly to mitigate climate change and global warming, yet this mining of Lithium-ion contributes more to global warming and damage to the environment than they save.

8.5. As noted in the introduction to this report green energy developers are resource rich so have the capacity to develop and present comprehensive and detailed planning applications including an Ecological Impact Report. Invariably the ecological data presented in the impact report concludes that with careful site management any potential harm to the environment is mitigated and a net gain to environment is achievable. The ecological survey is usually undertaken by a company with the necessary qualifications and expertise but in the final analysis is funded by the developer, **so it is open to bias.**

8.6. This section of the report explores the myth that harm to the development site ecology is mitigated by careful site management on the basis that it is often the case that an Ecological Impact Report on completion of the development is absent.

8.7. One major concern is **PFAS** (per- and polyfluoroalkyl substances) are a group of chemicals that are in a word, persistent. They are both highly resistant to being broken down and extremely stable, as such they linger in the places and things they contaminate for an amount of time that ranges **between decades and thousands of years.** Hence why the group is nicknamed the **'Forever Chemicals'.**

8.8. When a BESS (Battery Energy Storage System) is put into operation, it is necessary for the units to be maintained at certain temperature levels for the efficient functioning of the battery, for this, HVAC (heating, ventilation, air-conditioning) systems are used. And in the vast majority of refrigerants used for HVAC systems, they use PFAS. And when these refrigerant PFAS do degrade, it can be into a secondary 'Forever Chemical' called TFA (trifluoroacetic acid). Both are highly soluble in water, and TFA poses a particularly significant challenge to remove from water once contaminated. This presents a clear risk to the local environment and population, with the possibility of them making their way into our local water systems in the case of a leak or significant damage such as a fire. The plans for these proposed BESS sites, show unsealed surfaces underneath the areas on which the battery containers will be placed. This is in spite of the fact that a government report prepared by the *Environment Agency,* describes an "impermeable surface" would be a "requirement" along with "adequate containment and drainage plans" (2). An unsealed surface would not only be less stable but also allow for any leakage from these battery units to seep directly down to the ground beneath, and from there, into the groundwater. In the case of a fire, these leaks become only more certain, especially since the recommendation by the *National Fire Chiefs Council* in the case of fires spreading between batteries, is to use water-based fire intervention. **The water from the use of these hoses to fight these fires will wash all the substances down onto these unsealed surfaces** that in a previous fire, reached 3,600 litres over 30 minutes to extinguish (2).

8.9. When measured, this spent water has been found to contain levels of PFAS as high as **6 milligrams per litre,** which means to extinguish one fire, up to **21,600 milligrams were released into the surrounding environment.** The research on the impacts PF can have on health is still in its infancy but its potential toxicity to people, plants and animals is not the

kind of thing that should be risked without letting our understanding catch up. The *European Quality Standards* governing levels of PFOS (a specific subgroup of PFAS which are banned as part of the Persistent Organic Pollutants regulations in the UK) in inland surface waters is currently 0.65 nanograms per litre, down to 0.13 in coastal waters (3). Or, that's 0.00000065 milligrams of PFOS per litre compared to the potential full 6 milligrams of the more generally classified PFAS per litre, in the firefighter's spent water. Coastal water levels are mentioned here as well, because East Durham is home to the Durham Coast, and as such, many of the water catchments in East Durham invariably drain into the sea and our incredible coastline. Not only is this coastline **nationally recognised for its ecological importance, possessing a number of SSSIs, but is even internationally designated as a Special Area of Conservation.** PFAS and TFA, present an **especial danger to this environment** not only due to their solubility in water and general toxicity, but additionally and arguably most frighteningly, the threat they pose through bioaccumulation.

8.10. Due to the nature of these chemicals, when they make their way into living organisms through the contamination of food, air, water etc— the body has no means of removing them as it cannot break them down. So, they accumulate over the life of the organism, constantly amassing within their system. The food chain then only compounds the issue, these substances may perhaps only initially contaminate a small area of water, but the fish swimming in these chemicals, naturally absorb them over time. Then a bigger fish eats these fish, or a bird does, and the chemicals are passed along. And the higher up the food chain an animal is, the more of these substances are taken in as it aggregates everything that had been gathered by everything it has eaten. **Yet these sites are being put forward despite the clear danger they represent to our wildlife and their habitats.** The proposed BESS at West Lane, South Hetton, for instance, lies within the water catchment for Dalton Beck, and any contamination from this site will have to flow only a short 3.5 miles to reach the sea, and on its way, it will pass directly through the town of Seaham (4). **Through natural circulation of tidal and marine waters, these chemicals will spread across the wider coastline.**

8.11. The impact on local wildlife habitats is a cause for concern. The example of the *Carr's Farm* BESS development currently within the *DCC Planning System* is used to demonstrate the level of disruption and devastation caused by these developments.

8.12. *Carr's Farm* in South Hetton and its surrounding area support a wide range of species. Hedgerows, woodland patches and farmland are used by **birds, bats and deer for feeding, breeding and movement.** The site also sits within a wider ecological network, being close to the old railway lines and pit heaps, the Haswell to Hart cycle route, and White Hill Woods, (the latter two are managed for nature by *The Woodland Trust*). Local naturalists and residents have confirmed the presence of several species of concern. **Barn owls and red kites – both Schedule 1 protected species** under the *Wildlife and Countryside Act 1981* – have been seen hunting around *Carr's Farm*. **Buzzards, kestrels and roe deer are also present.** Adjacent wetlands and ponds are particularly sensitive. One pond lies directly beside the proposed BESS, **with smooth newts and other amphibians** recorded locally and reported to *the Amphibian and Reptile Conservation Trust.* **Dragonflies and wetland insects** also frequent these areas, which are **already scarce in the wider landscape.**

8.13. A number of natural spaces exist in close proximity to *Carr's Farm*. These spaces form a continuous green corridor to, from and around the farm. The kinds of risks that the BESS poses – namely noise pollution, contaminated runoff and habitat loss - are particularly concerning in areas with wetland patches and a large native bird population. **The effects of the BESS development on countryside landscapes could have catastrophic effects for key species of flowers, trees, amphibians, and birds.** When any one species becomes

contaminated, others are affected through interconnected food chains. Two key natural spaces exist in close proximity *to Carr's Farm*: White Hill Woods, (leading to ancient woodland at Elemore Woods): A number of significant, protected, endangered or near-threatened species exist here such as native bluebells and wild strawberries. **The limestone grassland provides a species-rich habitat for a variety of invertebrates, particularly butterflies, such as purple hairstreak, orange-tip, common blue and ringlet.** Pit heaps and Railway Lines leading to Haswell to Hart Cycle Route: This site is a haven for wildflowers and grasses, (e.g. red campion, yarrow, mugwort, clover, cow parsley, teasel, meadowsweet), **sustaining a plethora of pollinators throughout the summer,** including bees, butterflies, moths and hoverflies. Wildflowers also provide a food source for many birds throughout the autumn. Native fruit and nut trees are also in abundance here, which provide a **vital food source for birds and mammals throughout the winter months** (e.g. blackthorn, rowan, hazel, holly, hawthorn, elder, dogwood). **Frogs and toads are also in abundance in the wetlands that exist throughout the site and newts are present in wetlands around the pit heaps.**

8.14. In short, *Carr's Farm* sits within a complex ecological system, supporting protected species and everyday biodiversity. **Any disturbance here risks creating cascading impacts on the wider environment.** Potential Impacts of the Proposed BESS upon this Complex Ecosystem.

9. ENVIRONMENTAL AND AGRICULTURAL RISKS

9.1. Soil and crop contamination: After BESS fires, heavy metals, (nickel, cobalt, lithium, manganese), have been recorded in soils at up to 180× background levels (Hunterbrook, 2025). For agricultural land, **this presents unacceptable risks to food production, biodiversity, and long-term soil health.**

9.2. **Watercourse pollution:** Fire suppression runoff can generate hydrofluoric acid and leach toxic chemicals into streams and groundwater (UK Parliament, 2025). **This is a major risk in rural Durham** where farmland and watercourses are interlinked.

9.3. **Loss of productive farmland:** Siting BESS or Solar Panel Arrays on agricultural land **undermines food security** and conflicts with both *County Durham's Local Plan* commitments and national policy to protect best and most versatile land.

Applications for solar farms with BESS and dedicated BESS sites are being considered on productive agricultural land. Land that the UK needs in order to shore up our food sustainability.

The *Sky News* article by Brad Young (Sky News, 2025) article states that the UK only produced 65% of the food it needs in comparison to 78% in 1984. And that since the pandemic and Brexit, *DEFRA* are starting to realise this with the **government allocating £11.8bn to food production this parliament. This contradicts,** quite rightly, **the applicants' campaign to swallow up productive land.** Currently Britain grows just 15% of its own fruit and 53% vegetables, using only 1% of farmland to do so.

The majority of our imports of fruit and veg come from Brazil, South Africa and Colombia - all classed as climate change vulnerable. This added to the current global volatility does not add up well for our future needs and we must make steps to be more self-sufficient as a nation and ***Durham County Council* can be a major player in leading the way** in this:

'A major long-term shock to imports could lead to malnutrition that overwhelms the NHS' says Tim Benton who has worked on food security with UK gov, the EU, G20 and other govs around the world.

The article also informs us that the government is expanding funding available to farmers through **Environmental Land Management Schemes from £800m to £2bn by 2028/29** – how can this happen if Durham County is awash with BESS and Solar Panel Arrays gobbling up agricultural land?

10. NOISE POLLUTION

10.1. BESS sites generate noise from batteries, transformers and cooling systems. This can range from tonal noise lasting hours to constant humming up to 85 decibels. Wildlife in South Hetton – **mammals, birds, bats, amphibians and insects – depend heavily on sound for navigation, foraging, communication and detecting predators.** Persistent noise will disrupt these basic functions, leading to stress, behavioural changes and **potential population decline.**

10.2. On a recent visit to a BESS location on a warm but not sweltering day, it was observed that at the time it was not receiving or discharging energy, the only equipment that was running was a cooler/air conditioner. Sound Meter readings were observed a couple of meters outside the fence and another with the meter poking inside the fence. The readings were in the same range (within 0.5 decibel), that is both read a low level of approx. **44 decibels** and an elevated level of **77 decibels.** The higher reading was when the cooler increased the rate of cooling.

10.3. The noise also increased in pitch to a high-pitched whine that was uncomfortable to be close too, even for a minute.

The BESS facilities are a 24-hour operation, the batteries, when not in a state of charging and discharging require their temperature to be regulated to try and maintain the safety of the thousands of batteries. *Durham County Council* should mandate the owners of the facility to keep the noise of the site to below the acceptable level, that is the noise level below that which would be unacceptable from a neighbour. Should the facility exceed that noise then it must be shut down until it is operated below that threshold. Link to the *Gov.uk* document on noise nuisance: (Gov.uk, 2017)

10.4. The granddaughter of one of the group members has autism. She currently really enjoys and appreciates the peace and tranquillity of her grandparents' house and garden. Her parents have advised that if a BESS facility was located close to her grandparents' house, the noise of the facility has the potential to trigger sensory overload, causing feelings of distress, anxiety and or physical pain.

10.5. The pitch of the noise produced at the existing site was extremely high, it sounded like a combined swarm of crickets and mosquitos. It is an extremely irritating sound, which is extremely uncomfortable for the listener. The sound was so uncomfortable that the member could not stay too long. Have the councillors and planners visited a BESS site to experience it for themselves? In one of the applications a NOISE_IMPACT_STATEMENT was provided as per below.

Table 4: Proposed BESS Units

Item	Manufacturer	Product Name	Noise Level
MVSkid	SUNGROW	MVS5140-LS (with Noise-Relief Cover	79.3 dB L_{WA}
Battery Cabinets	SUNGROW	ST50115UX-2H-LN	79.5 dB L_{WA}
Substation Transformer	//	//	87.0 dB L_{WA}

Figure 14

Noise produced by the proposed BESS units and Switchgear.

11. CONTAMINATED WATER RUNOFF

11.1. The BESS would introduce hard surfaces and, in emergencies**, large volumes of firefighting water. Runoff from such sites has been shown to carry heavy metals (zinc, copper, nickel), hydrocarbons, suspended solids and nutrients. These pollutants threaten both water and soil quality.** Contaminated runoff has wide-ranging effects: plants may suffer reduced growth and reproduction; soil organisms and invertebrates ingest toxins; and these pollutants move up the food chain to birds, amphibians and mammals. In South Hetton, where amphibian populations such as newts are already vulnerable**, polluted runoff would be a serious ecological stressor.** Best practice guidance, including the *UK CIRIA SuDS Manual (C753),* recommends measures such as swales, infiltration basins and wetlands to capture and filter runoff before it reaches sensitive habitats.

12. HABITAT LOSS AND FRAGMENTATION

12.1. The development would involve clearance of farmland, hedgerows and vegetative cover. This directly threatens pollinators, amphibians and reptiles, while also fragmenting a continuous green corridor. Habitat fragmentation reduces the ability of wildlife to move safely across the landscape, undermining biodiversity resilience. ***The Environment Act (2021)*** **requires developments to deliver at least a 10% Biodiversity Net Gain (BNG). Given the scale of habitat loss at Carr's Farm, achieving this target would be highly unlikely.**

12.2. Solar Panel effects on migrating wildlife are also of major concern. There is documented research that at the Ivanpah Solar Plant in the Mojave Desert at **least 6,000 bird deaths each year** is an underestimate. (Association of Aviation Veterinarians, 2024). Birds and insects are known to mistake solar panels for water in a phenomenon known as 'lake effect'. This can cause crash landings on panels where birds think they are landing on water which can be fatal, particularly for those relying on water sources during long journeys.

13. CONCLUSION TO ECOLOGICAL & ENVIRONMENTAL CONCERNS

13.1. In conclusion, the BESS development at *Carr's Farm* has far-reaching ecological consequences. It threatens protected species such as barn owls and red kites, fragile amphibian populations, and everyday biodiversity including pollinators and hedgehogs. Impacts on wetlands, wildflower margins and hedgerows would weaken an already pressured ecological network. National and local policies – including the *National Planning Policy Framework (2023),* the *Environment Act (2021),* Biodiversity Net Gain regulations, and *Durham County Council's Biodiversity Action Plan* – all emphasise the importance of protecting and enhancing biodiversity. In light of these considerations, this development would have catastrophic consequences for the local environment and should not proceed in its current form.

14. COST

14.1. In his paper ***'British Energy Policy – not cheap, not home-grown and not secure',*** published November 3 2025, Professor Sir Dieter Helm, Professor of Economic Policy at the University of Oxford, has discussed in detail the inaccuracies of claims of cheap energy. (Helm, 2025)

Notably:

> *'for the foreseeable future up to 2040 and even beyond, the government is baking in very high costs. Why? Because it is putting in place contracts that embed these high prices; it is creating a much more fragile system with ever-greater intermittency; it is crystalising a reliance on imported energy (electricity, gas and oil); and the regulator is forced to commit to doubling the size of the grid to deliver the same output of firm power. As a result, not only is the government baking in very costly energy for the next 15–20 years, but it is also protecting customers from any benefits that might come from low and stable gas prices. The irony is profound'*
>
> *'the government is doling out contracts that cement in costs to well beyond 2040. It has made it all but inevitable that the future costs of energy in Britain are going to stay high and remain amongst the highest in the developed world. The decisions made today are baking in a future energy system with contracts that fix the prices for decades to come. The government is making it even worse: the offshore CfDs in AR7 now have a 20-year duration, rather than 15 years. Just to state the obvious: this means that the prices struck now by DESNZ will be the prices still prevailing in 2045.'*
>
> *'The net result is that, not only does Britain have amongst the highest-cost electricity in the world, but this is being baked in beyond 2040. It will be a big drag on economic growth. Indeed, it already is. Britain is not going to have cheap energy any time soon – unless there is radical policy action.'*
>
> *'the erection of the wind turbines is not home-grown. Almost all the offshore wind industry is foreign-owned and -financed. All British consumers do is pay mainly to the foreign developers and owners. Ownership and finance are largely for foreigners.*

Solar? 80% of the world solar panels are made in China, with a very heavy environmental and social cost. They fall foul of any definition of ESG (environment, social and governance), however weak. There are virtually no solar panels made in Britain. They are not home-grown. And, as with the finance and ownership of wind, much of this is foreign too.'

'British energy is not home-grown; it is not going to be home-grown any time soon; and the government's policies are actually exacerbating foreign dependency on minerals, equipment, and finance.'

'Batteries? Britain has little lithium (a bit in Cornwall) and no significant refineries for lithium. It has no nickel, copper or cobalt, and no refineries for these either. Manufacture is largely an overseas activity, with China in the lead again (as it is for refining the key minerals and providing the rare earths). So batteries are not home-grown.'

'In addition to the balance of payment impact, there is the macroeconomic impact of the highest electricity prices. High prices reduce competitiveness, and hence economic activity and economic growth. High consumer prices reduce household income, which reduces demand generally, which again reduces economic growth. Higher energy costs encourage workers to demand higher wages to compensate, and this has a further negative impact. Finally, the insulation of the electricity system from the price of gas noted […] means that, if and when gas prices fall, Britain will not benefit, including from a reduction in inflation that lower gas prices might otherwise encourage. Not only has British energy policy protected consumers from getting the benefit from lower gas prices directly through the electricity price, but it has also put stickiness into inflation.'

'Why it is crucial to change tack right now

The government suggests that the current very high costs and prices are temporary, and that we are on the cusp of cheap renewables-driven electricity, having escaped from the clutches of dictators and high and volatile gas prices. Home-grown energy will usher in the age of Britain as a clean-energy superpower.

As explained […], this is largely not the case, and in fact we are now locked into high electricity prices for the foreseeable future through to 2040 and beyond, and insulated from the benefits of possible falls in gas prices. Contracts have repeatedly been signed with predominantly foreign investors guaranteeing prices into the distant horizon, whilst the damage to the North Sea oil and gas industry could be terminal – as it is intended to be. Britain will be bailed out by its interconnectors and gas pipelines and LNG terminals – provided that others are willing and able to supply Britain.

What is to be done? The next 20 years is a long time to wait to undo the damage

With the damage done, and with all those contracts cemented in, the economy is likely to suffer considerably. Britain will be a high-price energy country for all this period on current policies and contracts. It is unlikely that any future government could withstand the consequences, as the voters react to the economic consequences. It will probably just not stand the political test of public acceptability. Any government will have to try to ameliorate the consequences, and indeed the

current government will probably have to start very soon, and long before the next election and the 2030 target date for net zero electricity.'

'Prices should be efficient, not distributional, and distributional consequences are matters of welfare. Trying to parcel out social costs is a strategy the Treasury has pushed across the privatised utilities. It is a mistake and an increasingly serious one, as it increasingly distorts efficiency and incentives.'

*'… **customers and industry will pay the high costs for 20 years to cover the consequences of a short-term net zero target (which will not be met anyway).'***

'If they really are nine times cheaper, no policy or net zero target is needed.

The sad fact is that they are not cheaper, and that is precisely why policies to support low-carbon technologies are needed.'

'The idea that a modern economy with rising energy demands for firm power can get by with mainly wind and solar is an implausible one. Some wind and some solar have roles to play, but not the leading roles. Britain already has enough offshore wind. It has lots of roofs (rather than high-value agricultural land) upon which to install solar, but neither can provide cheap firm power.'

15. CONCLUSIONS

The aim of this report is to develop an evidence base to support and develop **a legal challenge against the proliferation and concentration of green energy projects across East Durham and Durham County.** Without a legal justification for planning permission refusal it is likely the majority of green energy planning applications will be successful at appeal with the *Planning Inspectorate.* The evidence in this report is not exhaustive and only provides an insight **to a justifiable rationale for refusing excessive planning applications that have an enormous cumulative impact on local communities.** *Durham County Council* and *Planning Department* have a **duty of care** to residents and a statutory responsibility to safeguard land use and public health.

15.1. The *EDAG* campaign group would respectively request that *DCC Leadership* consider the following objectives in their deliberations about how to implement a strategic shift in the location of green energy developments across County Durham.

15.2. **The restoration of Local Democracy –** local people have been denied their right to the democratic process of being able to determine what occurs in their communities in relation to green energy. As pointed out in the report the proposed sites for green energy **ignores the intrinsic relationship between landscape and people**, the interaction of the natural and cultural components of our environment. People need to have a more definitive say in the planning process not just a couple of minutes. **There needs to be greater equality** to address the 'David vs Goliath' inequality that currently exists. **Apply a precautionary approach** – refuse or defer BESS applications until national regulations are introduced. **Enforce community consultation** – ensure developers meet the Gunning Principles in full, with transparent reporting and meaningful response to resident concerns.

15.3. **Expose the inherent Health and Safety risks** – use researched factual evidence to expose the risks to local communities from unfettered green energy developments like BESS/Solar Panel arrays. **Emphasise the need to site green energy away from local communities.** Examine existing site data to ascertain how they function in terms of risk.

Mandate risk assessments – require full fire safety, environmental (Environmental Impact Assessment), and decommissioning assessments as planning conditions. **Consult fire services formally** – treat *Durham & Darlington Fire and Rescue Service* as a de facto statutory consultee.

15.4. **Challenge the Ecological myths presented by developers** – Developers have the resources to produce detailed Ecological Impact reports that invariably state that with careful site management the impact on local ecology will be minimised. The issue is who pays for the report will get the outcome required. *EDAG* would advocate that an **independent report on ecological impact based on the cumulative impact** of so many green energy sites be undertaken by *DCC*. This **assessment should include revisiting existing green energy sites to determine the 'real impact' on the ecology.**

15.5. ***DCC* to identify and designate green energy sites** – There are plentiful appropriates sites for green energy development across County Durham that do not impinge on rural/semi-rural landscapes and agricultural land. *DCC* should make a list of sites on offer to developers and stop the current bribery of landowners to secure prime sites close the grid for easy connectivity. The question is who is funding these projects? Likely taxpayers through the public purse. **The report highlights the work of *CPRE* to redirect green energy projects to brown field sites, factory roofs and car parks suggesting that this approach could produce up to 60% green energy targets and save acres of green field sites and valuable food production.** A survey of green energy planning application going back to 2020 undertaken by the *EDAG* campaign exposed that **3483.12 acres of arable agricultural land could be lost to food production is planning is granted. Protect farmland** – reject BESS and Solar Panel Arrays siting on best and most versatile agricultural land in line with Local Plan and food security policy. **Prioritise brownfield sites** – channel applications towards industrial or brownfield locations, reducing risks to rural communities.

15.6. **Cumulative impact of green energy developments** – It is time to review how **the planning process ignores the cumulative impact of green energy developments** by adhering to 'each application must be assessed in isolation'. The **cumulative impact is now acknowledged in *Govt* guidance** but local govt has not adopted a more robust approach to this issue. Developers are adopting a 'salami slicing' strategy to planning applications that conceals the scale of developments in one area by pretending projects are not connected. **If not addressed then communities will be surrounded and put at risk of harm by industrial scale green energy projects. Set local buffer zones** – enforce minimum separation distances from dwellings, schools, and farmland.

15.7. **Funding a Legal Challenge** – The campaign will petition *DCC* to consider **taking a legal guidance on how best to deliver a challenge to developers and the *Planning Inspectorate*** based on the evidence submitted within the *EDAG* Campaign report. However, the *EDAG* will need to consider how best to support *DCC* by seeking to undertake fundraising activities to raise the cash needed. **It is in the best interests of the communities to support this action so the message must be broadcast effectively.**

16. QUESTIONS

16.1. Where statements are made such as:

'The solar farm facility will provide power to x homes'

- **What about the hours of darkness?**
- **For how many hours will the facility provide power to these x homes?**
- **What will be the maximum duration that the proposed BESS facility can provide the stored electricity to the x homes**

16.2. What is the expectation of emissions, (both particulate and chemical), that will occur in the event of a BESS fire and over what distances will these emissions disperse into the local community?

16.3. In the event of a BESS fire:

- **Where will the evacuated residents go?**
- **Where will the water come from to suffocate the flames?**
- **Where will the water run-off go?**
- **How will this toxic water affect the aquifer, residents, wildlife, surrounding crops?**

16.4. In the event of a BESS fire what will be the quantitative impact on dwellings nearby in terms of:

1. Potential explosion damage to persons and property?

2. Potential gaseous and particulate emissions?

3. Who will be legally responsible?

3a. The owner of the land?

3b. The developer?

3c. The leaseholder of the land?

3d. The Local Authority that passes any plans?

3e. All of the above?

What insurance does the facility owner and landowner have for: -

1. **damage to human life including death?**
2. **evacuation of people including the elderly and infirm?**
3. **psychological damage to residents?**
4. **damage to the environment including loss of habitat?**
5. **damage to property?**
6. **cost and mitigation of shutting down a large section of the National Grid?**
7. **the resulting loss of value to our properties?**

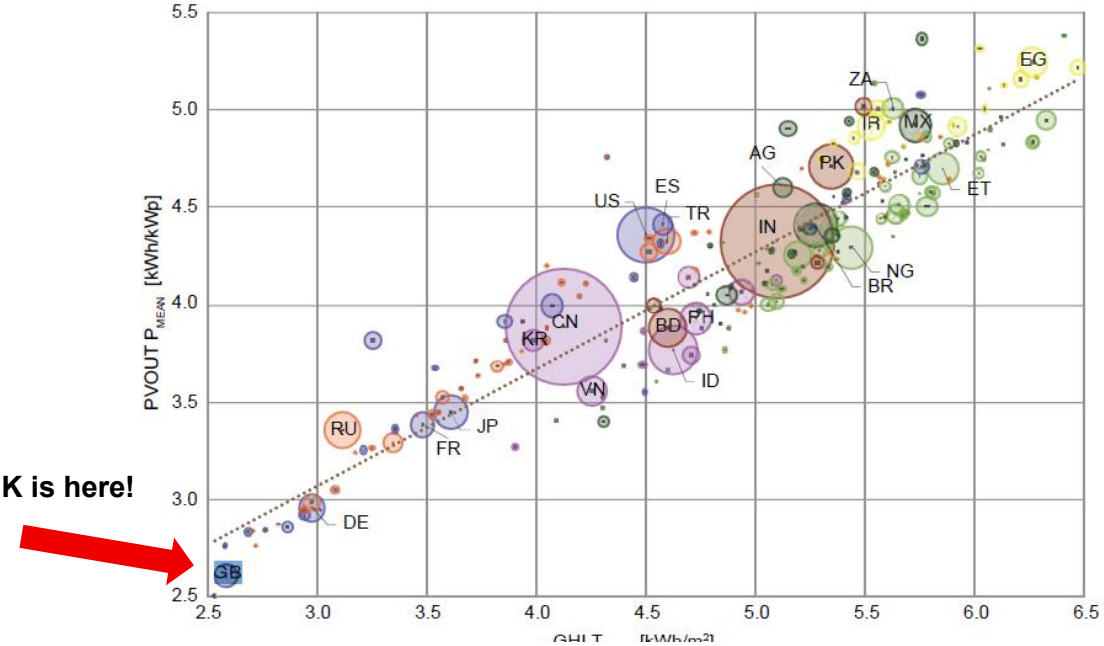
8. the increased insurance premiums for our properties?

16.5. We need clarity from government re GW to GWh. Essentially how many houses can be fuelled for how long?

16.6. If the UK attained Net-zero by 2030 or 2035, what will be the effect on the global average temperature rise?

16.7. Returning to the graphic showing that the **UK ranks as the second worst in the WORLD**. How does Durham County Council react to this evidence from The World Bank?

The UK is here!



16.8. Why would any investor, (other than with unknown UK Government subsidies), waste money on such a high risk project? A technology that is **THE SECOND WORST PLACE IN THE WORLD** for this to work?

16.9. On 19 September 2025, it was reported that Doncaster County Council had passed a motion calling for agricultural land to be spared from solar panel farms – would DCC consider adopting the same stance? (Doncaster Free Press, 2025)

16.10. Finally, what is the truth? What will happen in 40 years when decommissioning happens? Will it truly happen? Where will electricity come from in 41 years? Or is there an expectation those that oppose BESS will be dead by then? Or that their memories of a 'Green and Pleasant Land' too faded that the decommissioning does not happen?

References

Association of Aviation Veterinarians. (2024, August 24). *https://www.aav.org/blogpost/1525799/492796/Solar-Energy-Production-s-Toll-on-Wild-Birds#:~:text=Opened%20in%202014%2C%20the%20largest,for%20them;%20%E2%80%9Cstreamers%E2%80%9D.* Retrieved from https://www.aav.org/blogpost/1525799/492796/Solar-Energy-Production-s-Toll-on-Wild-Birds#:~:text=Opened%20in%202014%2C%20the%20largest,for%20them;%20%E2%80%9Cstreamers%E2%80%9D.

BBC News. (2025, February 11). *https://www.bbc.co.uk/news/articles/clyze0vnlqpo.* Retrieved from https://www.bbc.co.uk/news/articles/clyze0vnlqpo.

CPRE. (2025, July 13). *https://www.cpre.org.uk/wp-content/uploads/2025/07/Getting-solar-off-the-ground.pdf.* Retrieved from https://www.cpre.org.uk/resources/getting-solar-off-the-ground/.

CRPE. (2023, May). *https://www.cpre.org.uk/.* Retrieved from https://www.cpre.org.uk/resources/shout-from-the-rooftops-delivering-a-common-sense-solar-revolution/.

CRPE Herts. (2021). *https://www.cpreherts.org.uk/wp-content/uploads/sites/30/2021/10/The-Problem-with-Solar-Farms.pdf.* Retrieved from https://www.cpreherts.org.uk/wp-content/uploads/sites/30/2021/10/The-Problem-with-Solar-Farms.pdf.

Cyber Security Intelligence. (2025, May 19). *https://www.cybersecurityintelligence.com/blog/kill-switches-secretly-installed-in-solar-panels-8439.html*. Retrieved from https://www.cybersecurityintelligence.com/blog/kill-switches-secretly-installed-in-solar-panels-8439.html.

Cybersecurity Dive. (2025, March 28). *https://www.cybersecuritydive.com/news/solar-power-gear-vulnerable-remote-sabotage/743806/.* Retrieved from https://www.cybersecuritydive.com.

DESNZ - Frazer-Nash. (2024, March). *https://assets.publishing.service.gov.uk/media/661feca73771f5b3ee757fac/grid-scale-storage-health-safety-guidance.pdf*. Retrieved from https://assets.publishing.service.gov.uk/media/661feca73771f5b3ee757fac/grid-scale-storage-health-safety-guidance.pdf.

Dobson, P. P., & Edwards, P. (2024, December 21). *Remarks on the Safety of Lithium-ion Batteries for Large-Scale Battery Energy Storage Systems (BESS) in the UK.* Retrieved from https://link.springer.com/content/pdf/10.1007/s10694-024-01682-x.pdf.

Durham County Council. (2020, October 21). *https://www.durham.gov.uk/media/34069/County-Durham-Plan-adopted-2020-/pdf/CountyDurhamPlanAdopted2020vDec2020.pdf.* Retrieved from https://www.durham.gov.uk.

Energy Storage News. (2025, July 2). *https://www.energy-storage.news/uk-approaches-10gwh-of-operational-grid-scale-bess/*. Retrieved from https://www.energy-storage.news/uk-approaches-10gwh-of-operational-grid-scale-bess/.

Energy Storage News. (2025, August 6). *https://www.energy-storage.news/uk-councils-approve-5gw-10gwh-of-bess-in-july/*. Retrieved from https://www.energy-storage.news/uk-councils-approve-5gw-10gwh-of-bess-in-july/.

EticaAG. (2025, April 4). *https://eticaag.com/a-fire-at-the-cirencester-hybrid-solar-farm/.* Retrieved from https://eticaag.com/a-fire-at-the-cirencester-hybrid-solar-farm/.

Financial Times. (2025). *https://www.ft.com/content/534eef36-d9ad-4a03-afa1-f87ab03a9b18.* Retrieved from https://www.ft.com.

Fire Protection Association. (2025, February 24). *https://www.thefpa.co.uk/news/significant-battery-site-fire-brought-under-control.* Retrieved from https://www.thefpa.co.uk/news/significant-battery-site-fire-brought-under-control.

Gov.uk - DESNZ. (2024, April 18). *https://www.gov.uk/government/publications/grid-scale-electrical-energy-storage-systems-health-and-safety/health-and-safety-in-grid-scale-electrical-energy-storage-systems-accessible-webpage*. Retrieved from https://www.gov.uk/government/publications/grid-scale-electrical-energy-storage-systems-health-and-safety/health-and-safety-in-grid-scale-electrical-energy-storage-systems-accessible-webpage.

Gov.uk - DESNZ. (2025, April 15). *https://www.gov.uk/government/publications/clean-power-2030-action-plan*. Retrieved from https://www.gov.uk/government/publications/clean-power-2030-action-plan.

Gov.uk - DESNZ. (2025, June 30). *https://www.gov.uk/government/publications/solar-roadmap/solar-roadmap-united-kingdom-powered-by-solar-accessible-webpage.* Retrieved from https://www.gov.uk.

Gov.uk - Environment Agency. (2019, June). *https://assets.publishing.service.gov.uk/media/5cf4cbaf40f0b63affb6aa55/State_of_the_environment_soil_report.pdf*. Retrieved from https://assets.publishing.service.gov.uk/media/5cf4cbaf40f0b63affb6aa55/State_of_the_environment_soil_report.pdf.

Gov.uk - Environment Agency. (2025, March 31). *https://www.gov.uk/government/publications/offence-response-options-environment-agency/land-quality-offences*. Retrieved from https://www.gov.uk/government/publications/offence-response-options-environment-agency/land-quality-offences.

Gov.uk. (2017, December 21). *https://www.gov.uk/guidance/noise-nuisances-how-councils-deal-with-complaints.* Retrieved from Gov.uk.

Gov.UK Business and the Environment. (2022, April 5). *Gov.uk.* Retrieved from https://www.gov.uk/government/publications/net-zero-strategy.

Gov.uk. (v1 2014 and v2 2018, v1 October and v2 MArch). *https://assets.publishing.service.gov.uk/media/5aabd31340f0b64ab4b7576e/landscape-character-assessment.pdf.* Retrieved from assets.publishing.service.gov.uk.

Greenmatch. (2024, July 15). *https://www.greenmatch.co.uk/blog/is-lithium-mining-bad-for-the-environment*. Retrieved from https://www.greenmatch.co.uk/blog/is-lithium-mining-bad-for-the-environment.

Helm, P. S. (2025, November 3). *https://dieterhelm.co.uk/energy-climate/british-energy-policy-not-cheap-not-home-grown-and-not-secure/*. Retrieved from https://dieterhelm.co.uk.

Helm, P. S. (2025, November 03). *https://dieterhelm.co.uk/energy-climate/british-energy-policy-not-cheap-not-home-grown-and-not-secure/*. Retrieved from https://dieterhelm.co.uk/energy-climate/british-energy-policy-not-cheap-not-home-grown-and-not-secure/.

https://forestsandfinance.org/. (2025). *https://forestsandfinance.org/*. Retrieved from https://forestsandfinance.org/.

https://www.doncasterfreepress.co.uk. (2025, September 19). *https://www.doncasterfreepress.co.uk/news/politics/doncaster-council-agrees-solar-farms-should-not-be-built-on-agricultural-land-5326305?fbclid=IwY2xjawM-O2dleHRuA2FlbQIxMABicmlkETE3T3RoZGhVcFVmT05rUUIxAR430uZwiBgwxirDa4HgYRWbvkvOPBQoZTqi61Pn8488M7NE-N4Zo*. Retrieved from https://www.doncasterfreepress.co.uk/news/politics/doncaster-council-agrees-solar-farms-should-not-be-built-on-agricultural-land-5326305?fbclid=IwY2xjawM-O2dleHRuA2FlbQIxMABicmlkETE3T3RoZGhVcFVmT05rUUIxAR430uZwiBgwxirDa4HgYRWbvkvOPBQoZTqi61Pn8488M7NE-N4Zo.

Hunterbrook. (2025, February 11). *https://hntrbrk.com/vistra-data/.* Retrieved from https://hntrbrk.com/vistra-data/.

Institute for Energy Research. (2024, May 29). *https://www.instituteforenergyresearch.org/renewable/solar/solar-power-depletes-farmlands-of-rich-soil/#:~:text=Example%20of%20Damages%20to%20Cropland,terms%20of%20the%20lease%20agreement*. Retrieved from https://www.instituteforenergyresearch.org/renewable/solar/solar-power-depletes-farmlands-of-rich-soil/#:~:text=Example%20of%20Damages%20to%20Cropland,terms%20of%20the%20lease%20agreement.

Legislation.Gov.uk. (2008). *https://www.legislation.gov.uk/ukpga/2008/29/contents.* Retrieved from https://www.legislation.gov.uk.

Local Government Association. (2019, February). *https://www.local.gov.uk/sites/default/files/documents/The%20Gunning%20Principles.pdf.* Retrieved from https://www.local.gov.uk/.

Merseyside Fire and Rescue Service. (2022, March). *https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN010106-003805-DL2%20-%20Alan%20B%20Smith%20-%20Appendix%206%20(1%20of%202)%20-%20Merseyside%20Fire%20and%20Rescue%20Service%20(MFRS)%20Liverpool%20BESS%20Reports.pdf.* Retrieved from https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN010106-003805-DL2%20-%20Alan%20B%20Smith%20-%20Appendix%206%20(1%20of%202)%20-%20Merseyside%20Fire%20and%20Rescue%20Service%20(MFRS)%20Liverpool%20BESS%20Reports.pdf.

Munno, J. (2025, May 30). *https://www.linkedin.com/pulse/insurer-guidelines-utility-scale-bess-module-spacing-john-munno-7xv8c/.* Retrieved from LinkedIn.

National Cyber Security Centre. (2023, October 12). *https://www.ncsc.gov.uk/collection/supply-chain-security.* Retrieved from https://www.ncsc.gov.uk.

National Cyber Security Centre. (2023, October 12). *https://www.ncsc.gov.uk/collection/supply-chain-security/principles-supply-chain-security.* Retrieved from https://www.ncsc.gov.uk.

National Power Grid. (2025). *https://publicaccess.durham.gov.uk/online-applications/files/E7E8DEE0FBFA3EE886E287D50E35E1AC/pdf/DM_25_01345_FPA-*

NATIONAL_GRID_SUPPORTING_INFORMATION-3803599.pdf. Retrieved from Durham.gov.uk.

Natural England. (2021, February). *https://www.gov.uk/government/publications/agricultural-land-assess-proposals-for-development/guide-to-assessing-development-proposals-on-agricultural-land.* Retrieved from Gov.uk.

NPPF - Ministry of Housing, Communities & Local Government. (2024, December 12). *https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf.* Retrieved from Gov.uk.

Reuters. (2025, May 15). *https://www.reuters.com/sustainability/climate-energy/ghost-machine-rogue-communication-devices-found-chinese-inverters-2025-05-14/.* Retrieved from Reuters.com.

Science Direct. (2022, June). *https://www.sciencedirect.com/science/article/abs/pii/S2352009422000207#:~:text=The%20main%20results%20showed%20that,et%20al.%2C%202020*. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S2352009422000207#:~:text=The%20main%20results%20showed%20that,et%20al.%2C%202020.

Sky News. (2025, August 20). *https://news.sky.com/story/uk-criminally-unprepared-to-feed-itself-in-crisis-our-diets-may-have-to-change-13415199#:~:text=The%20UK%20is%20no%20better,source%20some%20of%20its%20food.* Retrieved from news.sky.com.

Solar Power Portal. (2025, May 21). *https://www.solarpowerportal.co.uk/solar-projects/uk-solar-applications-spike-ahead-of-cp30-but-planning-process-remains-slow*. Retrieved from https://www.solarpowerportal.co.uk/solar-projects/uk-solar-applications-spike-ahead-of-cp30-but-planning-process-remains-slow.

storagewiki.epri.com. (2025, March 17). *https://storagewiki.epri.com/index.php/BESS_Failure_Incident_Database*. Retrieved from https://storagewiki.epri.com/index.php/BESS_Failure_Incident_Database.

TechRadar. (2025, March 30). *https://www.techradar.com/pro/millions-of-solar-power-systems-could-be-at-risk-of-cyber-attacks-after-researchers-find-flurry-of-vulnerabilities.* Retrieved from techradar.com.

The Times. (2025, May 16). *https://www.thetimes.com/us/news-today/article/china-solar-panels-kill-switch-vptfnbx7v*. Retrieved from https://www.thetimes.com/us/news-today/article/china-solar-panels-kill-switch-vptfnbx7v.

The World Bank. (2020, June). *https://documents1.worldbank.org/curated/en/466331592817725242/pdf/Global-Photovoltaic-Power-Potential-by-Country.pdf*. Retrieved from https://documents1.worldbank.org/curated/en/466331592817725242/pdf/Global-Photovoltaic-Power-Potential-by-Country.pdf.

UK Parliament. (2025, May 13). *https://commonslibrary.parliament.uk/research-briefings/cbp-7434/.* Retrieved from https://commonslibrary.parliament.uk/.

UK Parliament. (2025, June 23). *https://commonslibrary.parliament.uk/research-briefings/cbp-7621/*. Retrieved from https://commonslibrary.parliament.uk/research-briefings/cbp-7621/.

UK Parliament. (2025, June 5). *https://hansard.parliament.uk/Commons/2025-06-05/debates/69C88AD8-77F8-4F85-A934-2DA4AFCCB24B/BatteryEnergyStorageSitesSafetyRegulations?highlight=battery+energy.* Retrieved from Hansard.parliament.uk.

UK Solar Alliance. (2025, July). *https://drive.google.com/file/d/1FhBeQFgtktKB3cKcr29duJvEgFydqwbf/view*. Retrieved from https://www.uksolaralliance.org/.

UK Solar Alliance. (2025, May). *https://drive.google.com/file/d/1Fob-UTfQclNNu6y3tRrG0v4H9IlZOu5f/view*. Retrieved from https://www.uksolaralliance.org/.

Utility Dive. (2022, July 25). *https://www.utilitydive.com/news/biden-executive-order-on-power-system-cybersecurity-leaves-critical-operati/626058/.* Retrieved from https://www.utilitydive.com/.

References - Ecological & Environmental Concerns

Marsalek et al. (2008) – Study showing urban runoff contains heavy metals and pollutants that harm aquatic ecosystems.

Gnecco et al. (2017) – Research from Italy demonstrating stormwater pollution from urban surfaces impacts water quality.

European Environment Agency (2022) – Report on how soil pollution harms plants, soil organisms and terrestrial food chains.

CIRIA SuDS Manual (C753, 2015) – UK best practice guidance on sustainable drainage systems to manage polluted runoff.

National Planning Policy Framework (2023, Paragraph 180) – Requires developments to protect and enhance biodiversity.

Environment Act (2021) – Introduced the legal requirement for at least 10% Biodiversity Net Gain.

County Durham Biodiversity Action Plan – Sets local priorities for protecting habitats and pollinators.

Amphibian and Reptile Conservation Trust – Local enthusiasts have recorded the presence of amphibians, including smooth newts, in South Hetton, with this organisation.