Position Statement

Solar farms and the assessment of buried archaeological remains

June 2024

About Us

As an established trade association working for and representing the entire solar and energy storage value chain, Solar Energy UK represents a thriving member-led community of over 400 businesses and associates, including installers, manufacturers, distributors, large-scale developers, investors, and law firms.

Our underlying ethos has remained the same since our foundation in 1978 – to be a powerful voice for our members by catalysing their collective strengths to build a clean energy system for everyone's benefit.

Our mission is to empower the UK solar transformation. Together with our members, we are paving the way for solar to deliver 70GW by 2035 by enabling a bigger and better solar industry.

SEUK would like to thank the Chartered Institute for Archaeologists (CIfA) for their support in drafting this position statement and notes its preparation of further research into archaeological assessment and evaluation approaches on solar farms.

1. Introduction

1.1 The IEMA, IHBC and CIfA Principles of Cultural Heritage Impact Assessment (July 2021)[1] states that "Our valued cultural heritage is a resource worthy of protection. This is recognised in government policy and legislation that seeks to safeguard and maintain the most important cultural heritage assets. Safeguarding the cultural significance of places and objects need not prevent change." Solar Energy UK and all of our members stand by this principle and commit to ensuring that the projects they design and deliver achieve this aim.

1.2 Primarily, this 'position statement' has been drafted to direct the work of the industry in ensuring proportionate and sustainable decisions are being made regarding the need, scope and timing of field evaluations (specifically programmes of archaeological trial trenching). This statement deals solely with buried archaeological remains and does not intend to cover wider impacts on the historic environment which may result from solar farm development.

1.3 Solar Energy UK recognise and endorse the practices that conform with government policy and those activities that adhere to industry guidelines on the matter of assessing the impact of photovoltaic generating stations ("solar farms") on buried archaeological remains. Good practice requires site-by-site analysis and judgments as a result of genuine variation in geography, topography, soil types, and the nature of archaeological remains. However, it is the experience of our members that inconsistent application of policy and guidance is frustrating informed decision-making and adversely affecting sustainability goals.

1.4 This note was drafted in early 2024, a time witnessing a significant resurgence in planning applications for solar farms. It is no coincidence that at the same time, the archaeology sector is reflecting on best practice regarding the way it engages in proportionate assessment for solar development and endeavouring to improve its sustainability credentials. Therefore, further to its primary objective, this position statement has been drafted to promote proactive engagement between the solar energy sector and archaeology stakeholders.

2. The policy framework

2.1 The National Policy Statement for Renewable Energy Infrastructure (EN-3)[2] was revised in November 2023. It is the most up-to-date policy position from the government regarding the assessment of buried archaeological remains for solar farm applications. Whilst its application is intended for the largest of solar farms (via the Nationally Significant Infrastructure Projects - NSIPs), its directions are equally relevant to any scale of development. As such, the policy position presented within the EN-3 (and EN-1)[3] is being given weight in decision-making.

2.2 EN-1 and EN-3 derive their key policy directions and tests from the National Planning Policy Framework (NPPF)[4] for England whilst relating them to the specific conditions of solar farms. The devolved governments of Scotland, Wales and Northern Ireland operate within a different planning policy framework and with their own unique guidance documents. However, the key test of proportionate assessment, the focus of this position statement, is common to all parts of the UK.

1. IEMA, CIfA, IHBC: July 2021
2. Department for Energy Security & Net Zero, National Policy Statement for Renewable Energy Infrastructure (EN-3), November 2023
3. Department for Energy Security & Net Zero, Overarching National Policy Statement for Energy (EN-1): November 2023
4. Department for Levelling Up, Housing and Communities, National Planning Policy Framework, September 2023

2.3 The key messages within EN-3, pertaining to understanding the impact of solar farms on buried archaeological remains can be summarised as follows:

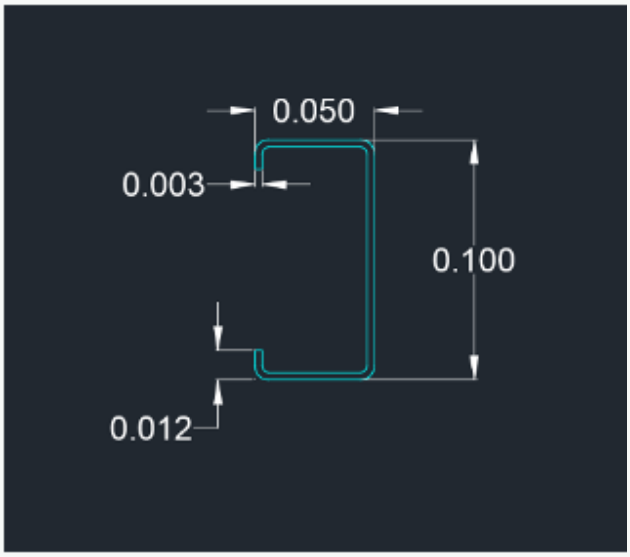
- The impacts on the historic environment will require **expert assessment** (paragraph 2.10.107)
- Impacts are **generally limited** (paragraph 2.10.109)
- Development many have a **positive effect**, by removing the site from regular ploughing (paragraph 2.10.110)
- The applicant should submit an appropriate **desk-based assessment** and, **where necessary, a field evaluation** (paragraph 2.10.113)
- In **some instances**, field studies may include investigative work (paragraph 2.10.114)
- Subject to the results of evaluation, the extent of investigative work should be **proportionate to the** sensitivity of, and **extent** o**f proposed ground disturbance** (paragraph 2.10.115)
- Micrositing can assist in the avoidance of unforeseen impacts, thus **flexibility in the design** needs to be embedded into the consented scheme (2.10.138)

3. The rationale for approaching solar PV developments as a special case

3.1 The rationale for singling out solar PV development as different from other types of development is obvious and clearly expressed within EN-3. While it is accepted that some elements of the infrastructure needed at solar farms require ground disturbing work capable of adversely affecting buried archaeological remains, the impacts of piling on the significance of buried remains, will in the majority of cases, be non-existent or so minimal as to not be material.

3.2 Thus, elements comprising excavations for cabling, access roads, inverter stations and compounds, and other works will require a different approach to assessment than that adopted for those areas where piling is proposed.

3.3 To further explore this matter, the cross-section of a typical pile footing for a fixed tilt solar array is 50mm x 100mm, with two 12mm 'returns' to create the' c-shape' (see image). The thickness of each pile frame is only 3mm. Thus, the total area of ground disturbance for each pile footing would equate to circa. 0.000672m² per pile. If one is it to assume that each pile, during insertion and then removal, was to displace all the material within its extent (i.e., as if it were a solid shape, not the thin frame that it is) the total area for each pile would be 0.005m² (50mm x 100mm). At the very most one might encounter the need for c. 1,200 piles per hectare (or per 100m x 100m). However recent experience suggests that with evolving technologies as few as 150 piles per hectare (for 'tracker' systems) might be deployed. Thus, an absolute worst case scenario might equate to 6m2 of displaced (horizontal) material per hectare (or 0.06% of the area); but typically it will be much less than this.



As a comparison, the effects of construction for residential or commercial developments, for new road schemes, water infrastructure projects and new high-speed railways, is typically determined to be 100% of the developed area.

3.4 In a common rural scenario, but allowing for an example of a densely saturated archaeological site, buried remains would not typically cover more than 1/3rd of any development area. Thus, it is reasonable to assume that the likelihood of piles encountering buried archaeological remains is very low (i.e., most piles would simply miss / avoid buried remains). For instance, remains of infilled pits, post holes or stake holes, similar to those that one might encounter within late prehistoric or Roman period settlement sites, occur very infrequently. It is exceptionally unlikely that any given pile would be located at exactly the same position as one of the these 'discrete' (small) features. If physical interactions were to occur, for instance at the location of larger archaeological features, such as infilled boundary ditches, the displaced material from a pile or even several piles would be insignificant (tiny fractions of a percentage) compared with that which would remain unaffected / still in situ.

3.5 The key consideration is that the archaeological interest (significance) of the buried remains would be retained within the solar farm even if piles where to 'interact' with most types of buried remains i.e., (as per the definition within EN-1 and the NPPF) the "evidence of past human activity worthy of expert investigation at some point" would not be affected.

3.6 Further to this point, as is recognised in policy, any surviving buried archaeological remains located within (beneath) the solar PV areas could be protected and safeguarded from plough damage. No other form of development has the same scope and potential to protect large areas of buried archaeological remains from on-going adverse impacts.

3.7 The matters described above are referring to those buried archaeological remains most typically encountered on rural sites. However, for some especially rare and sensitive buried archaeological remains, the disturbance caused by piling may have a material effect on archaeological interest. Particularly sensitive buried archaeological remains comprise:

- waterlogged remains, whereby the soil chemistry and ground conditions could be affected by piling
- human remains, whereby even minimal disturbance could result in a potentially disproportionate loss of archaeological evidence, alongside the ethical considerations; and
- complex structured deposits, such as those associated with burials but also structural remains, such as floor surfaces

3.8 In these rare examples, alternative solutions can be designed to minimise or completely avoid adverse impacts. This primarily comprises the use of 'no-dig' options such as development exclusion zones or ballast (instead of piled) foundations (such as concrete shoes). Again, this further demonstrates that a suite of mitigation options, to prevent or reduce impacts on buried archaeological remains, is available for solar farms, in a way that is not accessible to most if not all other forms of development.

4. The expectations and planned approach from the solar industry

4.1 The policy position is clear, solar PV development is acknowledged as having a 'generally limited' impact on buried archaeological remains.

4.2 Expertly executed desk-based assessment, exploring a range of information sources, complimented by geophysical surveys, are acknowledged by all stakeholders (in the vast majority of cases) as useful and proportionate techniques to assess the likely extent and significance of buried archaeological remains. Developers will always undertake geophysical surveys between desktop and trenching and submit with applications. It's incredibly helpful (except in eg alluvial soils) at presenting a picture of disturbance; de-risking and informing the overall discussion. Solar Energy UK would champion further research and development into the use of non-intrusive prospecting techniques to improve the reliability of these methods.

4.3 Bespoke and tailored programmes of archaeological assessment are required to support the decision-making process. Schemes of archaeological trial trenching for solar farms that simply mirror the scope and scale of those that might be adopted for other developments, those that cause vastly greater areas of ground disturbance, would be wholly contrary to government policy that strives for a proportionate response.

4.4 The solar industry and the archaeology sector are all motivated to minimise the environmental effects of their work and that of their supply chains. It is widely acknowledged that heavy machinery / plant operations are the single biggest on-site carbon emitters during construction work; this is the same case for programmes of archaeological work such as trial trenching. It is also accepted that the excavation of trial trenches (or any form of similar groundwork that disturbs the ploughsoils) releases captured carbon into the atmosphere. Thus, it is essential that programmes of archaeological trial trenching are kept to the absolute minimum to reduce carbon emissions.

4.5 Furthermore, great care needs to be employed in deciding whether these (trial trenching) works need to be employed at the pre-determination stage. The environmental impact of this work can, in part, be mitigated by the scheme benefits (renewable energy and cessation of ploughing etc…); however, only if the solar farm application is granted consent. Therefore, emphasis should be given to the advantages of undertaking any necessary work as a condition, especially as the available suite of mitigation options can adequately manage the inherent risks of unexpected discoveries post-consent. Solar Energy UK promote the use of detailed and site-specific conditions to control these matters.

6 Langley Street
London WC2H 9JA
enquiries@solarenergyuk.org

solarenergyuk.org @SolarEnergyUK_ linkedin.com/company/solarenergyuk