

Finding and developing suitable sites
for ground-mounted solar farms.

LICHFIELDS



Locate: Solar



LICHFIELDS

**Lichfields is the
pre-eminent planning
and development
consultancy in the UK**

We've been helping create great places
for over 50 years.



Locate:Solar

Finding and developing suitable sites for ground-mounted solar farms

Achieving the UK's 2050 net zero emissions target will only be realised by promoting and supporting low carbon sources of energy such as solar power.

The deployment of solar photo-voltaic technologies will be crucial in meeting this target and will require the careful selection of sites for solar farms, in order to overcome local technical constraints and satisfy Government policy.

Lichfields, in collaboration with specialist renewable energy consultancy ITP Energised, has created a bespoke methodology for assessing the suitability of sites for solar farm developments.

We bring together technical data on capacity and yield, GIS-mapped environmental information and our in-depth understanding of the planning system. From this, we undertake constraints and viability analysis for use in:

- **initial site finding exercises at feasibility stage; and**
- **preparing Alternative Site Assessments at planning application stage**



Strategic context

"A local planning authority will need to consider... focussing large scale solar farms on previously developed and non agricultural land, provided that it is not of high environmental value... that poorer quality land has been used in preference to higher quality land..."

MHCLG Planning Practice Guidance, 2015

How we can help

Locate:Solar is our solution for identifying appropriate sites with limited constraints and adequate capacity for ground-mounted solar farm developments.

It combines expert analysis with commercial understanding, tailored to our clients' priorities and the specific technical and operational requirements of successful solar farm sites. As a result, every output is unique and based on the most relevant and up-to-date available data.

The Locate:Solar methodology also underpins our Alternative Site Assessments, which we prepare once sites have been selected and planning permission is being sought.

Alternative Site Assessments

We apply established site search principles from best practice and Case Law to:



Define a proportionate search area



Only consider alternative sites that are capable of accommodating the proposal



Use methodical ranking criteria to establish relative levels of constraints and sensitivities



Apply flexibility in a 'real world' context

Who is it for?

Solar farm developers: carrying out searches across Distribution Network Operators' (DNO) regions for potentially suitable sites; then when preparing Alternative Site Assessments at planning application stage.

Local Authorities: to inform policies and identify areas appropriate for solar farm development.

Housebuilders and commercial developers: wishing to understand opportunities for solar energy to power existing and planned residential and commercial developments.

Post-Planning Solutions

ITP Energised deliver post-planning expertise for the design, construction and operational phases:



Unique opportunities for negotiation with DNOs



Expert preparation and review of connection applications



Electrical design and grid code compliance services



Asset Management

The Locate:Solar Framework

1

Identifying Points of Connections

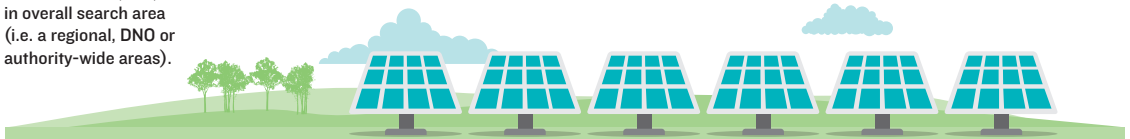
Review Distribution Network Operators' (DNO) and in-house datasets. Determine location and capacity of each Point of Connection (POC) in overall search area (i.e. a regional, DNO or authority-wide areas).

Determine a search area for each POC location, based on viable connection distance.

Characterise and rate each POC search area based on environmental, technical and practical constraints.

High level review of available POCs to assess their commercial viability.

Output:
Schedule of POCs (location co-ordinates) with capacity to accommodate solar development within overall search area.



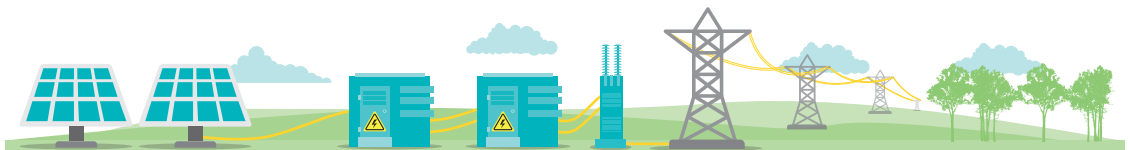
2

Analysing Environmental Constraints

GIS-based analysis of each POC search area to identify constraints and sensitivities including Green Belt, national and European designated habitat sites, topographical constraints, heritage assets, highest value agricultural land and flood risk zones.

POC areas ranked from least to most constrained.

Output:
Ranked list of potentially suitable POC search areas. Interactive mapping of POC search areas and the locations of constraints / sensitivities.



3

Assessing Solar Yield

For each chosen POC search area:

Undertake energy modelling to estimate production potential of the site.

Compare different sites and comment on potential yield using standard energy performance indicators.

Prepare energy model to show energy production on an hourly/monthly basis.

Undertake energy simulation using irradiance data to calculate potential energy yield on a monthly/yearly basis.

Output:
Potential yield analysis for each POC.

Refined POC rankings to account for yield analysis.



4

Reviewing Planning Prospects

Review national database to identify solar planning applications over past 5 years for each POC search area.

Local Plan policy and allocations review.

Land registry search to determine site ownership and options.

Planning history review of local authority area to identify planning applications / permissions for solar schemes.

Output:
Planning review of selected POC search areas to determine prospects of securing planning permission.

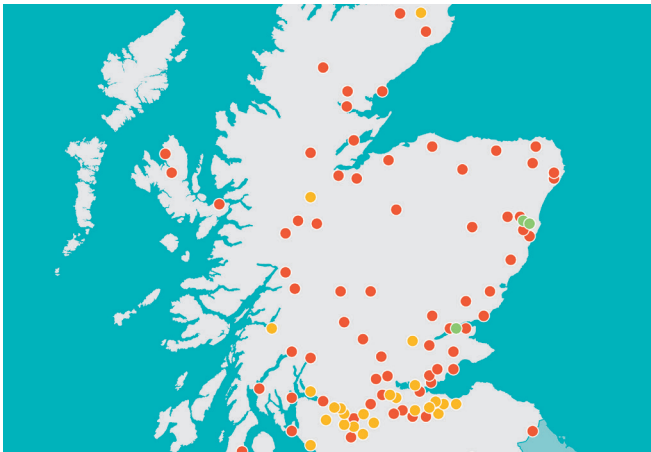


Locate:Solar in action



DNO area site search, England

Locate:Solar has been used to sift and rank the least constrained, viable grid connections across various DNO areas at a regional level. The outputs included data for the “top-20” potentially suitable sites from over 2,000 potential points of connection.



Scotland-wide search

Locate:Solar was used to identify potential sites for large scale solar and battery energy storage developments across Scotland. The analysis identified potential points of connection available within the next 4 years without potential reinforcement costs that could have been passed onto the developer. Avoiding such costs, on average, saves between £2–5M+ in fees, on top of the normal fees associated with grid connection. To date the analysis has led to the identification of more than 10 sites taken forward to development.



The Alternative Site Assessment indicates that there are no viable alternatives...the opportunity to generate 17MW of renewable power would be lost...this factor arguably could be considered a VSC in its own right.

Planning Officer's report, Nottinghamshire.



Alternative Site Assessment, Nottinghamshire

Locate:Solar was applied as part of an Alternative Site Assessment that accompanied a planning application for a 17MW solar farm scheme. Its conclusions contributed to the very special circumstances (VSC) for justifying the scheme in the Green Belt.

Seven reasons to use Locate:Solar

- 01 Gives developers and local planning authorities **practical and commercially focussed advice** to make informed decisions on the suitability of sites for solar farm development.
- 02 **Risk evaluation** of viability and planning permission prospects.
- 03 A **bespoke approach** tailored to reflect each client's requirements.
- 04 An **in-depth understanding of context** to the wider planning and environmental objectives for renewable energy in the UK.
- 05 **Powerful and unique combination of datasets** that provide a comprehensive set of inputs to all search exercises.
- 06 **Clear and interactive mapping and data outputs** supported by detailed analysis to aid decision-making.
- 07 **Two specialist consultancies** with a proven track record in delivering ground-mounted solar schemes through the planning, implementation and operational phases.

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