

P/2015/00791
Received
26/05/2015



0800 0787 243
www.tgcrenewables.com

**ROOFTOP, PREVIOUSLY DEVELOPED AND/OR NON-
AGRICULTURAL LAND SOLAR PROGRAMME
OPPORTUNITY REGISTER
UPDATED 20 MAY 2015**

1.0 Introduction

This document contains a summary (no confidential / commercially sensitive information) of TGC's past and current/ongoing efforts to identify opportunities for solar projects on rooftops as well as previously developed and/or non-agricultural land.

A range of sources of information have been used to undertake systematic searches, as well as considering projects on an individual basis when approached by landowners or when sites / rooftops are identified on a more individual basis.

This information is reviewed and this document update when there is a change in status of project, a new opportunity is presented, on a three month basis and when a project in TGC's greenfield solar programme moves towards being submitted for planning permission.

2.0 Previously Developed and Non-Agricultural Land - Site Requirements and Issues

The following are the main requirements from a technical, planning and environmental point of view for successful solar projects on previously developed and/or non-agricultural land:

- Large area (minimum of eight hectares) preferably owned by one party;
- Ideally flat site / gently south facing slope;
- Minimal overshadowing for example by nearby buildings;
- Appropriate in terms of impacts on amenity (nearby dwellings, occupied buildings etc);
- Not-allocated for alternative, more valuable development (i.e. residential, commercial, mixed-use, regeneration etc);
- Not suitable for redevelopment and regeneration for residential, commercial and industrial (among other) uses, meaning financially viable in terms of land values. Generally it makes more sense in terms of the wider sustainable development agenda for such (often inner city or edge of settlement) locations to have trip generating uses, where they can be incorporated into an integrated transport system more easily, rather than increasing the pressure on Green Belt or greenfield sites for housing development etc;
- Willing land owner and vacant possession i.e. no tenants / tenancy nearing end;
- Suitable and viable grid connection / onsite demand for electricity;
- Suitable access provision; and
- Viable in terms of geotechnical and geoenvironmental issues i.e. contaminated land / remediation requirements.

3.0 Rooftop Solar - Requirements and Issues

The following are the main requirements from a technical, planning and environmental point of view for successful roof top solar projects:

- Large roof top area, ideally in single owner occupied or long term lease tenure, which can support the weight of a solar array or be strengthened to support PV panels as well as accommodating the required ice and snow loadings, and accounting for dynamic wind loadings created by solar arrays, without rendering the project unviable (due to cost of structural enhancements);
- Flat / slightly sloping towards south / south facing;
- Not overshadowed by other development / trees etc;
- No adverse planning / environmental impacts i.e. from visual amenity / impacts on townscape / heritage (i.e. listed buildings / conservation area);
- No exacerbated reflection from elevated position;
- Existing grid connection or large on-site demand; and
- Willing owner and/or tenant.

The main problems associated with potential rooftop projects have included;

- Prohibitively expensive development and/or alteration costs associated with structural reinforcements of roofs (taking into account wind load, snow and ice load plus the weight of PV panels);
- Insurance conflicts (content insurance challenges including risk to damage to stored stock from roof damage);
- Fundamental flaws, in the Solar Trade Association's opinion, in the banding and capacity triggers of financial support for rooftop solar on commercial buildings, with proposed and emerging changes preventing every day investors developing roof top schemes and helping to tackle climate change. Certain scales of development have been completely precluded as a result of imbalanced support, with all bands being reduced at the same rate despite the complete failure of certain bands (i.e. 250kW band);
- A shift, as a result of the economic downturn, to shorter leases for occupiers who are able to command more flexibility on lease terms. This means that owners need to retain flexibility in their warehouses and rooftops i.e. by being able to alter the roof to accommodate refrigeration and ventilation if need be;
- The 'fragmented' nature of owners and occupiers in industrial estates and commercial buildings, resulting in being unable to achieve consensus between myriad development partners and the complexities of the metering system in such a scenario;

- The lack of interest from the owners of buildings, whose tenants pay electricity bills, but who may not lease the building for long enough to benefit from the installation of a PV system; and
- Limitations of electricity infrastructure on many industrial estates, which are often 11kV and limited to single phase.

It should also be noted that just as owners of residential property put panels on their own roof, it is often the case that companies which TGC approach are considering doing so themselves and do not wish to lease roof space to a third party to do so.

Similarly, the key role that the commercial/utility scale part of the overall solar sector plays in the UK economy is noted by the Solar Strategy. There are a many small scale rooftop installers (focussing on residential or small commercial properties) which operate on the FiT. However, TGC operates predominantly within the ROC and CfD areas, contributing to the supply of commercial/utility scale projects.

Significant expansion, likely putting a number of smaller businesses out of work in the process, would be required to develop FiT projects. As ground mounted solar farms are supported by planning policy and as they offer opportunities for making substantial contributions to renewable energy targets, TGC focus on this sector of the wider, overall solar PV market.

4.0 Opportunity Register

Opportunity / Idea	Type	Status	Comment
	Non-agricultural Land (NAL) Brownfield (B) Rooftop (RT)	Dead Ongoing Viable	
Golf clubs	NAL RT		488 approached, not interested / not viable
Health / sports centres	NAL RT		Two large operators approached and options explored – not viable / not interested
Fast food operators	NAL RT		Unsuccessful discussions due to lack of interest / not viable due to limited site areas or the style of buildings, including with Burger King, McDonalds, KFC, Little Chef

Car dealerships	NAL RT		Unsuccessful discussions / not viable, with nine large operators including Arnold Clark
Body Shop Phase 1	RT		1MW scheme operational
Body Shop Phase 2	RT		Not viable
Discount Retail Parks	RT NAP B		Unsuccessful discussions / not viable due to planning conditions on ground and roof obstruction or future requirements– 20 approached
Retail ‘destinations’	RT NAP		Unsuccessful discussions / not viable due to planning conditions on ground and roof obstruction or future requirements– 7 approached
Smaller retail groups	RT NAP B		Unsuccessful discussions / not viable – c. 200 approached
McArthur Glen outlets	RT		Not suitable due to flexibility required o roofspace for future development / redevelopment – three projects considered
Distilleries and spirits companies	RT NAP B		Long term bonded warehouses thought to be ideal – not viable due to insurance and technical reasons (age of buildings, value of stock and risk of damage)

Building merchants	RT		Unsuccessful discussions / not viable in +10 locations including discussions with Grafton Group PLC
Councils	RT NAL B		Three sets of unsuccessful discussions.
Councils	RT NAL B		Some very early stage discussions
Quarries	NAL B		250 quarries reviewed (redundant / reinstate), unviable (land suitable for resi, commercial, recreation etc) or not suitable. Conflicts with reinstatement requirements and shading if in pits.
Transport / logistics / hauliers	RT		Unsuccessful discussions with two companies due to insurance concerns over stock
Emergency Services (Scottish Ambulances, Scottish Fire Service)	RT NAL		Not practical (i.e. water from hoses and panels on fire towers) or not viable
Private schools	RT NAL B		Not interested / not viable – c. 30 approached
Outdoor media companies (advertising)	RT NAL B		Not viable as footprint too small
Football clubs	RT		All English Premier League and Scottish Premier League clubs approached – only Aberdeen responded – not viable due to reinforcements required and low level of irradiation

Demolition companies	NAL RT B		Approached 37 large demolition companies, none interested as land identified for other redevelopment / regeneration purposes
Regional airfields	NAL B		1,800 reviewed, 424 had returned to agricultural use. Many >5km to grid connection. Some not interested (lining up resi redevelopment / similar). Two reviewed in more detail, one dropped for health and safety reasons, one not viable (grid 2.5 times budget)
Former government airfields	NAL B		Not viable / geoenvironmental reasons (i.e. used for foot and mouth disposal)
Long Marston Airfield	NAL B		Did not respond, it is understood that alternative land use is currently being pursued.
Brownfield registers – East England	NAL B		32 of 2329 identified considered further as potentially suitable. Some returned to agri, recreational uses, allocations or redeveloped. One holiday camp.
Brownfield registers – East Midlands	NAL B		38 of 2230 identified sites considered further as potentially suitable. One viable due to allocations or consents, mixed use redevelopment or planning permission granted

Brownfield registers – South East	NAL B		3,376 sites identified, 65 > 18 acres. All with existing use / allocation or no willing land owner
Brownfield registers – South West	NAL B		2,632 sites identified, 33 > 18 acres, all allocated for redevelopment and not viable
Chemical company	NAL B RT		Not viable – rooftop not suitable (health and safety and flues), adjacent land heavily contaminated.
National dairy company	NAL B RT		Unsuccessful discussions with Wiseman Dairies, not feasible or viable
Constantine Group (logistics, property, renewables, manufacturing)	NAL B RT		Multi-site portfolio - not viable or feasible.
Bristol / Avon Ports	NAL B RT		Multi-building portfolio not viable or feasible
Ministry of Defence	NAL B RT		Unsuccessful discussions – not viable or feasible, or conflict with existing / proposed/allocated use
Manchester based waste company	NAL B		Site not viable due to small size and abnormal remediation costs
Kingfisher Group (B&Q Screwfix etc)	RT		Roof loading problems, tenant / landlord relationship issues
Rolls Royce	NAL B RT		Ongoing discussions
Provan Gas Works, Glasgow	NAL B		Non-viable due to remediation costs, and competition from mixed use redevelopment

Cereal producer in Wrexham area	RT NAL B		Rooftop scheme on industrial buildings. Not viable due to expansion plans and pipes/infrastructure on rooftops
Film factory in Wrexham area	NAL B		Discussions stalled due to lack of interest. Likely nonviable due to contaminated land.