



PROJECT SUMMARY:



**CLIENT**

Salford City Council

**PROJECT**

Solar Car Ports

THE BENEFITS:

1,575 solar panels installed across the Swinton and Turnpike Depot site.

270 tonnes of carbon reduction per year.

Over 575,000 kWh generated each year across the two sites.

Swinton to have 38% self sufficiency, and Turnpike to have 30% self sufficiency.

The finished project has seen no loss of car parking spaces.

Minimal disruption throughout the construction period.

**PROJECT OVERVIEW**

Greater Manchester Combined Authority (GMCA) has set a target of installing 45MW of Solar PV through local schemes. This initiative makes up part of its larger decarbonisation strategy to achieve net zero by 2038.

One of the projects which will contribute to this target is a solar car port scheme being delivered by Vital Energi on behalf of Salford City Council.

Council.

The council installed solar car ports at their Swinton and Turnpike depots. These will generate low-carbon electricity, which will be used by council and NHS buildings or exported to the grid.

The project was part-funded by the European Regional Development Fund, with Salford City Council

**VITAL SOLUTION**

One of the key requirements from the council was that they did not want to lose any car parking spaces to the solar car ports. Our designers engaged with the market, looking at a variety of designs and found one which could achieve this, whilst providing stability and longevity.

The Solar Car Port system is made up of pre-engineered frames for ease of assembly, made of cold-rolled steel and anchored to concrete strip footings. The Solar PV panels attach to the trapezoidal sheet roof of the car ports with a short rail mounting system.

Overall, between the two sites, we have installed 1,575 solar panels which are capable of generating over 575,000kWh of low-carbon electricity per year. This will be used by council and NHS offices, with the remaining electricity being exported to the grid.

**Choosing the right car port system**

We chose a car port system which would provide value for money, stability and have low, long-term operation and maintenance costs. Our supplier offered flexible design options which enabled us to specify that each car port would fit two cars and this enabled us to meet the client's core wish that they didn't lose any parking spaces.

The system is ready for assembly, with no hot works on site and, due to the limited number of components, can be assembled quickly. Another significant bonus was that the car port frames are made from rolled steel. This combines lower costs with a long life span, low operation and maintenance costs and, as the system is lighter than traditional solutions, makes the delivery, handling and construction phases less labour intensive.



*‘By choosing solar carports the council have been able to make use of their car park without losing any spaces. It’s an innovative solution and will allow the council to generate significant solar electricity which is another strong step on their road to net zero.’*

GEMMA DYSON - PROPOSALS MANAGER  
VITAL ENERGI

### **An effective decarbonisation project**

On the Swinton Hall Depot car park we maximised the available space to fit 430 solar panels. These are approximately 176kWp in capacity and capable of generating over 164,255 kWh of electricity per year.

The Turnpike Depot car ports house 1,145 solar panels which are capable of generating 469kWp in capacity and over 411,288 kWh of electricity each year.

The core driver for Salford City Council was to use this project as a step towards their net zero targets and the project will now reduce their carbon emissions by over 270 tonnes per year.

### **Creating a stable base for the car ports**

We undertook a thorough survey of the two sites which included a full ground-penetrating radar survey to map out existing services and assess the quality of the ground. Our survey identified the ground as being poor quality, so our designers needed to create a solid foundation which would support the structures for the life expectancy of the project.

To overcome the poor ground quality we created strip footings which, in some cases, were 2 metres deep. The car ports are bolted to these to create a stable base.

### **District Network Operator Liaison**

We have extensive experience liaising with the District Network Operator (DNO) in key areas such as handling the G99 application which allows systems to be connected to the grid. We initially submitted the G99 application for the amount of generation the client wanted at each site and received an offer letter.

From this we learnt that we had to arrange for a new incoming supply to be installed at the Swinton site and a new generator interface panel at the Turnpike site. Due to the size of generation being installed, the DNO requested we install a generator interface panel which allows them to remotely shut down the Solar PV system when required.

This involved discussions with the DNO to fully understand their requirements, engineer a design solution and implement it into the wider system. The result of this is that the DNO liaison went smoothly, the system is fully compliant, and we successfully received G99 certification.

### **A complete electrical Solution**

The solar PV panels sit on top of the car port frames and the electricity they generate is transferred to inverters to convert the power from DC to AC voltage. This is fed into a private wire network, offsetting the sites' electrical import power.

This power will be used in the council-owned office building at the Swinton Depot which will use the solar PV generated electricity before importing from the grid,

ensuring they use the highest percentage of renewable electricity at all times. The Turnpike site is larger and feeds multiple buildings which includes an NHS office block.

The system at each site has intelligent controls and uses the available solar PV to power local buildings and switches to grid electricity as necessary.

### **Keeping disruption to a minimum**

On both sites we had extensive conversations with the client and all affected stakeholders to ensure we caused minimal disruption. On the Swinton Depot site we were able to keep the majority of works within the boundary of the car park, with the exception of one minor road closure to dig a trench. To achieve this we liaised with the Highways agency, created a robust traffic management plan and ensured traffic to residents and commuters was impacted as little as possible.

On the larger Turnpike Depot we created a dedicated space for storage and site cabins. As the car ports were in various locations throughout the car park, we were able to create secure construction areas which were segregated from the larger car park to maintain health and safety. This was done in consultation with the client to ensure the largest number of car parking spaces were available at any given time.