Turning car parks into energy assets: the rise of commercial solar carports

Large commercial car parks are among the most overlooked opportunities in the UK and European energy markets. For Solarport, a company with over 10 years of experience in designing and manufacturing clean energy infrastructure, expanding into solar carports and canopies was the next logical step.

Solarport's new PowerPark® PRO commercial carports range transfers the structural and electrical engineering methodologies proven in utility-scale ground-mount PV systems into commercial parking infrastructure. The range aligns with accelerating regulations, rising grid energy costs, and increasing demand for distributed solar generation and EV-integrated carport solutions.

A market ready for change

Across the UK, Ireland and Europe, retail parks, logistics centres and commercial estates contain extensive areas of underutilised hardstanding infrastructure. These large surfaces are typically left exposed year-round, offering little functional use beyond parking while contributing to higher surface temperatures and heat build-up.

The UK alone now contains more than 49,000 privately operated car parks, according to government documentation[1] submitted by industry trade associations, representing substantial growth over the past decade. Demand for onsite renewable energy generation continues to accelerate, particularly among commercial and industrial sites seeking to reduce grid dependency, lower operational energy expenditure and strengthen long-term energy resilience.

Solar canopy systems above 1 MW are forecast to see the strongest market growth, particularly across logistics, retail, and commercial developments, which are the types of environments the PowerPark® PRO range has been structurally engineered to support.

Government policy is increasingly recognising car parks as viable energy infrastructure. In May 2025, the Department for Energy Security and Net Zero (DESNZ) launched a consultation on requiring solar canopies on new outdoor car parks across England, Wales and Northern Ireland under the Clean Power 2030 Action Plan. Government modelling estimated that an 80-space solar carport installation could deliver annual savings of approximately £28,000 through onsite electricity consumption and energy export[2].

The UK is following countries such as France and Slovenia, where solar canopies on larger car parks are already becoming mandatory. France introduced legislation in 2023 requiring solar panels on car parks with 80 or more spaces, creating a model now referenced by UK policymakers.

For commercial operators, the conversation is shifting from *whether* solar canopies will become standard to when they *will*.

Engineering experience that matters

Solarport's engineering background is rooted in utility-scale ground-mounted solar, where structural performance, wind-load analysis, durability, and long-term asset reliability are fundamental to every project.

Those same engineering principles apply directly to solar carport infrastructure. Carports must accommodate significant structural loading, comply with UK and EU parking geometries, maintain safe vehicle and pedestrian access, and perform reliably over operational lifecycles. PowerPark® PRO has been designed and engineered specifically around these requirements, including consideration of wind and snow loads, corrosion resistance, and long-term structural performance.

The result is a purpose-designed solar carport engineered from the outset for commercial-scale energy generation and operational longevity, rather than a conventional parking canopy retrofitted to support photovoltaic modules.

Designed for varied site and layout requirements

The PowerPark® PRO range comprises four structural variants, the M-Series, R-Series, D-Series and G-Series, each engineered to accommodate different site geometries, parking layouts, and solar orientation requirements.

The M-Series and R-Series are designed for south-facing parking layouts and are available in two and three-panel portrait configurations, helping maximise energy yield on commercial sites where row spacing and nearby buildings or landscape constraints need to be considered.

For both east-west and south-facing orientations, the back-to-back D-Series and G-Series are available in four and six-panel configurations. These structures maximise installed PV capacity and energy generation while making efficient use of parking space across commercial developments.

The PowerPark® PRO range is structurally designed and engineered to a basic wind velocity of 30 m/s and snow loads of 0.9 kN/m², with a standard above-ground warranty of 25 years, exceeding the warranty period offered by other carport structures on the market. It is compatible with all modern PV modules and is designed in accordance with relevant Eurocodes and standards, including BS EN 1991, BS EN 1090, BS EN 1993, and BS EN 1997.

All PowerPark® PRO structures are designed to exceed standard UK and EU parking bay dimensions, accommodating increasing vehicle widths and clearance requirements, including accessible parking provisions, while maintaining full compatibility with commercial car park layouts and operational constraints.

The carports are manufactured from structural steel and are supplied with CE Marking, demonstrating compliance with applicable UK and European standards.

The business case is already clear

Onsite generation reduces reliance on imported electricity at commercial tariff rates, with any surplus either exported to the grid or used locally through private wire arrangements to nearby buildings or businesses. Given the pressure of energy costs and carbon reduction targets, the business case for solar carports for commercial property owners is increasingly straightforward.

Solar carports also align directly with EV charging demand. With the UK targeting 300,000 public charge points by 2030[3], many commercial sites are planning for higher electrical loads. Pairing solar generation via carports with charging infrastructure can help reduce grid peak demand and, in some cases, limit the scale or cost of required grid upgrades, particularly when capacity is constrained. Over a 25-year lifespan, the combined financial savings and carbon reductions can be substantial.

The PowerPark® PRO system allows for straightforward integration of inverters onto the structure and provides routing provisions for the addition of EV charging points.

End-to-end delivery and installation

For many organisations, the primary constraint is not the technology itself, but the efficient delivery and installation of the carports.

Through its subsidiary, SPS PowerBuild, Solarport provides end-to-end delivery capability, including site assessment, civil engineering works, structural, mechanical and LV electrical installations. This provides a single point of responsibility across design, manufacturing and supply.

For developers, EPC contractors, and installers with internal delivery capability, Solarport also supplies the PowerPark® PRO carport range on a design and manufacture basis, supported by full technical documentation, structural calculations and engineering support to facilitate integration into wider project delivery frameworks.

About the company

Solarport is a UK-based solar infrastructure company with an established track record in ground-mount PV design, engineering and installation delivery of 3 GWp+.

Leveraging this structural and engineering expertise, it has developed the PowerPark® PRO commercial carport range, purpose-built for deployment across the UK and European markets.

Through its subsidiary SPS PowerBuild, Solarport provides site assessment through to installation and commissioning, as well as a design-and-manufacture offering for developers, EPCs and contractors with in-house installation capability.

The next phase of commercial solar

The trajectory of solar carport deployment is increasingly defined by regulatory tightening, sustained energy price pressure and rising ESG and decarbonisation requirements.

Solarport has extensive experience delivering utility-scale solar infrastructure, with over 3 GW of ground-mount capacity deployed, providing the technical and engineering credibility behind its carport solution. Solarport applies the same engineering principles to commercial car park environments, converting underutilised hardstanding areas into structurally engineered, revenue-generating distributed energy assets integrated within existing site infrastructure.

From current pipeline projects to early-stage planning, this signals a clear direction that solar carports are becoming core infrastructure in commercial developments, with deployment increasingly driven by regulation and asset-level energy optimisation.

solarportsystems.com

References

[1] www.gov.uk/government/consultations/private-parking-code-of-practice/options-assessment

[2] www.gov.uk/government/calls-for-evidence/solar-on-car-parks-and-electric-vehicle-charging/solar-on-car-parks-and-electric-vehicle-charging-call-for-evidence

[3] www.gov.uk/government/news/tenfold-expansion-in-chargepoints-by-2030-as-government-drives-ev-revolution