



ennovus
solutions

IMPROVING SUSTAINABILITY IN SPORTS & LEISURE

Simple solutions to support your green goals



SUSTAINABILITY IN SPORTS: The Green Game Plan

Hi, I'm David Woon, head of engineering & operations at Ennovus Solutions, and I am very proud that we are launching an initiative to work specifically with the sports and leisure industry. Sport has always been an integral part of my life, having been very fortunate to grow up competing in swimming and tennis, and generally just running around at any opportunity.

Alongside my personal attachment to the industry, sport and leisure also plays such an important role in our communities but unfortunately, it is also one that has struggled since the pandemic and energy crisis. As an industry, energy is typically the second highest cost after staffing, meaning a volatile energy market can significantly impact operations and longevity.

To provide more energy security to the industry, many facilities are turning to sustainability measures. This will provide a reduction in

energy demand, and therefore reliance on grid electricity, but also nicely feed into the sustainability and Net Zero targets of councils and sport governing bodies.

Many facilities, particularly those with sports halls, swimming pools, or indoor tennis courts, will naturally have a large roof space, making them an ideal candidate for roof mounted solar. A big challenge will be tackling the heating demand used for space heating, hot showers, heated pools, and many more. This is where technologies such as heat pumps, smart controls, HVAC optimisation, or solar thermal could be implemented.

The route to lower carbon emissions, reduced energy spend, and improved energy security is one that will require a holistic approach and the optimal technology mix for each facility. Although this can require significant investment, which isn't always an option, funded solutions now make sustainability projects accessible to all.

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David Woon is the Head of Net Zero Engineering & Operations at Ennovus Solutions, part of the Consultus Group. He has worked within the renewables and sustainability space for over six years, having previously achieved an MEng in Electronic and Electrical Engineering and an MSc in Sustainable Energy Engineering. A large proportion of his professional experience is in electricity demand reduction through on-site renewable generation and storage, helping businesses reduce energy costs and strive

towards their Scope 2 and Net Zero targets. David works alongside a fantastic team of engineers with expertise across solar, wind, battery storage, electric vehicle charging, thermal decarbonisation, and energy efficiency. In addition to their experience and knowledge, the team holds qualifications such as SSSTS, CDM 2015 for Principal Designers, 18th Edition, PRINCE2, and many more. This enables them to deliver energy solutions that run to schedule, to budget, to scope, and most importantly, with zero incidents or accidents.

THE STAT SHEET

Sustainable Sport

2%

The Water Incident Research Hub estimates that the UK pool sector emits around 2% of UK national carbon emissions, with a whopping **906,920 tonnes of CO2 emitted per annum**

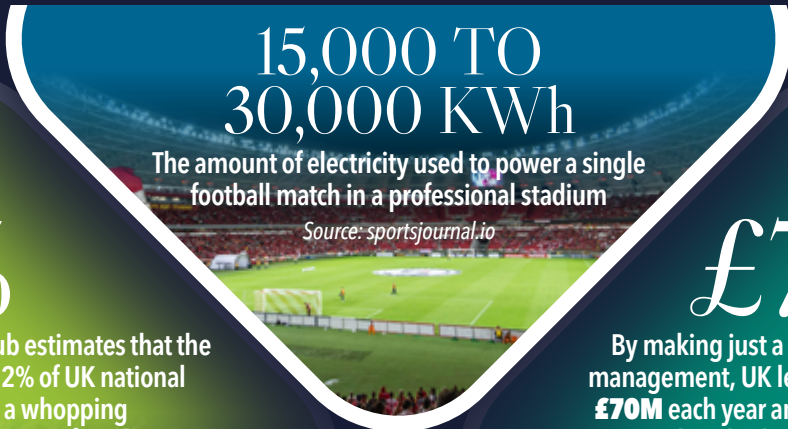
Source: WIRH, 2023



15,000 TO 30,000 KWh

The amount of electricity used to power a single football match in a professional stadium

Source: sportsjournal.io



£70M

By making just a 10% improvement in energy management, UK leisure facilities could save up to **£70M** each year and reduce carbon emissions by hundreds of thousands of tonnes

Source: Carbon Trusts



10-40%

of a district councils' direct carbon emissions are a result of old and energy inefficient leisure facilities, according to research by the District Councils Network (DCN)

Source: local.gov.uk



GOLF

HAS THE 2ND HIGHEST FOOTPRINT

Surprisingly, sport-specific comparisons show golf having the second highest carbon footprint (2,195 kg CO2e) after skydiving (2,841 kg CO2e). Whilst it might seem like a green, outdoor-focused sport, its high carbon emissions largely come from energy consumption and the manufacture, transport and application of pesticides on the grounds

Source: carbonliteracy.com



20%

The percentage of total energy costs attributed just to lighting in dry leisure centres or around 10% in centres with a swimming pool

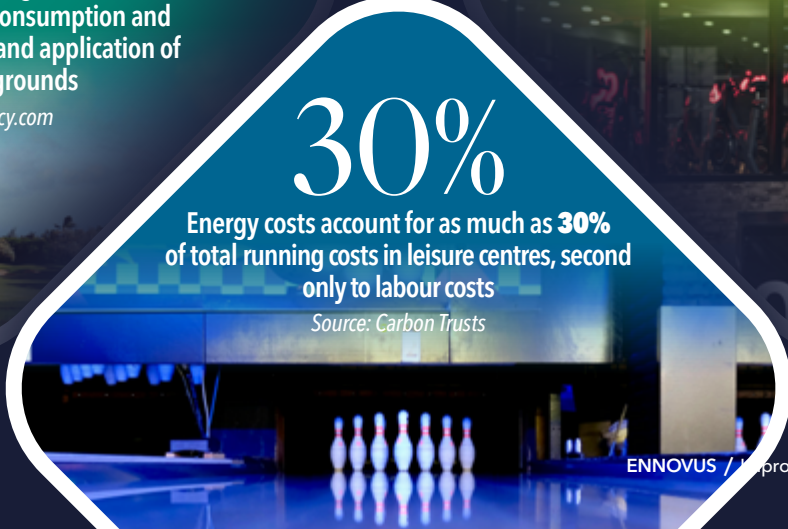
Source: Carbon Trusts



30%

Energy costs account for as much as **30%** of total running costs in leisure centres, second only to labour costs

Source: Carbon Trusts



SPOTLIGHT ON: SOLAR

USING THE SUN TO POWER PERFORMANCE

Sports and leisure facilities are high energy users, often operating long hours across large indoor and outdoor spaces. But all that space offers an ideal solution to start reducing your energy bills and emissions: solar panels.

Solar power offers a smart, reliable way to take control of your electricity usage, reduce operational costs, and move towards Net Zero, all whilst showing a commitment to sustainability.

It's a winning move for UK sports and leisure venues, despite the doubts caused by the typical British weather. Whether a local bowling alley, leisure centre, or major stadium, sports facilities across the country are using solar energy to tackle rising electricity bills and reduce their carbon footprint.

And the proof is in the pudding. Ashton Gate Stadium in Bristol installed rooftop solar panels in 2019, cutting around 20% of their site's annual emissions, whilst also saving thousands on long-term energy costs.

Beyond the practical savings, solar panels send a strong message about your environmental commitment; something fans, members, and sponsors increasingly care about.

Venues like the Utilita Bowl and London Stadium are already leading the way, showing how solar can be seamlessly integrated into existing infrastructure whilst also enhancing reputation in the community. These projects not only cut carbon, they strengthen energy independence, support sustainability targets, and align with broader ESG goals, all without disrupting day-to-day operations.

**Find out more about solar
on our website!**



The benefits of Solar Panels



CARBON REDUCTION

Solar is one of the best ways to reduce your carbon footprint and scope 2 emissions. A 100 kWp array will save around 20 tonnes of CO2 annually. This is equivalent to taking 12 petrol cars off the road each year.



FINANCIAL SAVINGS

Solar will be used to offset your grid electricity consumption, resulting in a decrease in energy spend. Typically, a solar array will reduce a business's electricity bill by 25%, or sometimes even more.



ENERGY SECURITY

Solar reduces a business's reliance on grid electricity. This essentially allows a business to lock in a low cost of electricity for the lifespan of the solar PV system, protecting against rising costs of electricity.

Bespoke Systems for Every Sports Facility

At Ennovus, we deliver end-to-end solar PV solutions tailored to the unique demands of the sport and leisure sector, from small clubs to large stadiums.

We design, supply, install, and maintain:

- ◆ **Rooftop solar PV systems for gyms, leisure centres, ice rinks, sports halls and more**
- ◆ **Ground-mounted arrays for larger sites or unused land**
- ◆ **Carport canopies that generate energy and provide shaded parking**

Each solution is tailored through a detailed energy assessment and site survey, ensuring you get the best performance and return on investment.

Considered, Expert Design

For every project, we will model the performance of your solar PV system using industry leading software to estimate, as accurately as possible, the energy produced. We then model the energy produced vs your half hourly electricity consumption, using our bespoke in-house tool.

This helps us to calculate key metrics such as on-site consumption, grid resilience, financial benefits, and payback period. We refine and optimise our design before recommending a solution. It is important that each solar PV system is designed for a specific site, because every building has a different electricity consumption and requires electricity at different times.



Invest in Solar with No Upfront Costs

If funds are a barrier to getting started, we offer four different financing models to support you:

- ◆ **Supply Contract Integration (SCI)**
- ◆ **Power Purchase Agreement (PPA)**
- ◆ **Hire Purchase (HP)**
- ◆ **Energy as a Service (EaaS)**

We want to make solar a viable option for all types of clubs and venues, regardless of size or budget. Find out more on page 08.

< 5 years
Payback Period

25+ years
System Lifespan

6p/kWh
Lifetime Cost

The MVPs

Popular Services for Sports and Leisure

LED Upgrades and Lighting Controls

Lighting accounts for a large percentage of a sports facilities energy costs, with as much as 20% of energy costs attributed to lighting in leisure centres.

Upgrading lighting within a site from old halogen fittings to LEDs is one of the quickest and easiest ways to reduce energy demand, with savings of up to 60% on lighting possible.

Modern LED systems also often come with smart lighting controls, allowing facilities to adjust lighting levels according to the time of day, occupancy, or task requirements. Many facilities use these controls to set the atmosphere in certain rooms, with brighter lighting in reception areas and dimmed lighting. By using motion sensors and timers, sports and leisure businesses can further reduce their energy consumption by ensuring lights are only on when needed.



Solar PVT

Solar PVT combines the benefits of solar electricity and solar heating in one system. These panels generate power like standard solar PV, but they also capture heat, providing hot water for showers, kitchens, or heating.

By cooling the PV elements, the system even improves electricity production, making PVT a highly efficient solution. With the right mix of traditional solar PV and PVT panels, sports facilities can significantly reduce both energy costs and carbon emissions from their sites.



EV Chargepoints

As the UK accelerates toward a petrol and diesel car ban, potentially as early as 2030, EV charging is becoming essential for sports and leisure centres.

With more members, staff, and visitors driving electric vehicles, offering reliable charging infrastructure not only communicates a commitment to the environment but also future-proofs your site.

We typically install three-phase 22kW chargers, as these are ideal for sports and leisure sites, and can help integrate these into existing car parks or new solar carport installations. The Workplace Charging Scheme grant can help offset the cost of installing EV chargers, whilst having chargers installed can also generate a new revenue stream.

Energy Audits

Understanding how your site uses energy is the first step towards reducing costs and cutting carbon.

Ennovus delivers structured, British Standards-aligned energy audits tailored to your needs, whether you're running a leisure centre, bowling alley, or stadium.

Our experienced team doesn't just highlight savings opportunities, we support you through implementation too.

With options ranging from visual inspections to deep dives into high-energy systems, our three audit levels suit every stage of the journey, from early assessments to ESOS compliance and investment-grade analysis.



HVAC Optimisation

Heating, ventilation, and air conditioning (HVAC) systems are often one of the biggest energy users in any sports facility.

Optimising these systems, either through a building management system or specialist controls, can make a big difference.

By reacting to real-time conditions and predicting changes in weather, HVAC optimisation reduces unnecessary heating or cooling. Why blast the heating if the sun's coming out in an hour? With the right system, you could cut HVAC energy use by up to 25%, lowering both your bills and your carbon footprint.

Smart Controls

Smart controls are an easy and effective way to cut energy waste and reduce your running costs.

Many buildings already use simple systems like motion sensors to switch lighting on and off automatically. But smart controls can go much further adjusting your heating, managing air conditioning, controlling plug sockets, and even opening or closing windows remotely.

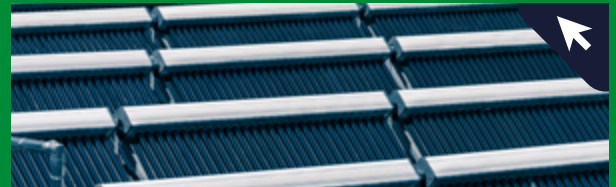
With a well-designed system, you can monitor and control your building's energy use from your phone or computer, wherever you are. It's a simple step toward smarter, more sustainable facility management.

Solar Thermal

Solar thermal panels harness the sun's energy to produce hot water instead of electricity. This can be used for showers, kitchen facilities, space heating, or stored for later.

Even in the UK's cooler months, solar thermal systems provide a steady source of renewable heat, helping you reduce your reliance on gas and cut carbon emissions.

All you need is suitable roof space, and our team can design a system to match your site's specific needs.



Submetering & Virtual Energy Management

Sub-metering is the practice of installing additional meters beyond the main utility meter to measure usage in specific areas.

It's a great, cost-effective first step towards closer monitoring your energy consumption and identifying any areas for improvement. Paired with our Virtual Energy Management service, it can provide crucial insights into high-consuming areas and customised performance indicators against benchmarks.

With the Virtual Energy Management service, you will also receive alerts and triggers based on your typical usage, and commentary and analysis that can be used for reporting.



SIGNING SUSTAINABILITY

FUNDING THE BIG MOVE

Moving to green energy often requires significant capital, something that can be a barrier for many sports clubs and facilities. That's why we offer tailored funding solutions to remove financial roadblocks and get renewable energy projects moving.

Key Benefits at a Glance

- ◆ **Zero** upfront cost
- ◆ **Four** different models to choose from
- ◆ **Immediate** operational savings
- ◆ **Flexible** ownership models
- ◆ **Support** to hit sustainability targets
- ◆ **No disruption** to current operations

Go green without the upfront cost

Each funding mechanism follows a similar process from the initial engagement through to the end of the term. Ennovus Solutions will design, install, and commission the renewable generation or energy efficiency asset without any capital expenditure.

Power Purchase Agreement (PPA)

This is typically a long-term arrangement, whereby you pay for the units of energy produced via the generation asset.

Here's how it works:

Step 1: A renewable system (e.g. solar PV) is installed on-site

Step 2: Ennovus owns and maintains the system

Step 3: You buy the electricity generated, typically at a lower rate than your current tariff

Result: You save money from day one whilst moving towards your Net Zero goal!



Supply Contract Integration (SCI)

As part of the Consultus Group, we are in a unique position of offering Supply Contract Integration. If you purchase your energy through Consultus, we can add a small uplift onto your p/kWh import rate (typically ~ 1p/kWh) to repay the upfront investment cost.

Hire Purchase (HP)

A typical financing arrangement where you spread the asset costs across fixed monthly instalments. At the end of the term, you take ownership of the asset. You are responsible for the operation and maintenance costs from day one.

Energy as a Service (EaaS)

A very similar mechanism to HP; however, the asset is owned and operated by Ennovus Solutions during the term length and doesn't appear on your balance sheet.

Find out more about our funding solutions.



THE DREAM TEAM

Our Sister Brands



CONSULTUS SUSTAINABILITY

Are you ready to start your Net Zero journey? Or looking for support with an existing strategy? We help businesses build holistic, achievable sustainability strategies - from setting Net Zero roadmaps and Scope 3 reporting to compliance with ESOS regulations and other frameworks. We believe in human-led consultancy, not generic AI tools, and aim to create long-term value, with realistic steps to success.



Service Highlight: Net Zero Pathway

We work with sports and leisure businesses to simplify sustainability. With a range of packages to choose from to suit your needs, we create Net Zero strategies that work.

www.consultus-sustainability.co.uk
0116 234 6164



CONNECTUS UTILITIES

Managing utility infrastructure can often feel like a juggling act, especially across multiple sites. That's where our team steps in, handling all your utility connections including electricity, gas, water, telecoms, and sewerage, across industrial, commercial, and residential

projects. From new connections, to sub-metering and G99/100 applications, we're here to help.



Service Highlight: Submetering

With so many energy-intensive facilities, managing energy costs in sports and leisure businesses can be tricky. With submetering, you can easily track which areas of your business are consuming the most energy, and identify areas for improvement.

www.connectus-utilities.co.uk
0330 221 6565



CONSULTUS INTERNATIONAL

As we transition to a low carbon economy, our experts ensure you can benefit from next-generation energy management to reduce risk, control costs and achieve demand reduction targets. From our electricity, gas and water procurement, to our full suite of bureau services and Cost Optimisation and Recovery Audits, we can help you save time, money and energy.



Service Highlight: Water Services

Consultus specialises in business water management across the UK, helping organisations consolidate retail water and wastewater accounts, secure cost-effective contracts, and recover any money you are potentially owed.

With over £1.1 million saved for our customers annually, we deliver savings through market-wide tendering, tariff optimisation, and bill validation.

www.consultus.com
0330 221 1000



ASSURED ENERGY

For many SMEs, navigating the energy market can be overwhelming, especially when you're focused on running your business. Assured Energy simplifies procurement by helping organisations secure the best energy contracts tailored to their specific needs. Our experts scan the market for competitive tariffs, provide clear advice, and handle the switching process end-to-end, so you can focus on what matters most. We're independent, experienced, and always on your side.



Service Highlight: Fixed-Term Procurement

For sports and leisure businesses looking for budget certainty, our fixed-term energy contracts offer stability in a volatile market. Lock in competitive rates and gain peace of mind with a procurement partner who understands your sector.

www.assured.energy
0330 221 9899



CASE STUDY

Kicking Off with Car Ports at a Leisure Centre

Informed by Data, Designed for the Real World

Some of the key elements within Ennovus' Stage One, Scope & Options, were compressed into the start of the feasibility study, as they helped to shape the project. The feasibility study began with practical groundwork. Reviewing buried services and asset plans early on helped identify the most viable sections of the car park for development.

Given the site's coastal location, careful consideration was given to system longevity. Structural steel required enhanced protective coatings for corrosion resistance, whilst all key electrical components needed to be housed in secure, weatherproof enclosures. A more heightened maintenance schedule was also built into the long-term financial model, due to the heavy presence of sea gulls and their 'impacts' when flying above the PV panels.

Solar PV Feasibility for a Council Leisure Centre

Following a competitive public tender, Ennovus Solutions were appointed to carry out a detailed feasibility study for a UK council, to elevate the technical and commercial potential of installing a solar PV carport at one of their leisure centres. The ongoing project is a key step in the council's commitment to achieving carbon neutrality by 2030 but with the consideration of doing so in a financially responsible way.

The council were looking for a structured, phased approach. Before progressing to installation, they wanted a clear understanding of how a solar carport would impact energy use, emissions, and long-term operating costs. This aligned well with Ennovus' own project methodology, which combines a Stage One "Scope & Options" review with an in-depth Stage Two Technical Analysis.

“

We had the pleasure of working with Ennovus, and we couldn't be more impressed with their professionalism and expertise. From start to finish, David, James and Paul demonstrated a deep knowledge of [solar] carports, ensuring that every aspect of our project was handled with precision and care.”

Practical Design Considerations

Balancing structural, environmental, and planning requirements was essential. One of the design criteria, set by Ennovus, was to ensure that designs could pass through the planning process under permitted development rights, saving our client time and money. With this in mind, and the client's own requirements, the carport needed to:

- ◆ Remain under 4m high to qualify under permitted development rules
- ◆ Allow access for buses and large vehicles
- ◆ Avoid lampposts and ensure cars could park and open boots easily
- ◆ Manage rainwater runoff effectively
- ◆ Be placed at least 10m from nearby dwellings
- ◆ Minimise glint and glare through anti-reflective coatings

Despite these sometimes-competing demands, Ennovus successfully developed a design that met all criteria, both technical and regulatory.

Recommended System and Outcomes

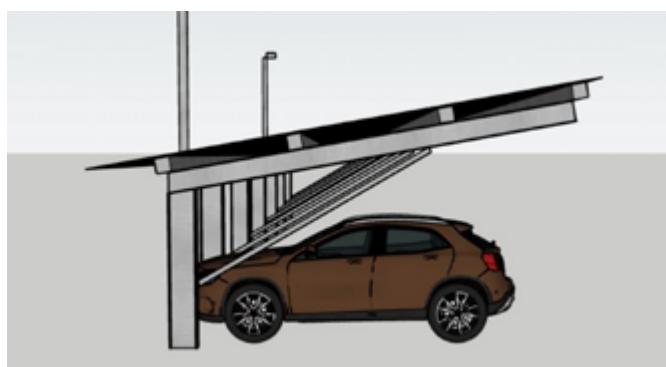
After modelling various array sizes, structural types, and orientations, the preferred solution was agreed. The recommended system would:

- ◆ Install 235 panels with a total system size of 128 kWp
- ◆ Be expected to generate over 140,000 kWh of electricity per year
- ◆ Offset the leisure centre's electricity demand by ~22%
- ◆ Cut carbon emissions by almost 30 tonnes a year

To support decision-making, Ennovus provided both capital cost and Power Purchase Agreement (PPA) options. A funding solution is often a popular route, as it enables clients to commit to their Net Zero targets without needing the initial capital outlay, whilst also reducing their operational spend through their energy savings, allowing investment into other areas.

Next Steps

After completing the system designs, Ennovus presented a comprehensive feasibility report to key stakeholders. The report outlined site conditions, design metrics, and funding options, alongside key



project milestones and timelines. It also detailed pre-construction requirements, planning and grid processes, and future maintenance schedules. These findings were supported by financial evaluations and tailored revenue models, providing sufficient clarity for the client to determine their next steps.

The council are currently conducting an internal review of the feasibility report before deciding in which direction to take the project. Ennovus Solutions continue to provide support and have since provided services across multiple of the council's sites.

Inspired? Get in touch to find out how we can help you!





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www.ennovus.co.uk

Ennovus Solutions is a specialist, multi-disciplinary, net zero engineering, design, and build consultancy, helping sports and leisure businesses reduce energy costs, improve resilience, and lower carbon emissions. We deliver end-to-end support across energy audits, system optimisation, and the design and installation of technologies such as solar PV, battery storage, wind turbines, EV infrastructure, and heat recovery.

The Consultus Group supports thousands of businesses including:

