



Power to your business

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Interest in solar has grown exponentially in recent years as companies look at both how it can support their sustainability strategies (and the expectations of clients and customers) and their desire for more energy security.

Solarsense brought together a panel of experts to provide their perspectives on the opportunities and challenges around installing solar and to answer questions from businesses exploring their energy options.

The panel tackled some of the common misconceptions about solar and provided advice around funding, maintenance, batteries and more, all captured below.

If you have any other questions specific to your own operations, please contact Solarsense at info@solarsense-uk.com or on **0333 772 1800**.

With thanks to our panel



Tim Cook

Renewable Energy Consultant, Solarsense

Tim Cook is a renewable energy consultant at Solarsense. He has more than a decade of experience in the clean energy sector and works with a wide range of businesses to deliver strategic direction for their on-going energy needs.



Cathie Eberlin

Chartered Engineer, Leading Energy

Cathie Eberlin is a Chartered Engineer who set up Leading Energy 15 years ago to provide renewable energy advice – including on funding options – for businesses wanting to design and deliver buildings with lower carbon emissions.



Ben Goodare

Head of Sustainability, Renishaw

Ben Goodare is Head of Sustainability at Renishaw, the FTSE250 engineering company. He has expertise in carbon accounting, net zero, responsible sourcing and stakeholder engagement, and is a TEDx speaker giving talks (among other things) about sustainability and climate change.



Michael Gowen

HSQE & Facilities Manager, PLASSER UK

Michael Gowen is HSQE & Facilities Manager at PLASSER UK. The company specialises in the development and manufacture of machines and equipment for the renewal and maintenance of railway track, and now lead the market in modern track maintenance. From the company's London base, Plasser UK provides training, parts and services for Network Rail and other partners.

The common myths and misconceptions

Is it true that solar doesn't work well in Britain because of the weather?

Even on cloudy days solar systems across the UK generate energy well. The panels rely on daylight hours rather than sunshine, and they generate more energy in summer because there are more daylight hours, as well as a result of sun intensity. But when it comes to the sunshine, you'd only get around 30 or 40 per cent more energy if you were in the Sahara Desert than you might, say, when based in Bristol or Birmingham.

Do solar panels need a south facing roof to be effective?

No, in fact it seems an east/west facing roof can actually work as well as a south facing one because with east generating in the morning and west in the afternoon, there's a more even profile throughout the day. Renishaw, one of our guests today, have panels on every viable roof they own in the UK.

What is the environmental impact of disposing of panels?

There have been articles online suggesting that disposal of panels creates a negative environmental impact. In fact panels not only last a long time but are recyclable. Companies like Solarsense sign a commitment to recycling. They point out panels are still expected to be at least 85 per cent as efficient 25 years after installation, but many last for decades when properly maintained. And, when their time comes, 99 per cent of a panel (glass, aluminium and copper cables) is recycled.

Can you add to your existing solar panels?

“At Renishaw we covered every bit of roof, and we've kept looking at where else is possible and adding more,” says Ben Goodare

At Renishaw this has included ground mounted panels on land they had adjacent to one of their sites, and building a car port at one of their factories, covering the roof of the carport with solar PV. *“There are numerous knock-on benefits to this, one of them being employees could park their cars out of rain or sun, and the car ports then supported electric vehicle charging,”* explains Goodare.

“We were astonished to find the ROI was actually better than the original installation at that site, not only because technology has moved on but also because of the price of electricity. It delivered an incredible return.”

Plasser is also looking at car ports, and use of their east to west roof space. *“I think it’s crucial to have a good relationship with your solar company, and review the site with them,”* commented Michael Gowen. *“We have an asbestos cement roof, but Solarsense have advised this can, if strong enough, be overclad, which involves encapsulating the asbestos roof with a metal sheet before installing new panels.”*

Cathie Eberlin has, as a consultant, worked with companies who’ve used or leased land to add a solar farm when their roof has been covered in the first installation. *“Explore what is possible,”* she recommends.

With no government subsidises, and problems exporting to the Grid in some areas, is this the right time to install solar?

The Feed In Tariff should really have been called the Generation Tariff, says Tim Cook. This Government subsidy paid companies for every unit of energy they generated and was designed to help the transition to renewables while prices were high. But the price of panels and improvements in technologies have changed dramatically in recent years and offer a good ROI even without a subsidy. While the Feed In Tariff has gone for good, the Export Tariff still exists, and this ensures electricity suppliers pay you for each unit of power you export to the Grid. There have, of course, been well publicised problems here. The National Grid is under strain in certain areas of the UK and, ahead of modernisation, means it can restrict what you can install or, more often, it can restrict what you can export to the grid. Solarsense can install a grid limitation device in line with what electricity companies can take from companies, which allows businesses to install a bigger system within the limits specified by the National Grid.

“We’d find this out very early in a company’s exploration of solar and get people on the waiting list if limits were put on either the number of panels they could install, or the energy they could export,” says Cook.

“The message is, get in before your neighbours, and get that grid offer in place. Once secured, it gives you six months or so to get an installation delivered and commissioned.”



Do the solar PV require a lot of maintenance?

“We consider the maintenance part of looking after the building,” says Ben Goodare. **“We give it the care we give to all our plant equipment...”**

“Solar panels will sit and just do their thing, but it’s always advisable every year or two to have a service, in the same way you’d give a car a new service,” adds Tim Cook from Solarsense.

“This is not about expecting breakdowns but caring for it and ensuring optimum performance. For a huge 100kw system this is simply a day’s labour (so say about £600). Every year or so an electrician can test the resistance, check the ratings, service the invertors and see if there are any other issues which need resolved,” says Cook.

Are batteries the way forward, storing the energy you can’t use or export?

These are not right for everyone, and Solarsense advises companies to put in a solar system and monitor it across the first year before using that evidence to consider if a battery would work, and what size would be needed.

Renishaw use all the energy they’re creating on site so don’t consider batteries, says Goodare, but Michael Gowen at Plasser say they are now looking at batteries for storing energy they create outside factory hours.

Batteries are expensive – it’s a common misconception they are a cheap answer to surplus energy, says Cook. For a 100kw battery you could be talking up to £75 - £80k. However, the increase in electricity costs has triggered a fresh look at their benefits, and Solarsense suggest – as a rule – battery storage costs can be calculated at around 12/13p per kw hour so should be weighed against the price for electricity bought from an energy company to top up solar. That can determine next steps.



Is energy independence achievable and is it an expectation in business?

“We sell machines to Network Rail and part of their procurement process is that suppliers should be signed up to science-based targets (that came out of COP 26) with a view to reaching net zero by 2030,” says Michael Gowen at Plasser.

Plasser says they are currently at the stage of being less reliant on electricity from the Grid during daylight hours, so from June to September not purchasing any at all. *“We’ll be looking at battery storage next and using our excess when it’s not needed on site to charge our vehicle fleet,”* he says.

Companies are, too, looking at a mix of renewable energy sources, including onshore wind, says Cathie Eberlin, who sees that combination as a way of businesses securing the independence they are after.



So where do you start when looking to introduce solar?

“My advice would be to find someone who really knows what they are talking about because it is much more than throwing panels on your roof. I work in a company with 3000 engineers, but we needed the expertise of a solar company to move forward,” says Ben Goodare at Renishaw.

“Have a conversation with a specialist about what you are trying to achieve so they can talk you through the options,” adds Tim Cook. He explains that, when they meet with clients, they look at the energy consumption of the site and the roof structure and size, both illustrating the system size and fit required which may only be a third of the roof space they have.

“We go through a feasibility study,” explains Cook. *“We identify any stumbling blocks before a business heavily invests. That can cover a planning application, application to the Grid, checks to ensure the building is strong enough. We also analyse a company’s data and do a formal system design at that point, creating a package which can be delivered to the Board so they can make a decision based on that thorough study.”*

“There are a lot of so-called experts and so you have to take care,” says Ben Goodare. *“We were looking for a long-term partner in the UK and experimented with Solarsense in the early days. Their expertise gave us the confidence to carry on investing and they are now the only ones we work with.”*

How do you compare quotes? What are the additional criteria for best provider?

“Look for a company that are part of the trade body Solar Energy UK,” says Tim Cook. And, he says, remember to check:

- The quality and origin of panels to ensure they are being made to the best possible technical spec, and that the supplier can clarify the welfare standards for people making them.
- The quality of the quote, and what is covered. For example, if there are multiple invertors, does it assume you have multiple connections in your board or has an allowance been made for a PV distribution board to amalgamate those invertors into one central point? Does it include an export meter, scaffoldings and edge protection, skylight covers? Drill into the detail.

What are the funding options?

“There is always a solution if you don’t want to make the capital investment, and even the most expensive option – something like hire purchase – makes good financial sense when it comes to solar,” says Cathie Eberlin

Companies today have a choice between a capital investment, a loan, or funded options like hire purchase or asset finance. Or, if companies have a low risk profile and don’t want to take any borrowing to pay for a large system (eg over 200kw in size), they can consider a PPA – a Power Purchase Agreement. This involves a third-party investor that funds the whole system and creates a lease with the company on site to provide the power generated at a discount.

What are my options if I lease my building?

It varies hugely across the commercial sector. If you’ve been in a building for a while and have a stable business, you might be happy to invest in PV on a leased building if the roof structure allows, says Cathie Eberlin. She points out though that, where there are multiple tenants in a building, or where a company is less sure they’ll be at the same site in five years, collaboration with landlords can be the best way forward, and landlords are seeing solar makes good business sense. *“When you come to negotiate your lease, it’s worth looking at this, and what buyout clause you can get.”*

Solarsense say they are increasingly being approached by commercial landlords, who – understanding the ROI – are installing solar across their portfolio and making the property more attractive to tenants.

