

The 'coming of age' of UK Solar

Post-subsidy solar | UK solar has defied a retraction of subsidies by finding ever more innovative routes to market. Liam Stoker analyses some of the most interesting business models to take hold as the UK emerges as a post-subsidy solar destination

The UK government's retraction and removal of solar subsidies has been a process now more than three years in the making. The Renewables Obligation, the UK's subsidy support for large-scale solar farms, was slammed shut and the technology remains locked out of competitive auctions. The small-scale feed-in tariff has been slowly wound down and will close in March 2019. And in a further blow, in mid-July 2018 the government confirmed its intent to shutter its export tariff for new renewables too.

There is also increasing uncertainty in the UK's legislative framework. Documents released by the government in mid-July outline a future vision of small-scale renewable generation in the country, but these have been derided as "frighteningly vague" and an 18-month delay in their publication, alongside a government fully bogged down in the quagmire of Brexit, mean that there is almost certainly going to be a post-subsidy policy gap.

All that could lead outsiders to conclude that the market was entering a dim hiatus.



Credit: Anesco

But a picture of the UK solar market is emerging that proves that not to be the case. Trade associations in the country talk of a "coming of age" of UK solar, buoyed by continuing reductions in component prices of course, but more so through the emergence and adoption of business models that exemplify a level of maturity beyond the market's years.

And what's promising for the UK market

Subsidy-free solar projects such as Anesco's Clay Hill are becoming a more common phenomenon in the UK

is that this innovation is not limited to just one sub-sector. There is activity across both residential and commercial and industrial rooftops, and the multiple gigawatts of solar planning applications sitting not just with local councils, but with the country's national Planning Inspectorate (designated to handle applications for projects in excess of 50MW in size) indicate an appetite to get stuff done.

Council adoption

The reduction, and removal, of subsidies has undoubtedly made project economics harder to work, but solar in the UK has found potentially an ideal partner in councils and local authorities.

Whereas home owners have grumbled at IRRs below 8 or 9% and institutional investors are not exactly keen on fluctuating revenue streams that aren't backed by government-endorsed subsidies, other public bodies are able to be a little more lax in what they deem to be a financeable project. Coupled with a post-Paris desire to clean their act up, so to speak, and council leaders are looking with increasing interest at solar PV.

A prime example of this can be found in the Welsh capital of Cardiff. In June 2018 Cardiff City Council rubber stamped proposals to turn an old landfill site into a 7.5MW ground-mount solar farm at a cost of around £14.9 million (US\$19.4 million).

The scheme itself is essentially split in half. The council has negotiated a power purchase agreement with a business located a stone's throw from the site which will see it procure power generated from 4.5MW of the project's capacity for a period of 20 years. The remaining 3MW worth of generated power will be exported to the national grid.

Once the PPA expires, and unless it is renewed, every last kWh of power will be exported for the remaining 15 years of the project's forecasted lifetime.

Cardiff councillor and cabinet member for clean streets and recycling Michael Michael explained that the projected income from the site could be "in excess of £21 million" over the 35 years, effectively securing more than £6 million of profit to bolster stretched council coffers.

Furthermore, the council has also opened up the possibility of installing electric vehicle chargers at the site to provide clean power for its fleet of EVs when they are brought into operation over the coming years. Whilst that hasn't been factored in to the business case just yet, Michael said it could potentially make the scheme "even more attractive to the council".

"In this instance, the business case shows that the council can reduce our carbon emissions and increase the production of renewable energy in Wales in line with Welsh government's requirements. It could also generate an income for the council from an otherwise difficult site to develop," Michael said.

The council had initially sought to turn the landfill site into a solar farm in 2010, leasing the land to a private developer. But the early closure of the country's Renewables Obligation programme kneecapped those plans in their infancy. Now, falling component prices and a more mature understanding of the business models that can be built around solar have breathed fresh life into public body appetite for PV.

The post-subsidy PPA

With the feed-in tariff (FIT) regime coming to an end in March 2019, concern may be rife within the UK solar industry as to whether or not the bankability of new installations will take a fatal hit once all subsidy is removed.

It should offer some reassurance then that Eden Sustainable, working alongside developer Oakapple Renewable Energy, has funded and completed what could be one of the first subsidy-free, high-profile commercial & industrial (C&I) installs, for League One football club, Doncaster Rovers.

Completed at the end of May, the install – adding to a 50kW FIT-supported array already in place – was intended to add 450kW to the stadium. However, after the grid offer was reduced, a new 177kWp solar array was settled on, taking the total solar capacity to 228kW on the south facing side of the roof.

Offering 100% self-consumption, the new array is predicated on a power purchase agreement with the football club, which will now pay a unit price of £0.085 (US\$0.11) compared to the almost £0.11 (US\$0.14) it was paying previously.

This was made possible by the low technology costs now prevalent in the market, according to Scott Burrows, director of Eden Group, who says systems could be installed for as little as £500 per kW.

The project was also made possible by the strength of the counterparties involved in the project. While Doncaster Rovers offered a stable off-taker for the PPA, as freeholder for the stadium Doncaster Borough Council provided exceptional covenant strength to support the project.

“The fact that the council is standing behind the lease with Doncaster Rovers is clearly fantastically bankable,” Burrows says.

“That is going to be the focus for subsidy-free projects in the first instance from Q2 next year. We will have to revert back to where bankability is particularly important again for a period of time.

“I don’t think it will be all that long but you will need to have a public sector counterparty, or effectively underwritten by a public sector organisation such as in education.”

Even with these circumstances, in which blue chip companies are also a target despite bringing “their own challenges for C&I developers”, Burrows remains confident that the post-subsidy world for solar is already here and, more importantly, can be a success.

“We want the investment community to look at this and see that it works,” he says. “Our debt providers Close Brothers are happy with it, we’re happy, and our equity backers are happy with it. We want other potential PPA off-takers to look at this and see that they can still save.

“Doncaster Rovers is going to save £1 million with some pretty standard assumptions of RPI and electricity price rises. That’s £1 million at no capital cost for a League One football club, and that’s really exciting. It works; take note.”

Burrows also believes the success of this project, and those to come, offers a moment of reflection for the FIT regime. Despite the “political palavers” that have made up the subsidy’s history, Burrows says the completion of subsidy-free projects like that for Doncaster Rovers shows FITs have, all things considered, been a success.

“In the end we are getting to where we were always supposed to be and

that gives me a real sense of warmth as an industry stalwart that it’s worked. This really is proof of concept, [we can] replicate this and the reason why is the financial model works.

And so the message to industry that Burrows says should be taken from the project is simple: “Get out there and find some more installations.”

The new array on the Doncaster Rovers stadium is one of the first subsidy-free C&I arrays in the UK



Credit: Eden Sustainable

The power of the collective

Another business model to have found success in other markets before resonating in the UK is the group-purchasing or reverse-auction model.

In essence, it’s a relatively simple prospect. An entity sources a group of prospective customers before inviting installers to essentially bid for that business on an estimated cost-per-install basis. Through economies of scale and by all but removing the cost of sale, installation businesses can deliver quotes far cheaper than the market average.

Having witnessed success in the Netherlands, group purchasing scheme specialist iChoosr brought the concept to the UK market via the Mayor of London and the Greater London Authority. The maiden ‘Solar Together London’ scheme was launched in five of the capital’s boroughs and received expressions of interest from some 4,000 households.

UK industry stalwart Solarcentury won the tender in partnership with retail giant IKEA, providing significant discounts in the process. By sourcing those efficiencies, a 10-panel rooftop solar system was offered to registered participants at an average cost of £3,210 (US\$4,172), nearly £1,400 cheaper than the market average. Savings under the scheme ranged from 10-41%, with an average of 35%.

iChoosr has since taken the concept into some of London’s neighbouring counties – Essex in particular, which has a population of more than 1.4 million people – and so taken with the scheme was the Mayor of London, Sadiq Khan, that a second round has been scheduled for later in 2018, taking in 12 of London’s boroughs.

But Ruud Frijstein, solar project manager at iChoosr, says that the group purchasing schemes are a “completely different ball game” for installers and

The no-money-down storage offer

No-money-down offers for energy storage in the commercial & industrial (C&I) sector are nothing new globally, with solution providers tapping into the 'energy as a service' trend to provide and manage batteries on C&I premises.

But for the nascent market in the UK, this has only recently begun to move to the fore as technology costs decrease and the range of business models increases.

Take Omnio Energy, a spin-off from solar and storage developer British Solar Renewables (BSR), which offers 50kW storage installs free of charge to the "overlooked" SME sector.

Meanwhile, others are thinking bigger, with the likes of Siemens Financial Services and partner GBSL offering larger behind-the-meter (BTM) solutions to manage and accrue revenue.

Such a model is proving to be too much to resist for a number of similar partnerships, such as that between investor Thrive Renewables and project developer Aura Power, which recently launched their own no-money-down offer for C&I customers.

The partnership targets businesses spending £500,000 a year or more on electricity with an offer to install batteries on site for free, ranging from 500kW up to potentially around 5MW.

Once installed, savings accrued from premium-cost peak energy charges will be combined with revenues from local and national grid services into a single pot to be shared between the joint venture – split equally between the companies – and the host business.

Aura Power director Simon Coulson explains: "Our approach is to maximise revenues, be it from savings or services... and because everyone is sharing from the same pot everyone's aligned."

Matthew Clayton, managing director of Thrive Renewables, adds: "We're showing commitment by making the capital expenditure but further than that we're demonstrating that we're all in this together by using that model."

The pair estimates that customers with a mid-range 2MW battery could



No-money-down storage is a new prospect for UK C&I customers

Credit: Thrive Renewables

save more than £1 million over a 15-year standard contract.

"We take the investment risk, manage the development and operate the battery to maximise mutual returns. We agree a contract with the customer, they can get on with their core business and save tens of thousands from year one," Coulson says.

Having previously funded or developed renewable generation sites, the two have made the move to behind-the-meter storage in the wake of subsidy cuts, but also to access the growing opportunities for revenue in this space from savings and grid services.

Clayton adds: "The attractive element of the business model is that it can be dynamic with those revenue streams and depending on which way policy goes and the frequency incentives go, we aim to be able to work with our hosts to make the best of the situation."

The partnership says it is already in advanced talks with several clients including a large dairy, a food processor and a tile manufacturer, and at the time of writing was nearing agreement with an aggregator to take on the grid services responsibilities of the portfolio.

They expect to make a 'modest' start over the next 18 months, deploying around 40MW of new BTM energy storage at up to 30 sites, depending on the scale of each project, which are expected to range from £1 million to £3 million investments.

as a result, require far more proficient business operations. For that reason, iChoosr conducts a range of due diligence processes and assesses all potential bidders on their financial health and their so-called 'method of approach' – a document submitted by the bidder describing in detail how exactly it would go about facilitating so many installs.

"To handle volume, your operations should be able to support that from every aspect, from consumer contact, to supply chains, survey procedures, IT... what we try to do is make installers aware of what they need to make this a success. That's one of the first steps, and if they become aware of that some might say it's not their key [skill set]," Frijstein says.

iChoosr's selection team awards points to each bidder at various stages of the process and each bidder must receive a certain number of points to qualify for the process. After the vetting process, companies submit their bids

in a blind auction process and a winner is chosen – or winners, if the auction is suitably large and requires more than one company to complete the work.

Then it is very much down to the installer to convert the interested participants into solar home owners. "The success rate [of installers] depends upon the effort put into it and where the company is at the moment, because you could have a very solid company but if you don't put effort into the method of approach you won't get access to the auction," Frijstein adds.

Previous auctions have seen conversion rates of around 25%, however iChoosr expects London – with its difficult rooftops – to bring forward somewhere between 600 and 700 completed installs from its first round. If forthcoming schemes can produce similar results, they could provide much sought-after lifelines for residential installers beleaguered by what's left of the country's feed-in tariff.