

# Post-subsidy solar: the reality on the ground

**Design |** The era of subsidy-free solar is well underway in a growing number of markets, with Europe leading the way. As Solarcentury's Peer Piske explains, the greater sensitivities around modelling zero-subsidy projects mean new approaches to design and planning are required by developers

The solar industry stands on the cusp of a genuine step-change, as the long-awaited era of subsidy-free solar becomes the new reality. Solarcentury is developing subsidy-free solar projects in Spain, Italy and the UK and evaluating projects in Greece and Germany. In Spain, we are constructing 500MWp of subsidy-free solar (across two sites) and across Europe we have a further 1.5GWp pipeline in subsidy-free markets.

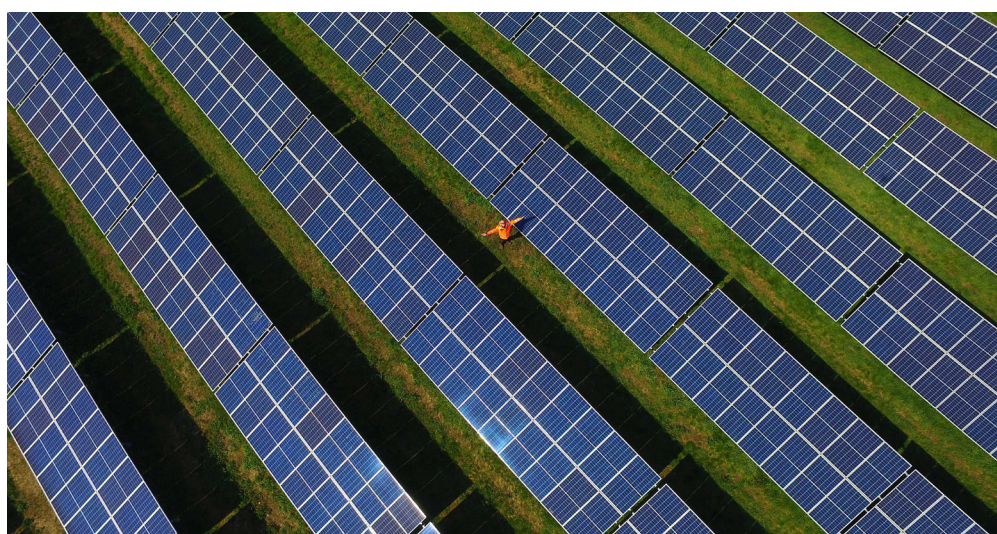
Subsidy-free solar has long been the predicted gateway for mass deployment, but it has a major impact on the approach to development of projects. New economic realities change both the risk profile for investors and the selection and design of projects, with large utility-scale solar farms becoming the new norm.

In the UK this transition is only just getting started, but in other markets such as Spain, subsidy-free solar has already become a reality. The 300MWp and 200MWp developments which Solarcentury is building in Spain serve as a model for how a new focus on markets less reliant on government subsidies has fundamentally changed our approach to development.

First, the financial risk profile for investors is completely different. The last couple of years has seen many debt and equity providers on a rapid learning curve to determine what risk they will and won't accept in this new model.

For example, investors need to determine their approach to managing the risk of increasingly more solar coming onto the grid over the years and the effect this substantial increase in kWh will have on spot pricing (solar profile risk).

Equity investors are now fully up to speed and the banks have determined their risk appetites; which often varies from bank to bank and country to country. We see



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**The reality of subsidy-free solar brings fresh challenges as well as opportunities for developers**

in all countries an increasing appetite for merchant risks. For example, in Spain we already have several banks financing fully merchant projects.

It's important to talk up front to all parties with a financial interest to ensure a complete overview of the route to market, debt and IRR expectations.

Second, the selection and design of

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projects is changing and impacting the way developers assess opportunities. Without the buffer of a government-backed income stream the model becomes more sensitive, and projects need to be managed significantly more carefully in terms of capex and opex.

Size is everything to achieve the necessary economies of scale, and ongoing costs such as rental for the land, O&M and taxes could severely damage the IRR if not managed precisely. This impacts decision-making, and as a result Solarcentury now excludes many more projects from development than in previous years.

To achieve the accuracy required to model and predict the systems and be on budget and programme requires the collective expertise of all disciplines from the very start of a project. The engineers, procurement team, project managers, asset managers and the data management team all provide considerable input into the planning, and without such a multi-disciplinary approach it's hard to imagine how a



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pure-play developer could achieve the level of precision required to model and plan developments with such tight parameters.

As an example of how this collaboration has paid dividends, two years ago Solarcentury's procurement team started working with our supply chain on their roadmap of products, determining which products we should be building with in 2019/20. As a result of this, our engineering team designed the Talayuela and Cabrera solar farms using products that didn't exist at the time of designing – increasing efficiency and providing a highly accurate view of how the systems will perform. This is essential for long-term investment planning.

We are also finding that to make these projects bankable, we have benefitted from changing the order in which we do things. For example, we have blurred the line between the development and EPC phases. For example, at Talayuela and Cabrera we built the grid connections at our own risk during the development phase. This is normally part of the EPC scope. However, the projects only became bankable because we were able to sign the PPA knowing that the grid connection was 'in the bag'. Completing these steps in this order significantly de-risked the projects.

Our control over every aspect of the asset (development, construction, ownership and operation) gives us hands-on control over the inputs to our long-term modelling when it comes to costs and performance. The variable is electricity pricing (currently impacted by the oil-price crash and COVID-19). Once prices have recovered from the current shock, the consensus is that power prices will go down over time, but in large part this is

**The fine margins in subsidy-free projects mean new approaches in design and modelling are required to ensure bankability**

driven by the increase in availability of renewables which are already cheaper than fossil fuels in most markets – and the continuing trajectory of cost down in solar and wind. So lower pricing is not a threat for renewables, it's driven by them. The threat is to fossil fuel businesses. And underpinning this is the political will of governments committed to climate change pledges and therefore the growth of renewables.

The other key stakeholder in subsidy-free solar is the off-taker, or power purchaser. In this arena the market is also changing rapidly with both utilities and corporates showing an interest in participating in PPAs and with a high degree of engagement and sophistication. Utility PPAs are more popular in Iberia whereas in northern Europe, where there is more industrialisation, corporate PPAs are the more common route. And a big driver for more corporate PPAs is the power-hungry data centres of the big tech groups.

Talayuela Solar is perhaps the most complex PPA we have signed to date; the power from the plant will be sold on the open market. The PPA that has been signed is actually a swap – a financial instrument which hedges the off-take price for approximately 75% of the volume of production, ensuring both a secured stable income for the first 10 years of operation and the bankability of the project.

The PPA is based on industry standard documentation published by the International Swaps and Derivatives Association (ISDA), more commonly used to hedge financial interest rate or currency risks and has been tailored to the Talayuela Solar project. The PPA is structured as a hedge of Talayuela Solar's capture price rather than base load price, thus providing an optimal

hedge for the Talayuela project revenues.

In countries like Spain, PPAs have a big discount on market pricing. This is driving investors to take more merchant risk and choose different routes to market.

Much is made of the potential future issue of cannibalisation. But when considering this, we must remember the climate imperative for electrification and the major role batteries are going to play. First, the amount of renewable power to feed a world powered by electricity rather than relying on fossil fuels is staggering as is solar's role within that. In Europe alone, trade body SolarPower Europe has released a report showing that the demand for solar could grow to over 10,000TWh by 2040. The same report shows we could also achieve as much as 2,000TWh of battery storage in the same timeframe. The demand for renewables is set to grow exponentially, which creates a more volatile market. However, the co-location of battery storage will enable investors to capitalise on the volatility, allowing a higher energy price to be captured, while reducing market risk and improving returns. In this regard, we have some way to go as a fair amount of market design is still required to incentivise battery storage for renewables and governments are aware of this and working on solutions.

In summary, the new approach we have developed in Spain is paying dividends and provides a roadmap for subsidy-free solar development in the next key markets: UK, Italy and Germany. We've learned, and continue to learn, how to operate in this new world where the key to our success is up-front engagement; with investors, off-takers and with the end-to-end team at Solarcentury. ■

Turn to pages 66 and 71 for further insights into post-subsidy project finance and price cannibalisation

#### Author

Peer Piske is business development director for Solarcentury. Prior to joining Solarcentury he had several senior management positions in the solar industry and founded three of his own companies. He holds a doctorate in law from Freie Universität Berlin and has published several publications in international law and project finance. Established in 1998, UK-headquartered Solarcentury is a leading global solar power company that develops, constructs, owns and operates utility-scale solar and smart technology across Europe, Latin America and Africa.

