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Seeing through the gloom

UK solar seeks stability after subsidy cuts

Source: Solarcentury

pwc

SOLAR TRADE ASSOCIATION

The UK has entered a highly uncertain period following the vote for Brexit, but uncertainty was a defining characteristic of the outlook for the solar industry even before the EU referendum.

Concerns about solar investment will be exacerbated by the decision to leave the European Union and the expectation of a turbulent period of economic adjustment.

Furthermore, National Grid recently warned that underperformance in heat and transport means the UK will miss its legally binding EU target of meeting 15% of energy demand from renewables by 2020[1].

However, it would be premature to reach too many conclusions about the implications of Brexit for solar with so many things yet to be negotiated.

The question of the UK's future access to the single market remains open and some businesses are likely to welcome the chance to remove perceived European red tape.

In the year since PwC's last report with the Solar Trade Association (STA), the UK's solar capacity has continued to grow but the number of companies in the sector has shrunk significantly.

Regardless of Brexit, the industry is already adjusting to a new stage in its evolution following the removal and reduction of state support mechanisms.

Lower Feed In Tariffs (FITs), the winding down of the Renewables Obligation (RO) and the absence of new Contracts for Difference (CfD) have all had an impact.

However, while the Paris climate agreement reinforced our need for low carbon power, the 'energy trilemma' demands that security of supply and affordability also remain foremost.

A holistic approach is essential if the UK is to meet these varied requirements and the solar sector must prove it is resilient and can continue to make a major contribution.

We conducted a new survey in conjunction with the STA shortly before the EU referendum to gain greater insight into how the industry looks in 2016 and what its future priorities are.

[1] http://www.solarpowerportal.co.uk/news/uk_to_miss_2020_renewable_energy_targets_concludes_national_grid

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responses were received, which represent a broad section of the UK solar industry and include many major players.

Key policy decisions over the UK commitment to it's carbon targets and how these will be achieved need to be made. The creation of the new Department for Business, Energy and Industrial Strategy (BEIS) maybe the catalyst to achieve this.

This report looks at the industry's key concerns but also features three case studies that showcase different ways in which solar can continue to shine.

Innovation will be crucial, and a number of interesting projects and products are being developed. Our case study on Electric Corby on p10 is one example of an ambitious, forward-looking project that could be encouraged and supported.

Solar PV capacity in the UK now exceeds 10GW according to official statistics[2] while the STA believes the true figure could already be 12GW, including 8GW of ground-mounted system.

But the rapid growth seen in 2014 and early last year will not be seen again under the current policy environment and while grid parity remains out of reach.

That said, the new Mayor of London, Sadiq Khan has pledged to support rooftop solar across the capital[3] and Scotland is leading the way in terms of new build installations[4].

Our key findings include:

- A third of solar jobs have been lost in the past year and a third of respondents expect to cut staff in the next 12 months
- Diversification into other products and services is the most popular response to policy changes, while almost four in ten firms are considering exiting the solar market completely
- Rewarding investment in solar through the tax system is the policy change the sector would most like to see
- Only half of respondents still view commercial rooftop as a key sub-market – and the figure is even lower for domestic solar PV
- Africa and North America were the main overseas markets UK firms were moving into even before the Brexit vote

[2] https://www.gov.uk/government/statistics/solar-photovoltaics-deployment

[3] http://www.solarpowerportal.co.uk/news/sadiq_khan_to_kick_start_a_clean_energy_revolution_after_london_mayoral_win

[4] http://forstergroup.co.uk/sectors/housing/

Jobs down a third but do more clouds lie ahead?

According to the STA's calculations, the figure for full industry job losses over the past year is likely to exceed 12,500.

Having made any changes to job numbers, we also then asked executives whether they expect their company's number of employees to change in the next 12 months. Three in ten said they expected to employ fewer people in a year, but a fifth expect to increase their staff and exactly half foresee no change.

Leonie Greene, the STA's Head of External Affairs, said the end of the Renewable Obligation (RO) grace period for ground-mounted solar could be a critical period. "There's a lag in the system so there are companies surviving on what are now 'ghost policies'," she said.

Nick Boyle, CEO of Lightsource, which has projects across the UK, said the company had built up its team with government encouragement and had been left "deeply disappointed" by the curtailing of policies supporting solar.

"Since the government U-turn, our hand has been forced to re-evaluate our strategy for both roof and ground mount installations, and this has had a direct impact on our team and internal resourcing requirements," he said.

The survey results exclude job losses from companies that had gone into administration at the time of the survey. Following the recent changes in support mechanisms companies such as Mark Group, made over 900 employees redundant after going into administration[5].

Our survey respondents said they employ **3,665** people now compared to **5,362** a year ago, a fall of **32%**

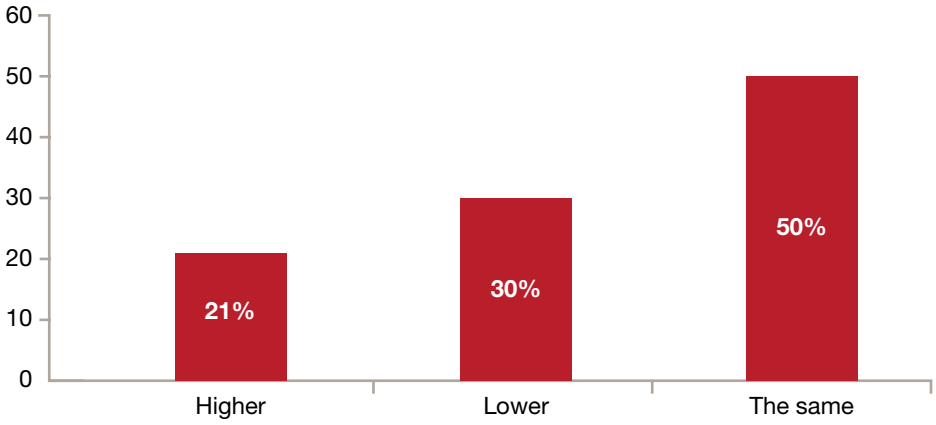
81% of the jobs are UK facing.

Industry job losses over the past year is likely to exceed 12,500, predict the STA.

We also asked executives whether they expect their company's number of employees to change in the next 12 months.

Three in ten said they expected to employ fewer people in a year but a fifth expect to increase their staff and exactly half foresee no change.

How many people do you expect to employ in a year from now?



5 http://www.bbc.co.uk/news/uk-england-leicestershire-34472419

http://www.solar-trade.org.uk/solar-company-mark-group-goes-into-administration-with-over-900-jobs-at-risk/

> "There could be more job losses as we don't know how big the unsupported market will be or how many companies will act out of corporate social responsibility."
>
> **Leonie Greene**
> *STA's Head of External Affairs*

> "We remain strongly committed to the solar industry and will continue to innovate through this difficult period."
>
> **Nick Boyle**
> *CEO of Lightsource*

Case study

Battery storage solution for delicate grid balancing act

Balancing the grid during sudden fluctuations in supply and demand will be a growing challenge as generation from renewables increases.

The UK's electricity grid must run at a frequency of 50Hz to remain stable but if demand exceeds generation, the frequency falls, and if generation exceeds demand, it rises.

Real-time balancing solutions are required but frequency response provided by traditional power plants with steam turbines can take 30 seconds to take effect.

Solar power specialist Belectric UK has used its experience of integrating solar energy into grids in 29 countries to develop a far more dynamic, battery storage solution.

Belectric's Energy Buffer Units (EBUs), which are housed in 40-ft containers, are already widely used on the network in Germany, where Belectric was one of the first three providers of frequency regulation solutions.

National Grid is currently seeking its first 200MW of UK balancing solutions through its Enhanced Frequency Response (EFR) tender and the company is bidding for 50MW.

The EFR's requirements are to draw power out of the network or push power into the network to the full capacity of any system within one second.

Duncan Bott, Managing Director of Belectric UK, said: **"The EBU's ability to increase its output power from 0 to 100% in 40 milliseconds is a market leading achievement."**

"It measures the local network, senses a frequency deviation and autonomously provides a proportional response."

Mr Bott said faster response has proportionally greater benefits for the network and could create a 'step change' in cost efficiency in the future.

Rise of new build and overseas as key sub-markets suffer

Last year we raised questions about the industry's direction after changes including the closure of the RO for PV plants of more than 5MW[6] and since then we have seen FITs for domestic solar cut by 65% to 4.39p/kWh.

We can now offer a detailed picture of how the key sub-markets for UK solar companies have changed over the past 12 months.

Not surprisingly, large-scale plants are now less likely to be cited as a key sub-market (down from 20% to 13%), as are commercial rooftop installations (down from 63% to 50%).

Fewer than half now see domestic solar as one of their most important business areas, down from almost three-quarters last year.

One in eight respondents said overseas was a key sub-market, up from one in 20 last year, and Africa (59%), North America (55%) and Northern Europe (52%) were the main regions that they are targeting.

"The UK is currently a very challenging market for solar companies," said Jonathan Selwyn, Director of Solar Consulting Ltd and new Chairman of the STA.

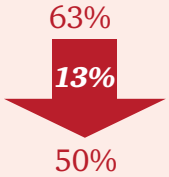
"Opportunities do remain for those that are fleet of foot and adaptable." "Many companies are now developing new business models, diversifying into other technologies and entering new, overseas markets with more supportive policy regimes."

There was a slight rise in the proportion of respondents viewing new build as a key sub-market to 42%.

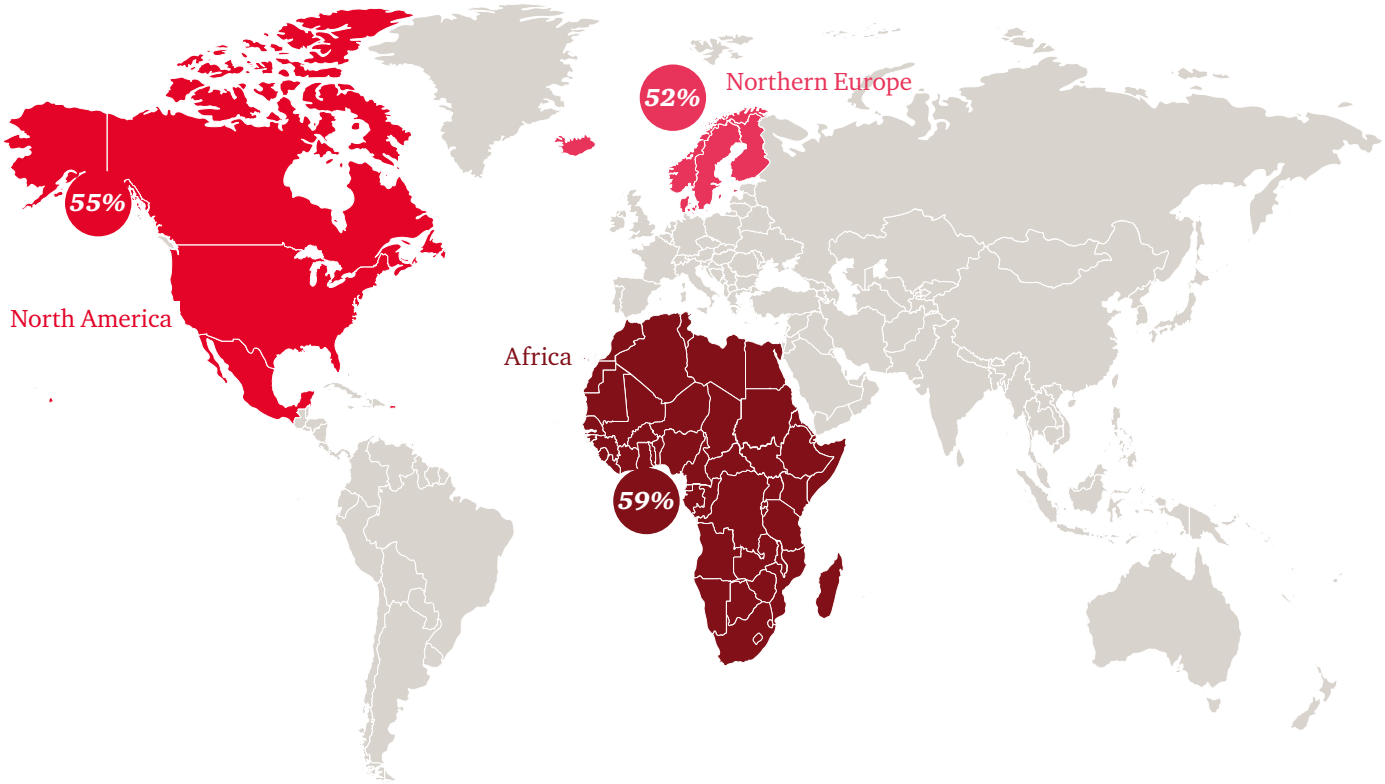
The STA said domestic and commercial new build are hugely important for driving markets and called on the government to support both and revive the 'zero carbon homes' agenda.

Large-scale plants are now less likely to be cited as a key sub-market

Respondents focusing on commercial rooftop installations down by 13%



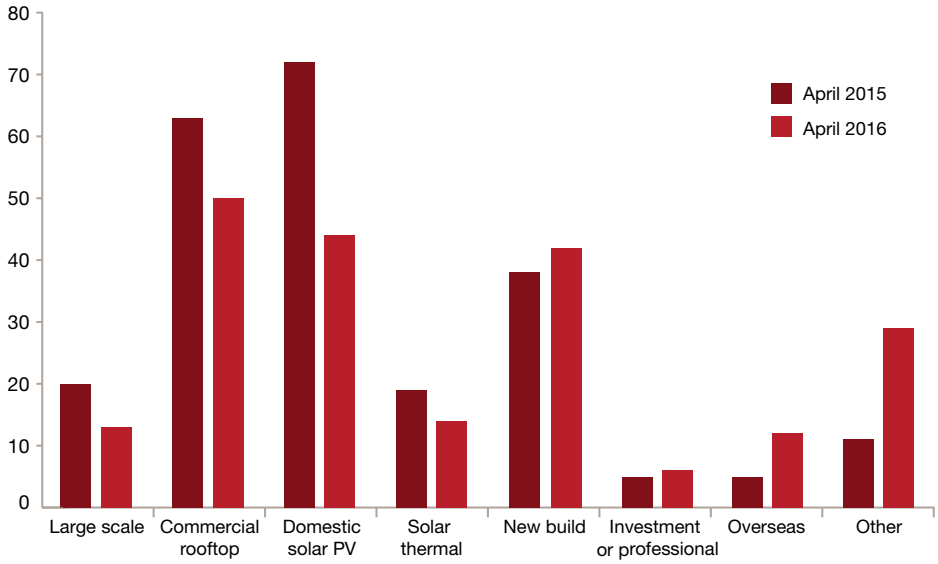
Regions respondents are targeting



[6] https://www.pwc.co.uk/industries/power-utilities/insights/sustainable-growth.html

> "The UK is currently a very challenging market for solar companies."
>
> **Jonathan Selwyn**
> *Director of Solar Consulting Ltd and new Chairman of the STA*

What are the key sub-markets for your company?



Policy

Desire for tax reform as majority look to diversify

We knew last year that the industry was highly concerned by changes to the policy framework that had seen UK solar take giant strides forwards.

A year on we asked solar companies what they would like the government to change to give them the best chance to secure or grow their business, allowing them to pick three options.

The most popular response was rewarding business investment in solar through the tax system, which 56% of respondents selected.

The STA is currently working on ensuring a fair, predictable and transparent tax regime that works for the industry, with strong concerns about the imminent six- to eightfold increase in business rates on self-owned commercial rooftop solar.

The STA said tax measures are popular because the sector has "lost confidence in other government schemes" and might see them as "more secure".

Greene cited the US's 30% federal solar investment tax credit[7] for both domestic and commercial properties as a "phenomenally successful" model.

After tax changes, the next most popular options were increasing the capacity limit under FITs (45%), support for smart grids and storage (44%) and removal of import levies on Chinese crystalline solar (43%).

The survey also asked respondents what actions they were taking or considering in response to the policy changes we have seen.

Almost six in ten said diversifying product and service offerings, making it comfortably the most popular response, ahead of a strategic or marketing refocus and seeking cost savings.

Diversification means solar companies dedicating more of their efforts to other important ways of meeting our overall energy needs.

For example, branching out into storage solutions and other technologies.

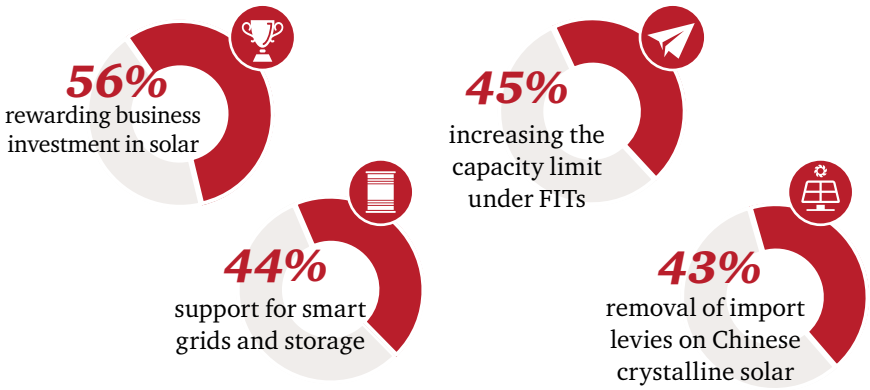
The STA believes while many solar companies are proving adaptable, the changes they make could come at a cost.

"People know solar is a powerful technology and that it can become fully competitive in the future," Greene said.

"Some companies are doing everything to diversify and some are going into hibernation until the situation improves. The danger is that we lose skills and lose our low-cost capacity. The solar market is one of the biggest energy markets globally, and we should be strengthening our position."

Nearly four in ten respondents said they were considering exiting the solar market altogether.

What would solar companies like the government to change to give them the best chance to secure or grow their business?

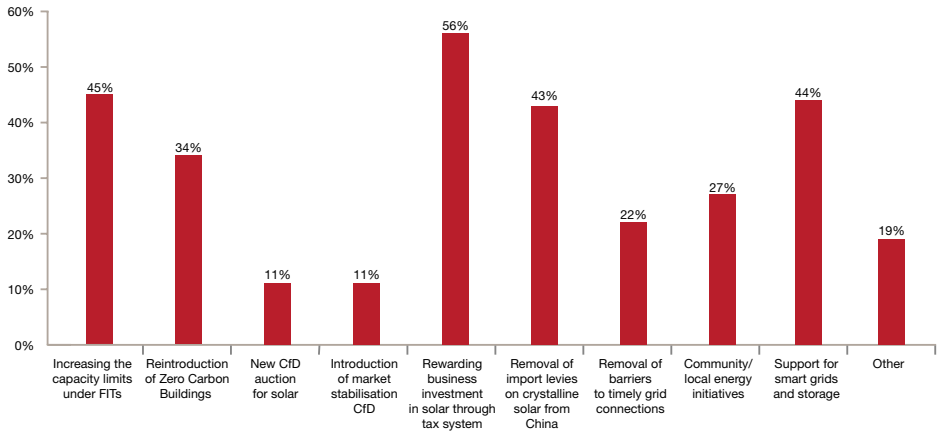


What actions are respondents taking or considering in response to the policy changes seen?

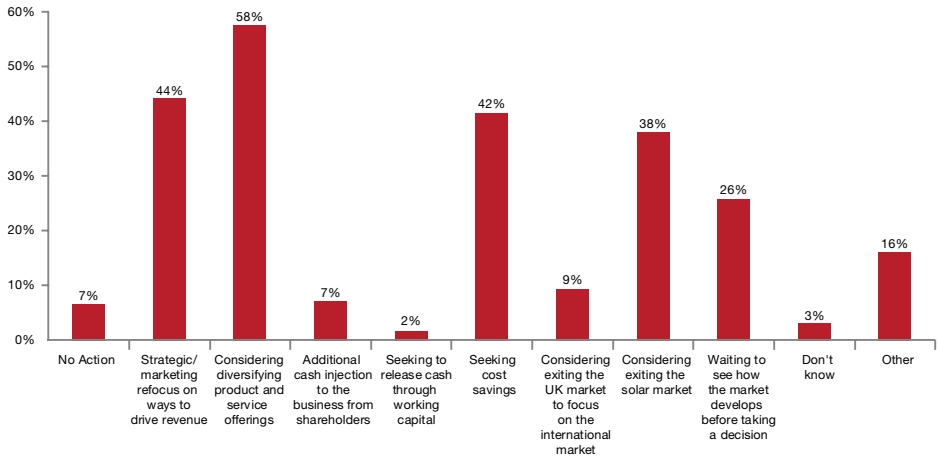
Six in ten said diversifying product and service offerings

[7] http://www.seia.org/policy/finance-tax/solar-investment-tax-credit

Which policy changes would present the best opportunity for you to secure or grow your business?



What actions are you taking/considering in response to the changes to the UK solar PV policy?



Source: Mactaggart and Mickel

> “Diversification into areas like storage could involve the kind of innovation that proves game-changing for the UK energy market. This could prove a good thing in terms of the energy trilemma in the long-term.”
>
> **John Dashwood**
> *PwC’s Head of Renewables, Assurance*

> “Ministers need to work with the STA to deliver a medium-term policy framework that helps rather than hinders the transition to a sustainable ‘subsidy-free’ future for solar.”
>
> **Seb Berry**
> *Head of external relations at Solarcentury and new vice-chair of the STA*

Case study

Innovative demand solution in ‘District of the Future’

Corby is England’s fastest-growing area outside London by population and an innovative community energy project is drawing further attention to the town.

Electric Corby aims to cut consumption, carbon emissions and bills for both business and domestic customers.

Its first initiative is a cloud-based connected network linking buildings across the town that can make real-time demand adjustments in response to changes in supply.

The system utilises algorithms to optimise demand through smart appliances and timing of consumption.

James Napier, CEO of Resero Power, which developed the software being used by not-for-profit Electric Corby, said: **“If solar PV is at peak generation, the system will schedule non-essential consumption to match this supply.”**

“In businesses, anything mission critical will continue but it can turn down air conditioning and lighting when appropriate.”

He said home hubs could cut energy consumption by 25%, compared with savings of 2-3% with smart meters.

Electric Corby is set to launch later this year with around 5MW of demand and the plan is to grow this to 35MW to 50MW.

Mr Napier said there is no plan to take Corby off-grid but one of the scheme’s benefits would be that in future a single tariff could be offered locally to both pre-pay and direct debit customers.

Several other towns are interested in replicating the scheme, which has seen Corby recognised as a ‘District of the Future’ by the European Commission.

Source: Solarcentury

Finance

The solar sector feeling the squeeze?

After a wave of insolvencies, we asked executives whether they were experiencing increased pressure from their bank or other debt provider and whether they expected to need new sources of finance.

One in ten reported rising pressure from their bank and creditors, a similar number from creditors only and just one in ten from their bank only.

But almost half could happily report no increased pressure at all, while many others said the pressure was limited to cash flow concerns.

A quarter thought it very likely that they would need to find new sources of finance in the next 12 months and almost a fifth said it was quite likely.

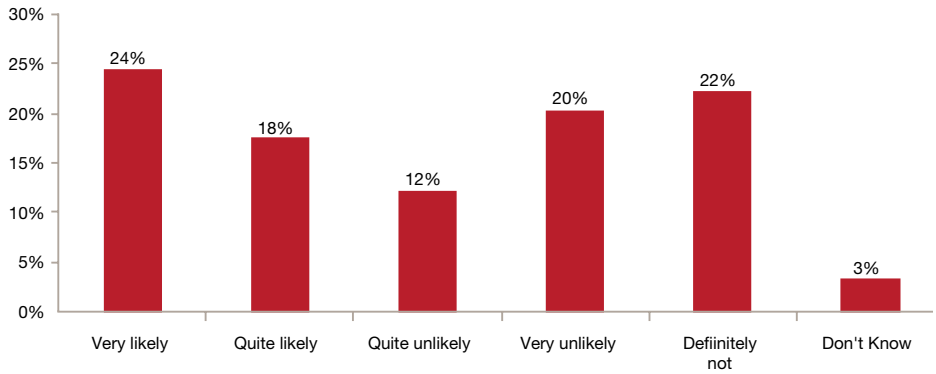
However, more than half said either that they would definitely not need new finance in the next year or that they considered it unlikely.

Despite the changing landscape, UK solar continues to represent a world of opportunity for some companies (see our case study on NextEnergy on p13).

The UK has witnessed a growing trend for solar assets to be bought up in the secondary market by pension funds, other institutional investors and private investors.

It appears that the investment community is developing greater understanding of the risks associated with solar and increasingly views the sector as able to offer a stable income stream.

Do you expect to need to find new sources of finance in the next 12 months?



> "The results show that there can still be attractive investment opportunities in solar, particularly in the secondary market."
>
> **Chris Devon**
> *Manager, PwC*

Case study

Secondary market helps solar fund's growth spurt

NextEnergy Solar Fund (NESF) has acquired 33 solar plants in the UK with a total installed capacity of 414MW since its initial public offering in April 2014 and plans much greater growth.

Already the largest LSE-listed solar fund, it aims to own up to 1.5GW of ground-mounted solar in the UK in two to three years, according to Abid Kazim, UK Managing Director of NextEnergy Capital (NEC), the fund's investment manager.

That could mean around £1.5bn deployed, he added.

Mr Kazim said the UK's secondary solar market has been seeing investment from China, North America and Germany.

"The variety of the secondary market is very healthy," he said. "We have international money looking to buy aggregated assets and the Germans are very interested as it represents the same risk with higher returns for them."

"However, since the referendum, we have seen a marked reduction in appetite for UK deals by funds from Germany et al."

"This may reflect a natural period of reflection or a structural risk for these funds that may have secured investment approvals based on the UK's EU membership. We cannot tell at this time."

NEC's subsidiary WiseEnergy International, which provides specialist asset management services to more than 1,200 utility-scale solar power plants, is also expanding.

Mr Kazim said it would begin technical assurance on solar plants in India in September with full asset management services to follow by December.

"If you want to build 100MW of solar in India, we will provide the services and insource for asset management," he said.

"There is a tendency to race to the bottom there but we won't do that. We want to put in place best practice."

Asked about the overall outlook for UK solar, he added: "A lot of the weaker players will vanish but there will be innovation. The big thing to remember is that solar will always surprise you."

Brexit raises new questions as Fifth Carbon Budget moves forward

The UK's withdrawal from the EU is likely to have significant implications for solar but nobody can yet be certain exactly what they will be.

At present, the industry is in doubt about three key areas in particular:

- Investment - investors tend to 'shy away' from uncertainty. If debt financing falls away, will the secondary market go the same way?
- Lending – what will happen to interest rates and will banks still want to lend for renewables projects if they face rising pressure elsewhere?
- Power prices – they rose in the second quarter[8] and could rise further with a sustained slump in sterling, for example.

In addition, it is not yet clear whether the UK will retain access to the EU energy union, whether EU renewables targets will still apply and whether the UK will continue to operate within the European emissions trading scheme.

While many of the UK's decarbonisation targets have been negotiated within the EU bloc, ministers have insisted since the Brexit vote that the UK remains committed to its own Climate Change Act[9].

They have also moved to pass the Fifth Carbon Budget[10], a legally binding commitment to reduce carbon emissions 57% by 2030 compared with 1990 levels.

It remains to be seen whether this will prevent a damaging dip in investor confidence and fears may persist that Brexit will make it harder for solar companies to attract European capital and talent.

A German asset manager, Goodyields Capital, said after the vote that it would no longer pursue UK investments[11] as it seeks €300 million for its second renewables infrastructure fund.

But it also said this could change if the UK adopts a Swiss or Norwegian-style relationship with the EU.

Question marks now hang over important energy-related infrastructure projects.

The energy sector received more than a quarter of the European Investment Bank's €29 billion of investment in the UK between 2011 and 2015 and the EIB has also pledged £360 million towards the UK's smart meter roll-out[12].

But it is unclear whether the UK could remain an EIB shareholder and whether any more UK projects stand a realistic chance of being funded.

Brexit could also slow down or jeopardise interconnector projects, which can benefit consumers by reducing wholesale prices.

New interconnectors are planned to link the UK with Belgium, Denmark and Norway, as well as further links with France[13].

Brexit could result in UK interconnector projects losing access to bespoke EU funds[14], especially if the UK ends up outside the Internal Energy Market (IEM).

Delayed interconnectors could mean the UK instead needs to increase generating capacity and ministers would need to consider whether solar could play a major role in that.

Finally, while the timing of Brexit remains uncertain, the EU's minimum import price on Chinese solar panels may not apply to the UK for much longer.

The STA has previously described the tariff as "punitive"[15] and its removal might enable further cost reductions to improve the case for solar.

8 http://www.telegraph.co.uk/business/2016/07/07/brexit-pushes-uk-energy-prices-towards-nine-month-highs/
9 http://www.businessgreen.com/bg/news/2463181/amber-rudd-uk-remains-fully-committed-to-climate-action-in-wake-of-brexit-vote
10 https://www.theguardian.com/environment/2016/jun/30/uk-sets-ambitious-new-2030s-carbon-target
11 http://www.infra-news.com/public/
12 http://www.eib.org/projects/regions/european-union/united-kingdom/index.htm
13 http://www2.nationalgrid.com/About-us/European-business-development/Interconnectors/
14 https://www.bartlett.ucl.ac.uk/sustainable/documents-news-events/brexit-and-energy
15 http://www.solar-trade.org.uk/european-commie-solar-panels/

Conclusion: seeking stability amid a structural shift

The solar industry needs some stability after a turbulent period if it is to play a growing role in meeting the UK's three objectives of security of supply, affordability and sustainability.

We asked respondents to indicate how confident they felt about their company's performance over the next 12 months on a scale of one to five, where one is the most positive.

Only a fifth indicated a high level of confidence (answering one or two), while half showed a low level of confidence (answering four or five).

This finding may come as no surprise but our experience of the solar sector suggests it could still yield a new set of success stories in the years ahead.

"The solar industry undoubtedly faces some serious challenges, but it has already proved resilient and adaptable," Mr Dashwood said.

John Dashwood
Head of Renewables, Assurance

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> "These survey results show there will be a structural shift in the market and solar players need to consider alternative products and markets.
>
> Our three case studies highlight the kind of innovation that can secure a positive future for solar energy in the UK."
>
> **John Dashwood**
> *PwC's Head of Renewables, Assurance*

Thank you to the Solar Trade Association for use of their images.

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