

KEYNOTE INTERVIEW

The third age of solar power



A paradigm shift is taking place in distributed solar, putting the customer at the centre of an evolving market, say TGC's [Panos Ninios](#) and [Bo Wiegand](#)

Solar power is entering a new phase in the US, say Panos Ninios and Bo Wiegand, each a partner and co-founder of True Green Capital Management LLC (TGC). To be successful in the new environment, managers must adopt a new, customer-centric approach.

Q What role is the customer playing in the evolution of solar power markets?

Panos Ninios: There are three key stages of development when it comes to the evolution of solar power. The first stage was all about direct government subsidies. The demand source was mandated and the customer was the utility.

In the second phase, solar was

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partially subsidised and the regulatory framework was built around bilaterally negotiated contracts, or PPAs. During this stage, the customer base was primarily comprised of corporates. Europe is currently emerging into this second phase.

The third phase is about solar power generation directly accessing commercial and retail customers through the distribution network. The US entered this phase with the emergence of community solar programmes in

the mid-2010s. In 2017, our firm was a pioneer in the NY community solar programme, where we have since built approximately 130MW and acquired more than 20,000 customers. Given that wind and solar are competitive with brown power, the natural evolution of the community solar model is to become entirely market-based. Both corporates and retail customers are seeking to access renewable sources of power to support their own ESG objectives.

In this third stage of evolution, the customer has real value and the only way to scale is through attracting and retaining those customers effectively. Creating or acquiring the skill sets for customer acquisition and management

Case study: Faradae in France

TGC recently completed an investment to capitalise on the market opportunity for distributed solar in France. The investment into Faradae marks the firm's first non-US deal.

Panos Ninios: The objective with the Faradae investment is to establish a platform focused on developing, building and operating small-scale, self-consumption distributed solar projects across the country by targeting the owners of commercial real estate as customers. These customers then benefit from long-term, fixed-price electricity contracts, giving them access to electricity at rates far below the merchant prices available in Europe today, while enhancing their energy independence.

The French solar market enjoys strong regulatory support. In early 2022, the government announced an installed solar capacity target of more than 100GW by 2050, almost eight times the 12GW currently installed.

Importantly, since 2019, France has also exempted solar self-consumption from electricity tax and, more recently, has permitted third-party investment in such projects. Any real estate owner that does not comply with regulation stipulating that 40 percent of energy comes from renewable sources is subject to a financial penalty. In this sense, the country's regulatory evolution is mirroring that of the US.



There is huge potential for growth in this market. Meanwhile, self-consumption accounts for only approximately 5 percent of installed solar in France compared with approximately 30 percent in the US. Indeed, we believe the addressable market opportunity is so large that we can build more than 200MW of power plants over the next five years. Frankly speaking, the investment thesis is to deploy as much capital as possible over that period.

will be a key differentiator for success. Yet many investors in the space, especially in Europe, have failed to recognise this paradigm shift and are still operating in the same way that they did when the government or the local utility was the primary counterparty.

Q What kinds of opportunities and challenges is this customer paradigm shift creating for you as investors?

PN: The cost to build solar is now well below the cost to build and operate thermal power plants, opening the entire power market to solar and therefore, we believe, creating a massive

opportunity for solar investors. We believe this to already be the case in the US. Europe is around five-10 years behind but the white space in that region is vast as well.

As is so often the case, meanwhile, the challenges are the flipside of the opportunity. You need to be able to manage these customer relationships and risks, and that is no small task.

We believe the solution is to create vertically integrated solar and battery utilities. Over time, that will change the entire paradigm of power generation and distribution.

Q Are there specific investments you have

made that capitalise on this trend?

PN: As I mentioned earlier, starting in 2017, we have already made significant investments in NY community solar. In addition to community solar, we are investing in green energy retailers in the US with the objective of combining customers that are willing to pay a premium for green power with actual distributed solar and battery powered generation.

The way green retailers are creating a green power product today is by combining brown power with renewable energy credits. But there is an opportunity to have green power generation using solar power plants combined with batteries that are then embedded in the

Case study: Solar Farms

New York

One of the primary constraints in the community solar sector is the ability to secure creditworthy customers at an efficient cost and service them effectively over the long term.

To meet these challenges, starting in 2018, TGC built a community solar acquisition and servicing platform called Solar Farms New York to access this market.

Bo Wiegand: Solar Farms New York has been highly successful in providing best-in-class services at a preferential rate for our fund's community solar portfolio of projects. More importantly, our team has gained insight into the mechanics and cost of customer acquisition, customer attrition drivers, as well as the challenges of building such a business from scratch. That success has informed our perspective on a vertically integrated business model that allows us to remain close to customers and their needs.

There have, of course, been challenges, but our portfolio has performed in line with expectation largely because of that customer focus. Others in the market have experienced significant negative impacts because the customer has not been central to their thesis.

Panos Ninios: In my mind, there are three key areas of challenge with community solar. The first is



associated with power plant development, the second is associated with power plant construction and operations and the third is associated with acquiring and managing customers.

The first two buckets of risks are well understood in the business. However, you are going to be faced with significant customer attrition and reacquisition cost if you don't acquire the right customers in the first place and do not manage your customer base appropriately over time. That customer risk is not fully appreciated by many of our peers and yet it is absolutely critical to the investment's success.

power distribution system.

Based on this thesis, we are making an investment in an entity that combines a solar power plant development team and project pipeline with a green customer portfolio, as well as customer acquisition and management teams. The development arm of the business will allow us to develop and invest into new solar power plants, in a similar way to the community solar model. The result will be a vertically integrated green power generator all the way from the solar power plant to the customer.

Q Why does community solar represent an

attractive investment opportunity?

PN: Community solar is an early iteration of this whole customer-driven paradigm shift in terms of a vertical integration with customers, albeit with some regulatory support. In that sense, it is a bridge between phase two and phase three of the evolution of solar markets.

Bo Wiegand: Exactly. Community solar is one regulatory design of a green utility that both produces power and sells that power directly to customers, and there are a number of aspects to that model that make it extremely

attractive.

First, the ability to sell power to individual customers and corporates at retail rates enables us to access higher revenue streams than the typical corporate PPA on a rooftop.

Second is the ability to scale; you can invest in distributed ground-mounted systems for less than traditional rooftop corporate systems, selling to customers at a better price.

Third, we are able to assemble a highly diversified customer base. With community solar, you are either selling to hundreds of retail customers or multiple corporates, therefore diversifying your credit risk.

Q What challenges does this sector present and how can those be overcome?

BW: Community solar first emerged in some US states in the mid-2010s and the key challenges at that point were primarily around financing. Would an investor such as TGC be able to secure tax equity and bank debt at attractive rates, given how nascent these programmes were?

The other challenge historically was around regulation. Many state programmes were still evolving in terms of the grants available and utility support, and so there was a great deal of complexity and ambiguity to navigate.

What that meant, of course, was that players that could secure projects in those early phases were able to benefit once the regulatory outcome had become clear – that is what we were able to do with our 130MW community solar portfolio acquired in 2017 and 2018.

Indeed, many of those initial market challenges have now been overcome. Bank financing, at least in markets such as New York, is relatively available and regulatory programmes are well understood. That means, however, that additional capital with lower return objectives has moved into the market, which is one of the challenges we face today.

Other challenges are similar to those associated with energy development, generally regarding permitting as well as interconnection delays, and challenges associated with processing customers efficiently from a billing and servicing perspective. Having said that, one has to understand that solar power plant development is undemanding and expedient in comparison with thermal power plant development, which requires several years and faces many ‘Nimby’ issues.

We have sought to address the customer hurdles in New York through the creation of our own customer acquisition and servicing platform called Solar Farms New York. That experience has informed our views on what we believe to be the next opportunity set around a vertically integrated green utility.

Q Why does Europe have a lot to offer in terms of distributed solar, right now?

PN: Europe has reached the point where solar is in the money without reliance on subsidies, and this is driving that second phase of development involving bilaterally negotiated agreements within some kind of market framework. In this respect, Europe is looking very much like the US looked 12 years ago when we started our firm, so we are very familiar with the evolution ahead.

We think this market is exciting because it is early days, and the potential returns are highly attractive. We see opportunities in many geographies including the UK, France, Germany, Scandinavia and Benelux. Italy is also coming out with some interesting regulatory structures around community solar. In addition, akin to the US, we are now seeing opportunities around battery storage across the region. In Germany, for example, battery storage, when combined with PV, can permit a typical household to operate essentially off the grid from April to October, despite a latitude similar to Canada.

That said, we believe France and the UK currently offer the most potential. We have recently completed a control equity investment in France with a company called Faradae and are actively pursuing opportunities in the UK.

Q What impact has the war in Ukraine had on opportunities in this region?

PN: Ultimately, war in Ukraine made Europe realise it needed a form of power generation independent from Russian natural gas, and overall independence from imported fossil fuels. That form of power generation also needs to be local. Given those three requirements, putting solar on top of buildings or in distributed ground-mounts around towns seems like the obvious answer.

Distributed solar is totally local, is cheaper than anything that you can currently do with fossil fuels and can be built faster than any other type of

power plant. It also, obviously, bypasses Russian gas. A lot of lessons have been learned from this terrible war, resulting in significant regulatory support for distributed solar throughout Europe.

Q What skills are required to be successful in this market?

BW: Distributed solar is something we have been doing in the US for the past decade and the skills we have acquired through that period are fully portable to this emerging opportunity in Europe. Those skills include the ability to secure sites and customers, construction and operational oversight and the ability to scale in an institutional manner.

Investors also need to be able to negotiate bankable contracts with terms that protect the investors and financing partners. This will be extremely important as the debt markets in Europe evolve and financiers become more comfortable with distributed solar.

Then there is the ability to manage credit risk and to understand the offtaker’s credit profile, and the ability to sell power back to the grid, navigating that commodity exposure. These are all things that we have navigated in the US, which we believe can be transferred to European markets.

In terms of then making the investment successful, relationships with developers and local originators are paramount, as is operating experience. Investors need to be able to understand and manage operational performance on the ground to maintain high asset availability to service their customers and to ensure assets perform according to their underwriting.

Finally, investors need the ability to successfully access project finance and risk manage portfolios across multiple markets and regimes. Again, this is something we have been doing in the US for the past 12 years across multiple states and vintages. We are now bolstering our existing capabilities in Europe as we look to recreate our success in the US in a new market with a huge amount of opportunity ahead. ■