Green money and the

Storage finance | Clean energy entrepreneur Jigar Shah, one of the pioneers of solar finance, is turning his attentions to other low-carbon energy technologies such as storage. He tells Andy Colthorpe about his latest equity round and the freedom he enjoys to back projects he thinks will have greatest impact

At Energy-Storage.News, we have seen the industry rise and rise, driven on by specific geographies and higher-value applications. Analysts tracking energy storage, such as Mercom Capital, which issues quarterly reports on mergers and acquisitions and venture capital funding, have found significant sums of capital being put forward for new technologies and latterly for project financing, with increasing frequency.

As solar PV went through the learning curve of its boom years, capital first came mostly from private investors and risk-hungry VCs. Only as the market matured did longer-term, institutional investors start to get involved. While the likes of superstar clean-tech VC investor Nancy Pfund have told us that the energy storage space is getting ripe for big money, with institutional investors eyeing opportunities closely, hands have not yet gone into pockets on a grand scale.

In late October, Generate Capital, led by an executive team that includes SunEdison founder Jigar Shah, raised about US$200 million in equity investment, with input from the Alaska Permanent Fund Corp (APFC).

Both the sum of money and the fact that a large sum of it was sourced from an institutional investment group – APFC is a sovereign fund for the state of Alaska – are notable. Generate prides itself on finding opportunities across the whole spectrum of clean energy. While best known for his pioneering work in solar finance, Shah and the Generate board appear just as excited these days about the potential for other technologies too, from batteries to anaerobic digestion, fuel cells for forklifts, to low carbon solutions for purifying drinking water.

Speaking to Shah over the phone, it's obvious that he relishes what he calls the "complete freedom" to invest where Generate thinks it can make the most impact, be it "water, agriculture, waste, battery storage" or other options.

It's a question of being trusted to take calculated risks, Shah says, of negotiating a frontier that is littered not just with potentially 'good' deals and 'bad' deals but more commonly also includes "misunderstood" technologies or business ideas. He explains that, for example, through the recent history of the energy storage industry, the thought of funding the technology had "traditional finance providers very scared, initially".

Generate, on the other hand, was experienced with renewables and clean tech and convinced of their potential. This has led to the company "providing a lot of capital" to a series of solar-plus-storage and behind-the-meter energy storage projects already.

For Generate Capital, there will always be a "frontier of deals that are misunderstood", Shah says.

"That problem will never get solved. There will always be someone that has to go first, or second, or third, in helping a technology that has proven itself on a technology basis but has not proven itself on an institutional infrastructure basis."

Gradually we have seen banks and other financiers starting to become comfortable with solar PV, especially in North America. Yet according to Shah that reluctance still exists when it comes to more advanced technologies and Generate Capital sees itself as a conduit for cashflow into less traditional areas of clean infrastructure investment.

"Generate is really about serving the market, before sort of the commodity capital sources start streaming in," he explains. "Once you feel you can get 5% money from Deutsche Bank, Generate is no longer as competitive. Right now, there are a lot of applications of storage that continue to be misunderstood by the broader finance community."

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Examples where the funder stepped in where banks feared to tread have included solar-plus-storage projects, behind-the-meter applications, or even energy storage projects in Ontario planned to mitigate the effects of the Canadian region's Global Adjustment Charge, payable by electricity ratepayers to finance conservation and demand management programmes.

Institutionalised?

As for the advent of institutional investment in energy storage, there have only been one or two blips on the radar until now. Swiss group SUSI Partners created SUSI Energy Storage Fund, reaching its first closing in April this year at just over US$70 million, with backers including pension funds and insurance companies. While it's obvious that just as with banks, institutional investors will start to get comfortable with energy storage, Generate's opportunity to work with the Alaska Permanent Fund's capital is one of only a handful of other examples.

There has been little pressure on pension funds and others to see energy storage, or even solar-plus-storage as a viable divestment option from fossil fuels. While it might seem also that institutional investors would err on the side of conservatism in deploying their capital, this isn't necessarily the reason why many haven't bought into the storage revolution yet.

freedom to invest

"[Institutional investors] invest in hedge funds, private equity funds. They invest in a lot of things that you might privately think are risky. The hook at this point is that for many of these companies, or investors, they're really focused on oil and gas investing. And you know, oil and gas investing has been quite volatile as of late," Shah says.

'Energy as infrastructure'

The point is that oil and gas, while risky, can make 25% returns; wind and solar typically create closer to 6% to 10% returns, on the proverbial good day. Investing in renewables, Shah says, is closer to infrastructure investing – "if they buy an airport, they might get a 6% to 10% return" – than it is to the traditional fossil fuel market gamble. The money institutional investors would put into wind, solar or latterly energy storage projects therefore would probably not therefore represent a divestment and would come from separate funds to those oil and gas holdings, Shah argues. As he showed through years of reinventing solar finance, however, it's still all about scaling up.

"The big thing for these institutions is that they can't dive in to deals unless it's a large cheque. So if someone comes to them with a US$25 million opportunity in battery storage, they just can't do a US$25m deal. They really need to put their money out the door in larger quantities. So if they're going to do deals directly, they'll do solar and wind where they might be able to do a US$100 million deal, so they're not going to smaller deals directly. So I don't think it's about risk as much as it is about comfort, and size."

Shah remains passionate about solar. He says Generate is one of very few financiers investing in community solar, a state of affairs that he says he finds "weird".

"Every community solar deal today has been forced to find institutional off-takers. Why don't you get Walmart, or this local school district to actually buy the power? Well, because those guys are not the ones the community solar statute was written for. Something as simple as that was basically blacklisted by the entire finance industry, and it wasn't until we started coming in and funding it that people started opening their eyes."

While there is some risk associated with low income customers and residential renters who may not live in one place for the long haul, this calculable risk can be built into the business proposition. Of course, in energy storage, the long-term value of a deal can be harder to figure out.

"It's about figuring out what we can charge for," Shah explains. "It's saying, 'What benefits will the industrial customer, or commercial customer pay for?' Will they pay for it as a fixed payment because they believe it's real and will occur every month? Or are they paying for it on a performance basis, where they say, prove to me at the end of the month that you'll save me demand charges and then I'll pay you 80% of what you show me.

"Those are two different risk profiles. In one case they've agreed that it works and they're just paying us a fixed payment every month. In another application, like if the software fails to operate correctly, then we don't get paid."

Separate to that risk, Shah says, is regulatory risk. Many markets do not yet value the services batteries can provide, meaning that even where the demand exists, the regulatory space is yet to catch up.

Modelling the risk

Evaluating and finding ways around these risks is tricky. UK transmission network operator National Grid recently said developers should not bank on revenues from providing frequency regulation services and should find ways to 'stack' multiple revenues for providing different services, behind and in front of the meter.

"If someone calls us up now and says they've included X number of dollars for grid services, we're going to say 'wait a second, we don't think you're going to get them until 2019 or 2020, and when you do get them it's going to be this amount, not that amount'. We're not miracle workers. We can't just assume that these revenues are going to magically appear.

"You have to be able to model it. You certainly can get frequency regulation revenues for two years and those are pretty lucrative and could give you almost half your money back, which is great, or more. But then the question is what do you do next? What markets do you participate in next? And you just have to keep revenue stacking and modelling it.

"The other alternative with battery storage is that you could also potentially afford to just pick it up and move it! You could say for two years I'll get this revenue and then move it to another place. So I certainly believe there is a rational way to finance projects with short-term revenues – but then the returns have to be similar to independent power producer returns, which are more in the 20% range."

2018: The year utilities break through?

Asked what next year might hold, Shah's answer is perhaps surprisingly downbeat, although laced with his usual fighting spirit. Utilities are quickly becoming wise to the value of energy storage, Shah says. It took many North American utilities several years of the solar market boom to realise they could not ignore it and hope it would go away. Nowadays utilities are presenting a multitude of approaches to encouraging, accommodating or in some cases even pushing aside PV. Some utilities are now keen to own solar assets. Jigar Shah is expecting to see a similar dynamic in energy storage next year.

"Energy storage has broken through such that utilities [in the US] admit that their value is very high, at least to a 3.5% penetration. The fight now is really about who owns the storage – I am inclined to believe that the utility companies will win that battle," Shah says.

"They will make sure that private owners of batteries don't get paid a fair return – similar to what has happened to the demand response markets."

While Shah thinks utilities will not be able to achieve a takeover of the market in 2018, they will "all decide that is the strategy", he says. Yet he is not defeatist. I ask if that means it will be harder for the likes of Generate to keep making plays for the projects and technologies it wants to.

"It means that we have to innovate on our side to be able to continue to put our money to work," he says.