KEYNOTE INTERVIEW

An unstoppable force

US renewables have gathered such momentum, neither governments nor a pandemic can break their stride, says Capital Dynamics' global head of clean energy infrastructure, John Breckenridge

Q How have US renewables evolved in recent years?

The US market has gone through a number of phases. The first phase was utility-scale wind. That started in the mid-2000s, when solar costs were still high in the US, and European solar was heavily subsidised. That has now changed. The cost of solar has come right down and as the wind market has become more saturated – and in some cases, over-built – the solar market has eclipsed it in terms of popularity.

Q What is the next phase likely to be?

From our perspective, the solar industry remains the most interesting opportunity in the US. Historically, that market was driven by large utility power purchase agreements. Solar costs were high and so solar PPA prices were high too. Solar costs came down faster than anticipated and so those projects became highly profitable.

That has now levelled off to the point at which utility-scale PPAs will typically be auctioned off at very low prices and, in our view, will generate very low returns. Instead, we are moving towards more complex solutions that incorporate not just solar, but solar plus batteries, or solar plus batteries together with some kind of power trading. That is where the next phase of interesting opportunities lies.

Q What impact are electric vehicles likely to have on the renewables market as they proliferate?

If all light trucks and cars were to convert to electricity today, it would increase demand by around 25 percent. If that all came at the wrong time of day, it would be very difficult for the grid to support it.

However, there is plenty of generating capacity to handle that at off-peak times.

So, the trick, once again, will be building charging stations that have renewables attached to them and that are able to store power, as well as having technology that allows the vehicles themselves to become a grid asset rather than a grid problem.

Q Which storage technologies are leading the way?

In terms of utility-scale storage today, lithium ion is really the only game in town. There was a technology war fought when consumer electronics came on the scene and lithium ion won that battle. That means a whole supply chain has developed around it and there is massive capacity, particularly in China, driven largely by the EV market.

If you have large-scale, safe, reliable and cost-effective lithium ion systems you can finance those today and get insurance for them. Those aspects tend to be far more important for investors than the fact that one technology may be slightly better than another.

Having said that, it is important to understand the limitations of battery storage and that is, if you want more storage, you have to buy more batteries. It isn't a big deal for solar, where you only need to store power for two or three hours in the evening, and then you get to recharge the next day. But it doesn't work for wind. The wind may blow for five days and you have charged your battery in the first hour. But then it may not blow again for another five days, and you have discharged your battery in the first four hours. That is where you need some sort of storage device that can expand, such as hydrogen or compressed air. The problem is that these longer-run storage solutions are still a ways off from being viable in most situations. The two forms of renewables require different storage solutions.

Q How are offtake agreements changing?

There are easy access points into the market with offtake agreements at very low prices that anyone can bid on. That is where we are seeing most of the new money go, but it is a part of the market we think is very risky. A far more interesting part of the market involves complex offtakes. It is about going to a municipal utility or retail power provider or cooperative and looking for a power solution that is not just a traditional PPA. It may involve a solar or wind system, battery storage, power trading or the integration of distributed generation within the community. These are complicated agreements and it is a part of the market where most managers cannot participate because it is very hard to do. Traditional PPAs are still out there but, in our view, it is not where you want to be investing your money.

Q How is the interplay of renewables with traditional fossil fuels developing in the US?

When renewables first came to the US, they were such a small part of the overall picture, that they had very little impact on the grid. That has obviously now changed. Renewables have a huge impact on the grid, to the point at which they have been forced to evolve.

Today, renewables need to look more like a traditional power plant, providing energy on demand. That involves storage. The rolling blackouts that have recently been experienced in California came about partly because there was not enough storage on the system. If renewables are going to grow, that will have to be solved. As bad as it was for the people of California, in that sense what happened was actually a good thing for the system, because it showed us where the boundaries are and what needs to be fixed.

Once those solutions have been implemented at scale, renewables will continue to chip away at the need for traditional sources of power. Gas power plants will be needed for a very long time, but coal plants are on their way out and the nuclear industry is also in trouble.

Q How would you describe the competitive dynamics of the industry?

We have an over 7 GW operating portfolio of renewables. At that scale,

we tend to compete against industrial players such as utilities, rather than financial investors. Having said that, we are starting to see some of the biggest infrastructure managers raising funds dedicated to renewables. Those funds tend to focus on the relatively easy access points to the market that I was describing. But I do think these specialist vehicles will push out generalist managers, and investors looking to gain exposure to renewables through broad-based infrastructure funds may find they are living in the past.

Q What role is the health of the tax equity market likely to have on capital deployment?

That is a big focus for the industry right now. Tax equity is a complicated product, which is why there are specialists in the sector. After all, if you get tax equity wrong, it has catastrophic implications. Those specialists, however, tend to have pretty small teams, which means they favour doing repeat deals with the same managers rather than having to start at the beginning with a new relationship.

That isn't a problem when the tax equity market is growing. But now that supply has been compressed, particularly as a result of the covid-19 crisis, providers are not reducing the amount of tax equity per client. Instead, they are reducing the number of clients they work with. It is becoming a market of haves and have-nots, and managers without existing relationships are going to find that a challenge.

Q What impact has covid-19 had on the market?

There has been no material impact on our existing assets. Projects under construction experienced very slight delays but, given the nature of the long-term contracts we enter into, there was no impact on the operational side. In fact, there has been a slight positive impact in that lower interest rates have allowed us to get slightly better financing terms.

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"If you get tax equity wrong, it has catastrophic implications"

In terms of new investments, it is interesting. If you look back to April or May, most of our counterparties were really struggling with how to operate. Normal processes weren't working. We had concerns there would be a significant slowdown. But it has been fascinating to see how people have adapted and, at this point, the whole transaction process has actually become more streamlined as face-to-face meetings have been replaced by video conferencing. Deals that would have required weeks of visits and travel have been able to move more quickly.

Q Covid-19 may not have been the disrupter it could have been, but might the US presidential election change the risks and opportunities that you face?

At the last election, I was starting to plan ahead and was surprised by the result. This time, I am going in with the view that anything could happen. Indeed, all of our planning is based on the current administration's policies. If things continue as they are, we will end up with strong support for renewables at a state level, a phasing out of investment tax credits and production tax credits, as well as continued reductions in costs for solar and storage. If there is a change in administration, there will be more federal support for renewables and that will just be upside for our business.

But remember: while there was a huge amount of rhetoric around supporting coal when Trump was elected and many people were really concerned about the future of the renewables industry in the US, the reality is that what we have seen has been tremendous growth. The last few years have proven that the industry has come so far in terms of cost and implementation. That it is now unstoppable. The biggest inhibitors will be around grid integration, rather than anything any government could do.

Q And what does the long-term future hold for the US renewables market, beyond covid-19 and the election?

The US renewables market is still very much in the early implementation phase. Take the northern part of the Mid-West. Two or three years ago, there was no solar market there. Now it is booming. Parts of the south-east had very little solar. Now that market is huge. There is still a lot of geographical expansion ahead of us.

Then we have this broad implementation of storage that is going to firm up renewables. That will lead to the retirement of traditional thermal plants, which will create still more opportunities. The amount of power generated by renewables in the US is still a small percentage, so I see tremendous amounts of growth for the foreseeable future. ■