UP ON THE ROOF: HOW ALTUS POWER IS EXPANDING SOLAR POWER FOR COMMERCIAL REAL ESTATE [9.15.21]

Spencer Levy
I'm Spencer Levy and this is The Weekly Take. Solar energy has been on the market for decades, but as the business world increasingly turns its attention towards clean energy sources, we flip the switch for a conversation on solar power with an innovative company that's working to bring affordable solar to a commercial rooftop near you.

Lars Norell
So each building, even the ones in the very urban setting, has some role to play in this ecosystem.

Spencer Levy
That's Lars Norell, the co-founder and CEO of Altus Power, a clean energy concern that is revolutionizing the relationship of solar power and the commercial real estate boom. And full disclosure, Altus recently agreed to a business combination with a special purpose acquisition company sponsored by CBRE that will result in Altus being a publicly traded company on the New York Stock Exchange. CBRE has also formed a strategic partnership with Altus to bring clean energy solutions to CBRE's customers. We'll talk about Altus' unique idea and approach to solar, the role of clean energy across sectors and new ways that companies are approaching their environmental footprint. Coming up, we shine a light on solar power. That's right now on The Weekly Take. Welcome to The Weekly Take and this week, we are delighted to be joined by Lars Norell, the CEO of Altus Power. Lars, thank you for joining us.

Lars Norell
Thank you so much, Spencer, for having me. It's a pleasure.

Spencer Levy
Well, we're delighted to have you today. We're going to be talking about Altus and green power and all the great things that you do. So, Lars, before we begin, why don't you tell us a little bit more about Altus, what you do?

Lars Norell
We are a clean electrification company. We've been around for 11 years, located in Connecticut, just north of New York. And all day long, we seek to originate and place solar arrays on the commercial rooftops and in commercial parking lots and then sell the power that we make from those solar arrays at a discount back into the buildings that we're sitting on top of or next to. Commercial real estate, of course, is one of the largest emitters of carbon. About 40 percent of carbon dioxide emitted last year came from buildings. And our intention was from the beginning to turn that around and actually have commercial real estate to be a generator of clean energy instead of emitter.

Spencer Levy
Lars, you know, solar has been around for quite some time. Why do you think it took so long to get to the commercial real estate sector?

Lars Norell
It's a good question. Commercial real estate has not been a focal area of many of the large developers that have previously been in the space. This market really started in the late 90s with Macquarie and some of the very large infrastructure funds. And what they were focused on at the time was to build large solar arrays out in the desert, very, very big ones. And then there was another group

of people, some of whom were environmentalists and very focused on sort of being green, who started putting solar panels on rooftops, on residential rooftops. But the commercial space didn't really have a lot of proponents. And when we started looking at it in 2009, we looked at it and saw what amounted to a very, very nice asset from the perspective of having the cash flow come in. So what we do is we go to a commercial building and together with the tenant or the landlord or both, we sign a 25-year contract to sell clean energy at a discount to what they pay the grid and the clean benefits, of course, come along with that. And so that market had not yet had any proponents or real advocacy. We felt like this was, in fact the best version of clean energy, because unlike utility scale solar, the energy was being made where it is being consumed in the case of a commercial building. And unlike residential solar, which of course is great, in commercial solar, you can build much larger systems. Think the rooftop of a very big distribution center or some data center or big college or hospital. There's a lot of room to put solar panels on. And so that attracted us to that market, even if it hadn't really grown at that point. Now it's gotten a little bit bigger, but there's a lot of work to do.

Spencer Levy
No doubt about it. And speaking of how the arrangement works, since you brought it up, Lars, you mentioned you want to enter into a twenty-five-year contract with the building owner or occupier. How does that work? Who pays for the installation of the solar panels themselves? And then how does the contract work thereafter?

Lars Norell
We pay for everything that has to do with the installation and the maintenance and the operation of the solar array. In the contract with the customer, whether it's the occupier, the building or the landlord, is for us to sell the energy produced back into the building and we send the monthly bills much like the utility would. But the beauty of that situation or the setup is that the client only pays for clean energy that they receive and they don't really have to take any responsibility for managing the system or taking care of maintenance or insurance and other things.

Spencer Levy
So if there's a bunch of cloudy days, that's your issue, not theirs.

Lars Norell
It is our issue. If there's a bunch of cloudy days and of course, there are places, Spencer, around the country that have more clouds than others. Funnily enough, a solar system on a commercial rooftop actually operates in the cloudy weather as well. The efficiency goes down to about 20 or 30 percent, but it doesn't go to zero, thankfully. Now, if it's in the middle of the night, of course, there is no power being made. So then you need something else that we've started installing, which is energy storage or large batteries.

Spencer Levy
] Let's talk about the types of real estate that are optimal for solar arrays and those that are more challenging. I grew up in New York City, dense urban environment, tall buildings. But then there is a lot of other buildings, suburban buildings with larger rooftop, larger parking lots. What it's an optimal building for you to be able to power the structure?

Lars Norell
There are two elements to each parcel of real estate that Altus Power focuses on. It is the potential of that building to act as a platform for a solar array. And to your question, of course, the big distribution centers or big commercial buildings or offices, even up and down Interstate 95 in New Jersey, where you have unobstructed acres upon acres of rooftops, is easier to install solar on for purposes of generating a lot of energy. But the second part of the equation is important, too, which is what is the

building's consumption of energy? And some of the buildings that you're talking about, New York City, while they can't really function as a good host for a solar array, they could be fantastic off takers. And interestingly enough, New York City, for example, or Con Edison, actually, permits us to build solar arrays on rooftops in the Bronx or in Brooklyn or even in Westchester and then send that clean energy back into Manhattan for consumption in office buildings up and down Park Avenue. So each building, even the ones in the very urban setting, has some role to play in this ecosystem.

Spencer Levy
The solar story, the solar panels story has obviously been evolving for decades, but they've gotten a lot cheaper recently. Tell us about that.

Lars Norell
They have. And we get this question a lot. How much increases in efficiency have we seen during the decade that we've had Altus? Funnily enough, the solar panels that Jimmy Carter put on the White House in the late 70s were about 12 percent efficient. That is to say, 12 percent of the photons or the sunlight that hit the surface of those solar panels was converted into electricity or electrons that went into the White House, presumably. The solar panels that we're installing today are around 14 and a half percent efficient. So in 30 years efficiency or even 35 five years efficiency is only gone up by like a tiny fraction of percentages. What has happened to your question is that the price of these solar panels have come down by about 95 percent. So the economic proposition of putting up solar in the late 70s, early 80s is very different from what it is today.

Spencer Levy
There are obviously dozens of different types of commercial real estate. Some use a tremendous amount of energy, like a hospital, like a data center. In fact, I read a statistic in The Economist a couple of years ago, and this was like two or three years ago, that data centers use seven and a half percent of all the energy in the world. So clearly an enormous emitter. And so my question for you is, how much should a commercial real estate owner expect their energy usage from your system to provide for their building based upon the different type of building?

Lars Norell
It's based on a number of things. It's based on the activity in the building, of course. It's also based on the location of the building, because in the same exact footprint of a solar system, we make different amounts of energy. If that footprint solar system is in Vermont or if it's in Hawaii. And Hawaii or vis a vis Vermont almost has 2x the amount of power produced. But for your run of the mill office building or for your run of the mill university, we knock out with a building site that solar system, about 60 to 70 percent of the energy consumed in that building. We can go to one hundred. But it's important to note that if you, for example, go to one hundred in the northeastern state, if your average is one hundred across a year, then obviously in Massachusetts, for example, there's a lot more solar electricity produced in May and June and July than there is in January and. February. So you'll be overproducing energy in May, June and July, why only producing perhaps 50 or 60 percent of the energy in December and January? Very few CFOs in our experience are OK to buy more energy than they consume during the summer months. And so that makes us want to and be incentivized to size the system to the maximum production that you get to during the peak of the year. So producing one hundred percent in May, June and July means that on average across the year you're probably more like at 60 or 70 percent. So that's been a guiding, guiding light for us when we size these systems.

Spencer Levy
Let's talk a little bit more about geography for just a moment. In that very same Economist article, they were talking about how data centers might be moving north like far north because a form of energy is cold itself. And so how much does geography play into it in terms of the diversity of the choices of

electrical generation, not just that you use or that you provide or that might be considered by the building owner?

Lars Norell
I think geography in our estimate has had less to do with the successful installation of solar than we would have thought when we started Altus. And to give you one example, a solar array that produces 100 units of electricity in Massachusetts may produce one hundred and fifty or one hundred sixty units of electricity in Arizona. But power prices in Massachusetts are 200 percent higher than they are in Arizona. So even though there's less energy made in Massachusetts, the value of the solar system is actually higher up north than it would be down south. Some locations in the country are really good for geothermal and drilling these wells for purposes of cooling or heating your building, of course, in the case of data centers, is all about cooling, to a large extent. Depends on where you're located and what the soil is, where your building is based. Wind is tricky because very few building codes allow you to put windmills inside congested building zones. So we never really have to compete against wind because they're not allowed to build windmills next to the highway or next to airports or next to commercial buildings. So we're to some extent, the energy of choice if you want to reduce your carbon footprint.

Spencer Levy
I think you bring up a really interesting point here about one of the limiting factors of whatever the electrical source may be, solar, wind or otherwise is the transmission. Just how much power do you lose per mile when something is transmitted?

Lars Norell
We know from experience that any time we built a solar system that's more than, you know, a quarter of a mile to half a mile away from where the energy is going to be consumed, you really tend to see drop offs in the efficiency of that solar system and the amount of energy that we can deliver into the building. There's one new little twist to the story, which we're also very happy about. It's been the case that when we make energy out of commercial building, it has to be consumed there and then or to some extent not be worth a lot with the introduction of electric vehicle chargers, that changes dramatically. Because we can now charge the vehicle of a staff member of a tenant or the client or customer or someone else, and when they have charged their car from the rooftop, a commercial solar system that we own and operate and sell energy at a discount from, they can take that car home. And so to some extent, you know, electrical vehicles are basically batteries on wheels and it opens the door to having us deliver energy into a lot of homes that we previously not been able to.

Spencer Levy
Let's talk about that, because that's another one of your products, which is electrical charging stations for cars. So obviously, it goes hand in hand with what you're doing on rooftops. Tell us a little bit more about that part of your business and how you roll that out for your clients.

Lars Norell
It's not lost on us that a portion of Altus' value is this reduction of someone's carbon footprint to some extent. And while we don't want to lead with it, it goes into how we think about products and electrical vehicle charging is one of those instances. We think that once a customer or a client has charged their electrical vehicle from an electrical vehicle charging station that's clearly and visibly connected to a solar array, it could be a carport canopy in a parking lot or a carport canopy in connection with a big roof-based system or some combination thereof, they're going to feel different about that energy that just got sent into their vehicle. They know it's green, it's clean, and it came delivered directly from the parking lot where they were parked or the roof over the building where they were working or shopping or whatever the case might be. We think people are going to make a distinction between having their

vehicle charged that way or just having it charged with brown power that they don't really know where it came from.

Spencer Levy
Well, that's really cool, particularly if they could not just charge it there, but bring it home with them as an amenity. We're always looking for what we call differentiated product with respect to the office sector, and that's clearly a differentiating point if they can bring that power home. Well, speaking of home, let's go back to the geography question. You mentioned that your best friend, I suppose maybe this is a weird way of looking at it, is a high-priced power state because you're more competitive by comparison. But I imagine there are still some state and federal incentives available for the use of your product. Are those still a big piece of the equation? I know they've gotten smaller over time.

Lars Norell
It's a great question. And we suspect that governments across the world all have reached a point of, you know, deciding that they need to make actual changes to the way energy is extracted, produced and then delivered, whether it's into cars or buildings or businesses. And so the US was perhaps a little bit late to that particular game on the federal level, but some decade ago when we started all this, there was the investment tax credit. There's, by the way, an investment tax credit and all kinds of energy investing, not only clean energy, but there was definitely investment tax credits available for investing into solar and wind. And then you have state-based programs that also sought to encourage the development of solar. For example, the investment tax credit has ratcheted down. It's no longer the percentage to 30 percent that used to be. It's less now. And in many cases, state programs have disappeared altogether. We're completely OK with that. The reduction in cost of solar panels has offset the lack of those incentives and the incentives we believe were always meant to kick start this industry. And it's our observation that it served its purpose. It really did kick start the industry. And we're, for example, in California or in Georgia, totally happy to build solar without any state incentives at all. The relationship between the power prices that we, to some extent, like you're saying, compete against and the amount of sunshine available in those states and the cost for us to install a roof based or carport system mean that we can still get an acceptable rate of return to our investors and deliver savings to customers in doing it without having any state incentives in place at all.

Spencer Levy
The Europeans are way ahead of the Americans when it comes to the demanding green power and green other initiatives. So my question for you is, Lars, what's your footprint look like in the United States today and what are your thoughts about expanding internationally?

Lars Norell
Absolutely. We are very focused on delivering for all our clients in the US, in North America. And what we've always said is that we will follow those clients into other states as and when it's appropriate to do so. We want to make sure that we grow the company in a sensible manner. And we've had the fortune of being EBITDA positive for the last couple of years. And staying with that theme, we think we're going to sort of grow in the United States first and then come with our clients and see various clients into international areas following that.

Spencer Levy
And Lars, I know you're limited to some degree by what you can say about the transaction with CBRE, but since you open the door talking about the new partnership with CBRE, tell us a little bit more about that.

Lars Norell
Well, we've for the longest time been of the opinion that it's important that we build a really strong

platform. It is basically so that we can deliver value to clients. And value, we think, again, is a discount on their power price and the claim benefits that come with having a solar array on your roof or in your parking lot. Blackstone, very early on in 2014, when all this was only four years old or four and a half years old, agreed with our assessment that this was going to be an important market and an important asset class. And the one question they had for us is, can you scale this? Can you really make it big? And we've worked very hard to show Blackstone and succeeded, thankfully, in how to scale this, not the least of which has been all the buildings that Blackstone owns and operates, but the real answer to the scaling question came in the form of CBRE's interest. If you're a company that's looking to put solar on rooftops, there is probably no better entity on the planet to partner up with than CBRE because CBRE manages seven billion square feet of real estate and hundreds and thousands or hundreds of thousands of rooftops, not only in this country, but to your point about international, internationally as well. And it's interesting, Spencer, from CBRE's perspective, which was communicated to us when we met, they view this exact topic from the opposite direction, which is their clients are coming to them saying we have a carbon emission problem and we need to act on it. We need to do something about it. And we don't have a budget to do it. We don't really have a way to do it. We don't know how to do it. And we'd like to act, as we always do with partners who are industrial strength. So to them, we look like a solution. And for us, of course, they look like a market that's got insatiable demand for our products and services. And so once we met CBRE or the SPAC sponsored by CBRE, we really stopped talking to everyone else and focused only on a combination with this particular SPAC.

Spencer Levy
Well, green and then more broadly, ESG social governance. These things are going up exponentially today and not just from our European clients. And not just in office. We're seeing it, I think, even faster right now in industrial and retail -- two asset types, which historically had lagged office in terms of the green technologies that they use. Are you seeing something similar?

Lars Norell
Yes, we think stores in particular are looking for all kinds of ways to make sure that they remain relevant to their clients and customers and they are effectively stations of commerce. And commerce continues to go on. And we'll continue to go on and grow in for the retail outlets and stores to also serve their customers with clean energy and a promise of a lower impact way of having goods and services delivered into customers we think is very important. And we think this is like low hanging fruit for many of those retail institutions to effectively equip or let us equip, together with CBRE, their real estate locations and stores with a roof-based energy and charging in the parking lot so the customers can actually buy some energy from them that's clean and take it with them home and let the home run off of that as well.

Spencer Levy
Let me ask you a CapEx capital expenditure question for a moment. So I think you had me at a low with the amount of savings you can get from these solar panels once they installed on your roof. But a lot of the buildings that are looking to do this might be older buildings and they may not have a roof that's strong enough. What do you do in that case?

Lars Norell
We are able to design the economic package to include for the customer or the building owner an upfront payment in most cases and let that upfront payment go to rehabbing the roof prior to the installation of the solar system. It's a big problem. A lot of buildings that are otherwise very suitable to our solar or building based solution. They might be located in a state with a lot of sunshine, very healthy rebates, or with very high power prices or all of the above may not have a roof that would last for long enough to have a solar system gain economic advantages. So what we do then is we'll take some of the expected ongoing power savings or in the case of a building owner, some of the ongoing

lease payments that Altus makes to the landlord and instead convert that into an upfront amount of money that we can spend on redoing the roof for the clients and recertifying it to last for the full contract period of the solar and leave the customer with both the potential for energy savings going forward and a new roof, which is obviously a very popular solution.

Spencer Levy
The pandemic clearly accelerated so many trends, some positive, some negative, about the movement of people, about the need for wellness, the need for green. Tell us how it impacted your business and how you think it will impact it long term.

Lars Norell
Absolutely. We have a lot of corporate customers. We also have a lot of community solar customers. We haven't spoken about that yet. But community solar just briefly, is the combination of large building based or ground based commercial solar arrays, but instead of selling the power back into that building, we sell the power to households in the same lodestone. So one solar system that may serve 800 or a thousand homes with clean energy that the utility allows us to send through the grid or through the wires to those homes. All those customers, both the commercial and residential, we anticipated that perhaps there was going to be some issues with respect to energy demand or consumption or bill paying, and not a single one missed payment of a single bill. All of them paid on time. And we were very careful to continue our outreach efforts and talk to schools and hospitals and universities and commercial entities. And all of them were humming along, some with reduced activity. But none of them, even the ones with reduced activity, wanted to reduce their purchase of clean energy. This was a good stress test for that model. And for the moment, knock on wood, it's been passed very well.

Spencer Levy
In the face of global warming and other threats that we're seeing. Forest fires, whatever you want to call it, isn't your product something that can make us more resilient?

Lars Norell
Yes, it absolutely can. If you combine solar with storage, you have an independent means of generating and storing energy that even if the grid were to go down, can function to keep you in operation or your home heated or cooled or computers and refrigerators running. And resiliency is something that our clients are super focused on all of a sudden. And that's another good use case for energy storage or batteries. It provides, in many cases, backup power that can operate regardless of whether to get us up or down. And it's important to highlight, Spencer, that the length of resiliency and the usefulness of solar as a backup source of power, of course, depends on a number of factors. For example, in Texas, if in fact an ice storm were to bring down the grid, and this ice storm continues to rage, then there's not that much power you're going to be able to get out of your solar system for that particular moment in time. If you have energy storage or battery, that will certainly help even in the case of an ice storm. And the only question to make sure that you consider is how long do you want this resiliency to last you and what capacity would you like to continue to operate at? If you're a normal homeowner and you have a normal energy storage battery from Tesla or someone else, if you want to run your house at full capacity, that particular battery will only last for about half a day unless you oversize installation. If, however, what you really want to do is to run your refrigerator, keep your cell phones charged and have some other limited use of energy, then you can go for weeks. And so it goes into the equation when you consider the sizing of these components. But we think that more and more people are going to use to resiliency demand as the reason to look at solar. And in some cases, frankly, Spencer, be prepared to have solar and storage installed even without the saving, where what they really want is energy, maybe at the same cost as the grid provides, but they want the energy to be in their control where they can actually run the system and use it during rolling brownouts as they've

been threatening to have and in the West Coast for four weeks now. And so we think that makes the use case for clean energy and storage coupled together very strong.

Spencer Levy
We're just about to wrap up. Let me play a little bit of a what if game with you, because I like science fiction and a lot of the science fiction we saw from the 19th century, whether it was Jules Verne in 20,000 Leagues Under the Sea came to pass and other things like that. We haven't seen our flying cars yet from the Jerry Lewis movie in the 50s, but they are coming too. But there are other forms of power out there that may form a type of competition for you. Do any of these potential power sources concern you or are they complementary to what you provide?

Lars Norell
Great question. And I also read, I think most of Jules Verne's books, and I loved every one of them. I think that most of the time Altus and Altus' clients are the beneficiaries of technological development. If somebody comes up with cold fusion tomorrow just to go there, and that is just to remind everyone, at least my understanding, cold fusion is basically creating a reactor for power out of water, more or less or two tanks of water. If that were to come and make boundless amounts of energy, I think we'd all be better off. We're going to be focused on making sure that we build good batteries to store that energy and good EV chargers and perhaps somebody is still going to want the solar system just for the looks of it. So we're not terribly worried about that. We've attempted to create Altus in a way where we and our customers will benefit from technological development and it's hard to know where it's going to come from, speaking of flying cars and other interesting things.

Spencer Levy
One more final question. What do you say to people that are still skeptical? What do you say to people that are saying, well, you know, I like the old ways, how do you get them over them?

Lars Norell
It's interesting. When I speak to my children, they need no explanation. They are immediately asking us why isn't everyone using solar power on their buildings? I think the opposition or the skepticism comes from more established sectors that, frankly, are a little nervous about change. And I get it. Change is sometimes difficult and it hurts a little bit and it sort of undoes certain structures that have been put in place or been in place for a long time. It's useful, I think, when talking to those folks to open the aperture a little bit and to look at this in the longer term perspective, energy for eons of human history used to be produced where it was consumed. We're not actually creating all that much new here. We're just going back a little bit to something that's been the way energy has been produced and consumed for most of human history. And we're doing it in a way that doesn't take the building off the grid. We're doing it together with utilities. We don't really think that this is against any of the utilities, in fact, producing clean energy inside the congestion zone. That is to say, where it's difficult to deliver energy helps. Utilities, so if you can find any of the doubters or skeptical participants, then please reach out to me and I'd be happy to talk them through this.

Spencer Levy
Lars Norell, the CEO of Altus Power. Lars, well done. Thank you for joining us.

Lars Norell
Thank you so much. It's been a pleasure.

Spencer Levy
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