



Q4 2021 Earnings Call February 17, 2022 Transcript

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Presenters

Patrick Jobin - SVP, Finance & IR
Mary Powell - CEO & Director
Thomas vonReichbauer - CFO
Edward Fenster - Co-Founder & Executive Co-Chair

Q&A Participants

James West - Evercore ISI
Mark Strouse - JPMorgan Chase & Co.
Brian Lee - Goldman Sachs Group
Julien Dumoulin-Smith - Bank of America Merrill Lynch
Maheep Mandloi - Crédit Suisse
Joseph Osha - Guggenheim Securities
Tristan Richardson - Truist Securities
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Biju Perincheril - Susquehanna Financial Group
Philip Shen - ROTH Capital Partners
Sophie Karp - KeyBanc Capital Markets
Colin Rusch - Oppenheimer
Ameet Thakkar - BMO Capital Markets

PATRICK JOBIN

Thank you operator. Before we begin, please note that certain remarks we will make on this call constitute forward-looking statements. Although we believe these statements reflect our best judgment based on factors currently known to us, actual results may differ materially and adversely. Please refer to the Company's filings with the SEC for a more inclusive discussion of risks and other factors that may cause our actual results to differ from projections made in any forward-looking statements. Please also note these statements are being made as of today, and we disclaim any obligation to update or revise them.

On the call today are Mary Powell, Sunrun's CEO; Tom vonReichbauer, Sunrun's CFO; and Ed Fenster, Sunrun's co-founder and co-executive chair. Following the prepared remarks we will conduct a question and answer session. And now let me turn the call over to Mary.

MARY POWELL

Thank you, Patrick.

Hi, it's wonderful to connect with all of you on what Sunrun has been up to in the last quarter. As I close in on six months as CEO, I am so pleased to be able to share our financial and operating results with you. I am encouraged and excited about the progress we are making as the nation's leader in a critically



important industry. With climate-related events becoming more urgent daily, never have we felt more passionate and optimistic about our purpose.

The headline is that the Sunrun team delivered record volumes in 2021, having added over 110,000 customers in the year representing 31% growth in new installations while bringing two large companies together and navigating a dynamic operating environment during COVID. We are entering 2022 with a growing, deep backlog of customers who are excited to become more energy independent and secure in their own homes. At the same time as we drove a surge in our business, the surge in Omicron created some late Q4 and early Q1 challenges that already seem to be behind us.

Along those lines, there are four key highlights I want to discuss with you before I turn the call over to Tom and Ed for their quarterly updates.

First, clearly, we continue to see tremendous growth in our business. Again, we closed out 2021 adding over 110 thousand customers representing 31% growth in Solar Energy Capacity Installed, exceeding our guidance, and marking the highest growth rate for Sunrun in five years. And to put our customer additions in context, this is 2x our nearest competitor. We did this all at an operating scale nearly 3 times larger than we were just 5 years ago. We are seeing customer demand accelerating significantly, and our talented team is capturing this interest, generating orders far in excess of installations, resulting in more than a 57% growth in our direct business' backlog. I believe we fundamentally have achieved a tipping point whereby our product and services are something customers increasingly see as essential for affordable, reliable clean energy that puts them in control -- something they simply cannot get from utility power. Ed will touch on this later, but we also believe the inflationary pressure in the economy, combined with rapidly rising utility rates, and climatic events will continue to turbocharge this customer demand.

Second, during 2021 we closed out significant portions of a massive, transformational integration with Vivint Solar. Today, we are operating as one team. While some might see this as routine -- something easily put together in a spreadsheet -- this was a tremendous accomplishment. Late in the year we also brought together large operating groups and combined the leadership teams to build the strongest, best go-forward team in the business. You may have seen some of our recent appointments, including Paul Dickson who is our new Chief Revenue Officer, along with Chance Allred who is our Chief Sales Officer, both experienced leaders from the Vivint Solar team. Together, along with high powered members of the existing Sunrun team, we are leveraging the best of both organizations and accelerating the impact we will have on the market, the planet and for our customers. I'm also proud to report today that we exceeded our acquisition-related synergy target of \$120 million exiting 2021.

Third, we continue to advance our strategic efforts to accelerate home electrification and transportation. We now have over 32,000 residential battery systems deployed -- far more than any other energy company -- and are increasingly networking these together to form valuable energy resources for the grid, something I am convinced will pay significant dividends in the years to come as grid operators continue to see they fundamentally need our growing fleet of resources. We are also making tremendous progress with our partnership with Ford, where we are the preferred installer of a bi-directional inverter nationwide that we co-developed with Ford. We expect meaningful flywheel effects from this partnership, and the widespread adoption of electric vehicles --- consumers want to charge their cars with clean, affordable energy and often consider a solar and battery system when they make the switch to an EV; it also provides us the opportunity to install larger solar systems, which can carry high incremental margins and bring even more value to customers. Our partnership with Ford is already driving increased brand awareness for Sunrun in all 50 states -- Sunrun is not just the company who can provide solar systems, but the company who can deliver an electrified future. You'll hear a lot from me over the next few quarters on virtual power plants, our electrification efforts and steps forward on providing innovative advanced product and pricing solutions for customers. Importantly, these initiatives not only deliver increased value to customers, they prove how important distributed resources will be to the grid of the future. I believe Sunrun is positioned to lead in this new category given our growing brand strength, technical capabilities, operating scale, broad multi-channel customer reach, and increasing solar + battery system network density.

Fourth, as noted in my opening comment, while we did exceed our volume guidance, we experienced significant effects from the national Omicron surge on our installation organization, limiting our ability to



quickly fulfill customer orders, hindering labor productivity and requiring us to pursue higher-cost fulfillment options in certain circumstances. The health and safety of our crews is paramount, and our operating procedures reflect that. Some of these capacity, productivity and cost pressures persisted into early 2022. Tom will discuss these impacts in more detail, but the brutal fact in terms of this quarter is that our strong sales growth combined with pressures from the Omicron surge late in the quarter led to in-period margins that were below the target we shared with you in early November. The very good news is that the backlog growth provides us great visibility into 2022 and, as we see the Omicron wave abate, this should lessen the effects on our installation team.

Last, but certainly not least, before I turn the call over to Tom and Ed I want to thank our team for their hard work. Disrupting a multi-trillion dollar industry, while also integrating two massive operating companies, during a pandemic is a big challenge, and Sunrunners deserve a lot of credit for their dedication to our mission and these strong results in 2021. I also want to express my gratitude for our customers who are transforming our country's energy system and helping to solve climate change, one home at a time, at a very rapid pace.

Over to you, Tom.

TOM VONREICHBAUER

Thanks, Mary.

We are entering 2022 in a strong position, with strong order momentum, record backlog and a healthy balance sheet. We're growing faster at scale, exceeding our prior volume guidance and continue to be excited by the consumer demand trends in our business.

Volumes

Turning first to volumes.

In the fourth quarter, Customer Additions were approximately 30,000, including approximately 22,000 Subscriber Additions. For the full year, Customer Additions were over 110,000, including nearly 89,000 Subscriber Additions.

Solar Energy Capacity Installed was 220 Megawatts in the fourth quarter of 2021, a 28% increase from the same quarter last year, pro-forma to include Vivint Solar. For the full-year 2021, Solar Energy Capacity Installed was 792 Megawatts, representing 31% growth compared to the prior year. This growth rate exceeded our prior guidance and represents the highest annual growth rate in new Solar Energy Capacity Installed that Sunrun has reported in 5 years and at nearly 3 times the operating scale.

We continued to experience strong customer demand for our products and services in Q4, continuing a trend we've seen throughout 2021. Over the course of the full year, while installs grew 31%, our backlog grew by 57% due to strong demand and sales productivity. While this sets up a strong 2022, the mismatch between sales and installation activities in 2021 creates a drag on financial performance in the year, as we first highlighted on our Q2 results call.

We closed out the year installing a record number of batteries, representing over 100% year over year growth in 2021. While battery availability constraints continue, resulting in fewer battery projects than we initially forecast at the beginning of the year, the supply situation is improving, and we expect to ramp battery installations considerably in the quarters to come. We qualified a third battery supplier in Q3 that met our price and performance criteria, and expect to introduce more battery suppliers in the next few quarters to meet the strong consumer interest.

We ended Q4 with over 660,000 Customers and nearly 568,000 Subscribers, representing 4.7 Gigawatts of Networked Solar Energy Capacity, an increase of 20% compared to the prior year. Our Subscribers generate significant, recurring revenue with most under 20 or 25 year contracts for the clean energy we



provide. At the end of Q4, our Annual Recurring Revenue, or ARR, stood at \$851 million with an average contract life remaining of over 17 years.

Subscriber Value, Creation Cost, Net Subscriber Value & Total Value Generated

In Q4, Subscriber Value was approximately \$37,000 and Creation Cost was approximately \$29,900, delivering a Net Subscriber Value of approximately \$7,100.

Total Value Generated, which is the Net Subscriber Value multiplied by the number of Subscriber Additions in the period, was \$156 million in the fourth quarter. Total Value Generated was \$631 million for the full year.

This result was lower than our guidance, driven primarily by the effects of Omicron on reduced installation capacity and knock-on effects, and faster-than anticipated growth in orders. Additionally, as crew availability in each geography moved around during the Omicron surge and battery availability remained tight in the quarter, the specific product mix that was ultimately installed from our backlog in Q4 was slightly less advantageous than anticipated. Put simply, we were caught with significant Omicron-related installation productivity and cost challenges but we continued to execute above our expectations on customer orders.

As you can see on slide 7, we estimate these pressures impacted Total Value Generated by approximately \$107 million in 2021. The excess growth in backlog during the year resulted in stranded margin of more than \$75 million, which we expect to harvest in 2022. Additionally, in Q4, the Omicron related labor productivity impacts and resulting product mix changes delivered a \$31 million headwind. If you removed these headwinds, Total Value Generated would have been above \$737 million in 2021.

We believe in our ability to ultimately fulfill the strong consumer demand we're facing as we move throughout 2022, and in Q4 made no efforts to throttle sales activities in the face of short-term operational challenges. As a result we continued to incur the sales-related and initial project development costs as we built a large backlog of orders, pressuring our reported Net Subscriber Margin and therefore Total Value Generated. We made this decision with a long-term perspective -- we want to build the largest base of high-value customers and know that trying to solve for single-period reported results by throttling sales won't drive the most long-term value for the company.

You can see that on an absolute basis our product mix and pricing remains strong, with the highest Subscriber Value of the year in Q4, and only off 1% from Q4 in 2020, despite flowing through a significant reduction in the ITC level. In fact, the current backdrop of rapidly escalating utility rates and inflation provides meaningful opportunities for us to increase pricing in many markets again, and we intend to execute these changes over the coming months.

Gross and Net Earning Assets, Cash Balance

Turning now to Gross and Net Earning Assets and our balance sheet.

Gross Earning Assets were \$6.7 billion at the end of the fourth quarter. Gross Earnings Assets is the measure of cash flows we expect to receive from customers over time, net of distributions to tax equity partners in partnership-flip structures, project equity financing partners, and operating & maintenance expenses, discounted at a 5% unlevered capital cost.

Net Earnings Assets were \$4.6 billion at the end of the fourth quarter, an increase of over \$55 million from the third quarter and \$434 million from the prior year. Net Earning Assets is Gross Earning Assets, plus cash, less all debt.

We ended the year with \$850 million in total cash.

Outlook

Turning now to our outlook.



We are forecasting Solar Energy Capacity Installed growth of 20% or more for the full year 2022.

Several factors, including California net metering, various proposals in Congress to extend and/or increase the investment tax credit, and a volatile interest rate and inflation environment, limit our ability to provide precise guidance on Total Value Generated and cash generation at this time. We believe, however, the trajectory for cash generation remains robust, especially over the longer term. The opportunity to build a large California backlog, or further changes to interest rates, and the resulting timing of project finance activities, could result in meaningful swings in these metrics in either direction. We currently believe, however, Total Value Generated for the full year 2022 will grow *faster* than volumes and that margins will increase sequentially throughout the year.

For the first quarter, we expect Solar Energy Capacity Installed to be in a range of 195 to 200 megawatts. As noted previously, many of the omicron related effects on margins and product mix continued into Q1, and we expect Q1 margins to be comparable to Q4, but increasing in subsequent quarters.

Now, I'll turn it over to Ed.

EDWARD FENSTER

Thanks, Tom.

Today I will discuss the impacts of increases in inflation and interest rates on the Company and also touch on California net metering and our new corporate credit facility.

Inflation

Sunrun is well positioned for increasing interest rates, especially those driven by escalating inflation, as we are able to raise prices to new customers as necessary behind the large utility price increases that are underway. In addition, our existing capital structure is well hedged through a mix of interest rate swaps and fixed coupon, long-dated debt securities.

Utilities, famous for ensuring customer rates escalate faster than overall inflation, are wasting no time exercising their monopoly powers to raise prices. In January, inflation in electricity services was 10.7% year-over-year. We've seen a handful of utilities in our largest markets file for even larger increases. Pacific Gas and Electric and ConEdison have filed for rate increases of 18% and 11%, respectively, on the backs of a capital expenditure bonanza as well as higher labor, fuel, and capital costs. Just last quarter, Florida Power and Light was granted a 12% increase. In 2021, Sunrun implemented modest price increases that offset the reduction in realized ITC percentage across the year. In 2022, we have a more significant pricing opportunity, which we can execute against while still expanding the wedge between incumbent utility costs and our customer offering. This will allow us to drive significant value for customers even as we pass through higher costs.

Hedges. Advance Rate

Our existing portfolio is well hedged through interest rates swaps and long-term fixed-rate debt. As we deploy systems, we use interest rate swaps to programmatically fix the cost of debt for about 20 years. The vast majority of our \$2.6 billion in floating rate debt is fixed as a result. Our current portfolio of long-dated, amortizing interest rate swaps has an average final maturity extending nearly 16 years. Of our \$3.9 billion in fixed rate debt, including recourse debt, only 7% has a maturity or anticipated repayment date before December 31, 2025, and only 5% has an actual maturity in this period.

Despite the recent increase in interest rates, we still expect to achieve an advance rate on our upcoming long-term financing in the range of 95% - 100% of contracted subscriber value, at a 5% discount rate.

CA NEM

In December, the California Public Utilities Commission published a proposal materially to reduce the value of power that residential solar customers export to the grid, to tax power both generated and consumed



on-site through a fee, and to reduce the grandfathering period of existing customers by 5 years. As described in my statement posted to our website in December, the proposal is contrary to the state's objectives of addressing climate change and eliminating frequent blackouts, as well as contrary to what Californians say they want.

The proposal met with swift and significant push-back from national and international electric rate design experts, national and state politicians, community groups, environmental justice groups, environmental groups, influencers, and at least 125,000 individual petition signers. On January 10th, Governor Newsom said there is "work to do" on the proposal. On January 21st, the one major environmental group that had supported the proposal walked back its position. On February 3rd, the Commission said it was pausing the proceeding "until further notice" to "consider revisions." The CPUC also likely needs more time because the head of the energy division and the two commissioners most involved in the proceeding have all left the commission, causing the matter to be re-assigned.

The response of environmental and solar groups broadly has been that the grandfathering period should be maintained, the reduction in export prices be phased in over time to permit battery manufacturing capacity to increase, and the tax on power both produced and consumed on-site be eliminated. That tax alone, at about \$0.14/kWh, would be higher than the full retail cost of electricity in 42 states.

Despite the outpouring of concern over the proposal, it is too early to know how significant the revisions to the proposal may be, or how long achieving a final outcome may take. However, we are hopeful a more even-handed policy, which also encourages solar customers to support the grid with peak-period exports, will be adopted. Californians demand and deserve resiliency, control over their energy costs and future, and faster progress against global warming. We hope to answer these needs with products that benefit all Californians, whether or not they are Sunrun customers. But we are confident that in time, we and the industry will innovate to meet this overwhelming customer desire regardless.

Due to the delay in the proceeding, the size of our existing installation backlog, and our expectation that we will build an even larger backlog of California systems prior to the enactment of any new policy, we may not deploy a material number of customers under a new policy until late 2022. However, 2022 financial results, especially quarterly results, are likely to be impacted by strong demand from Californians eager to sign up before rates change. We will refine our go-to-market strategy and forecast as clarity emerges from the CPUC.

Corporate Credit Facility

In January we retired our \$250 million recourse lending facility and arranged a larger \$425 million facility at enhanced terms and with a longer tenor. The cost of the new facility was unchanged while the asset borrowing base was expanded, financing terms for inventory and project backlogs were improved, and the discount rate applied to existing assets was updated from 6% to 5%. These changes will support the scale, growth and backlog of the combined company.

Capital Runway

We continue to maintain a robust project finance runway. As of today, closed transactions and executed term sheets provide us expected tax equity and project debt capacity to fund over 375 MW for Subscribers beyond what was deployed through the fourth quarter.

With that, let me turn it back to Mary.

MARY POWELL

Thanks Ed.

I'm so excited about this year and what this team can accomplish.... I know rapid growth distorts some of our metrics but the underlying fundamentals are enviable. To be the nation's leader in a fast growing space with unprecedented customer demand provides a tremendous opportunity for value creation. I'm so encouraged and excited about the work we have done delivering record volumes in 2021. With climate



change accelerating, and the utility rates rising around us, the time is now to fulfill our aspirations of working with customers all over the country to self generate, store energy, electrify their homes, adopt leading EV technology and together create a more affordable and resilient future and a planet run by the sun.

With that, Operator, let's open the line for questions please.

Operator

Thank you very much. At this time, we will be conducting a question-and-answer session. If you would like to ask a question, please press "*", "1" on your telephone keypad. A confirmation tone will indicate your line is in the question queue. You may press "*", "2" if you would like to remove your question from the queue. For participants using speaker equipment, it may be necessary to pick up your handset, before pressing the star keys.

As a reminder, we ask that you limit to one question, and one follow up. One moment, please, while we pull for questions.

Your first question from the line of James West with Evercore ISI. Please go ahead.

James West

Hey, good afternoon, everybody. Mary, I love this relationship with Ford that you guys have. I think it's a huge positive on both sides but certainly helping out your brand and the home integration system, which we've learned about, recently. I think it's a very unique proposition and creates a nice moat.

I'd love to hear if you've already started to see people inquiring about installing solar because they want to do that ahead of their Lightning deliveries and if there's any other OEM relationships that you're working on that may come to fruition, this year.

Mary Powell

Thank you. We couldn't agree more. We are really excited about this partnership and really optimistic that it is going to really, fundamentally, move the needle. As you may or may not know, the car is launching late spring, and they've already doubled production targets to 150,000. And yes, to your point, from a brand perspective, we are already seeing like tremendous uplift.

Again, with our announcement and again, as I think so many of us noticed, even with the Super Bowl, right, there's so much focus on the adoption of EVs right now and so much incredible excitement, around the Ford.

So again, we're seeing just incredible customer demand, overall. Candidly, I can't say we're tracking, specifically, if this customer inquiry came relative to their excitement about then bringing on their Ford. But what I can tell you is we're creating a lot of buzz in all 50 states, both in terms of Ford and Sunrun. So, it's really going to be a big game changer.

James West

That's great. And I'm sure it is. Just one follow-up from me on pricing. I know you mentioned--and Ed, you talked a bit about what electricity price has been doing, nationally, and in California and other places.

Is it fair to say--I think you also said that you wanted to keep that wedge between you and the utilities? So, is it fair to say your price increases would be below kind of the national increase? Or am I thinking about that the wrong way?

Edward Fenster

It's a great question. I think what we're trying to underscore is we, obviously, want to provide the best possible product for our customers as we can. Like many businesses, we're facing some increases in our operating and capital costs.

We have plans to combat that, but some of those are a reality. And I think, as necessary, we feel like we have ample room to recover those from customers, over time, given the competing product. Utility electricity is escalating at its the fastest rate in many, many, many years.

James West

Okay, got it. Thanks, guys.

Mary Powell

Thank you.

Operator

Thank you. We have the next question from the line of Mark Strouse with JPMorgan. Please go ahead.

Mark Strouse

Yeah, good afternoon. Thanks very much for taking our questions. So, it sounds like you might be experiencing some pull forward in California because of NEM 3.0. Just curious, in the outlook for this year, the 20%-plus volume growth that you're expecting, how significant is the pull forward that you're kind of baking into that number?

Thomas VonReichbauer

Yeah, hey, Mark, so I think in the Q4 results, if you think about the timing of that NEM decision coming out, it's very late in Q4. I think the general growth in demand there we're seeing is from underlying consumer interest in the value prop and product that we deliver.

I think as that proposal has gotten a bit more airtime, certainly, there's some customers that are thinking about, "Okay, a change in rate structures may incentivize us to buy earlier." And that's certainly a tactic that, depending upon where the exact proposal or changes in net metering land, we see as a very large opportunity.

I think there's a potential if NEM lands in a very draconian state where every customer would naturally be incentivized to get an order in and an interconnection permit on file well in advance of that cutover.

And so, we're expecting some amount of growth in backlog, certainly through the first half of the year, at least. I think right now, we're in this moment where we're still waiting on real clarity on where the proposal is going to land, when will it be implemented, what's the timeline for that. And there's a lot of uncertainty around that, right now.

So, it's a little tougher to give you a precise answer on backlog growth. I think the more than 20% installed volume growth is a range that we feel comfortable in around being able to grow our own fulfillment and external fulfillment capabilities, as well as manage that backlog. But it's entirely possible that you actually grow backlog, throughout the year, well in excess of that if the proposal lands in a particularly bad spot.

Mark Strouse

Okay. Thanks, Tom, and then just a quick follow, up maybe for you. The inventory level continues to build. How should we expect that to trend over the coming quarters? Is the supply chain improving enough where you think that can start to decline, over time?

Thomas VonReichbauer

So, there are spots that we definitely see it improving. I think the battery situation that was notably tight all throughout 2021 is an area that we definitely expect to alleviate here a bit, over the balance of the year.

The uncertainty on the ITC is another element, as we think about inventory levels this year. If it continues to step down, we'd move back into a safe harboring program. If it's held flat or steps up, our dynamics there might change.

And then I think on overall trade and industry demand, I think we definitely put capital to work to put ourselves in a strong position in terms of availability of materials in 2021 and are at abnormal levels well in excess of triple-digit days.

And so, we'd naturally draw that down, as we get more comfort with the overall picture.

Mark Strouse

Makes sense. Thank you.

Operator

Thank you. We have next question from the line of Brian Lee with Goldman Sachs. Please go ahead.

Brian Lee

Hey, everyone, good afternoon. Thanks for taking the questions. I've got two. I'll just ask them all at once. First, just clarification on the total value generation target growing above capacity installations this year. Is that on a base of the \$631 million, as reported, or is it versus the base of \$737 million adjusted?

And then second question just around labor and productivity. It sounds like, clearly, you're seeing a ton of demand. Trying to keep up with the demand is an issue. How do you think about that heading into 2022?

What are some of the puts and takes, mitigation strategies for having those pressures not repeat this year and being able to kind of fulfill that, more closer to where backlog growth is versus what you're able to actually do on the installation side? Thanks, guys.

Thomas VonReichbauer

Yeah. Thanks, Brian. So, on the total value generated guide, that's on the basis of the reported \$631 million level. And yeah, we expect that to grow in excess of our volume growth, as we get back to more normalized margins and some of the margin expansion opportunities that we get excited about.

The one notable item there that can move around quite a bit, as I mentioned in one of the earlier questions, is the impact of sales expenses well in advance of installs. And so, the California situation is one that we're watching very closely.

On installation capability, really excited with what we did deliver this year, 31%, at 3x the scale we were at five years ago, installing twice as many customers as our next closest competitor. And so, we're working hard to fill that. But Mary, I think you have a few things to add on how we think about--

Mary Powell

--Sure. I mean again, really the--thanks for the question. The result so much now was driven a lot by what happened with Omicron. We have already seen that surge abating. We've seen that our crews are back at work and feeling better. And we also, as a team have, of course, been working on our overall strategy to ensure we have a lot of capacity to keep up with demand.

I mean the wild card, of course, as we talked about, is what will happen with California NEM, what is going to be the surge. I mean we are going to continue to want to take advantage of all of the customer demand that's out there. So again, we feel like we have a really good plan.

We told you what we're expecting to see from a growth perspective but, again, there are factors that could say we could see an even higher surge in demand. And then obviously, we'd have to figure out how to meet that next level of demand.

Brian Lee

I appreciate the color. I'll pass it on. Thank you.

Operator

Thank you. We have next question from the line of Julien Dumoulin-Smith with Bank of America. Please go ahead.

Julien Dumoulin-Smith

Hey, team, thank you for the time.

So actually, let me just pick up where you left it off actually. Let's talk a little bit more about the cadence of customer value creation, through the year. You just said yourself fourth quarter was impacted. It was in fairly discrete items, right-labor, Omicron, etc.

But you also, at the same time, described some of these factors as abating here and describing also fairly flattish per-customer metrics in the current quarter. Obviously, there's some seasonality. But how should we kind of frame that against the backdrop of growth?

Is growth effectively going to continue to depress customer value creation metrics, through the remainder of the year? Or what's the shape of that rather, if you will?

Thomas VonReichbauer

Yeah, so on the Q4 effects, if you think about really the timing of the Omicron surge and where that hit us on labor productivity and capacity really in the last half of the quarter or so, and we saw that continue well into January and beginning of February, here. And I think we're feeling good coming out of that but a similar effect on a whole quarter basis to have a portion of Q1 that was affected by some of those.

As we come out of that, we definitely expect that margins will improve, over the balance of the year, potential for growth pressure on margins, especially, on the sales and marketing side of things. But the operational cost elements, we expect, would turn back out.

And then, as we take some of the pricing actions that Ed and I have both mentioned, as supply chains continue to normalize, we expect to see benefits there on costs that will drive higher margins, over the balance of the year.

Mary Powell

Yeah, just I guess, Julien, I also would just add to that--this is Mary, that I mean again, back to that point, Tom hit it really well and appropriate. But I would also just add when you look even at the customer margins that we produced in Q4, I mean, that is still like the highest reported margins in our business.

So again, we expect those to go even higher. We want to harvest all the growth that's available to us. And again, that's why I say we're in an enviable position from a market position and a growth position, going forward. But again, I just wanted to make that point on Q4 margins.

Edward Fenster

And Julien, it's Ed. Just quickly on California, we could start to receive more clarity on that in a few weeks or maybe, more likely, in several months. Depending on what that timeline looks like, the shape of the curve in terms of sales and installations will vary. And so, I think part of the uncertainty you're hearing with us is we don't know if that process is going to come to a head next month or in June. And so, it's hard to make a point production.

Julien Dumoulin-Smith

Right. And actually, let me just bring up a more strategic point to follow up on that. I mean, you said in your prepared remarks, total value generated--your cash generation guidance might be a little bit impeded on the margin.

Can you talk a little bit about how you think, strategically with the stock, where it is about producing and targeting cash generation to do something like a share buyback or something or conversely to monetize assets to demonstrate to the market the underlying value of your assets, cash guidance or asset sales, etc.?

Edward Fenster

Hi, Julien, it's Ed. So first, I think as to the value of the assets, we have, consistently, been achieving just debt advance rates on the assets in excess of 95% of the contracted value. I shared on the call that the upcoming transaction, the next one that we do, we're still expecting to be in that 95% to 100% range. So hopefully, we've got quite a few data points on that in the marketplace.

As to a buyback, look, obviously, at these sorts of share prices, there's a compelling argument for that. At the same time, we are in the middle of a major regulatory proceeding and do also see a number of other investment opportunities and so, are sort of proceeding through this period with some caution.

But it certainly is a topic that has been discussed at the Board and that we were thinking about. And as you know, in periods in the past, we have done a stock buyback, before.

Julien Dumoulin-Smith

Right, can do. Alright, guys, thank you.

Operator

Thank you. We have next question from the line of Maheep Mandloi with Credit Suisse. Please go ahead.

Maheep Mandloi

Hey, good evening, and thanks for taking the questions. Maybe just one question on the value generation. Can you just talk about like the growth, how much--how to think about the different buckets? How much is coming from, say, the leasing mix increasing in the year versus just the net subscriber value increasing, through the year? Thanks.

Thomas VonReichbauer

Yeah, so, I think there's a few items there. One, as we've seen throughout this year, continued improvements in product mix, driving higher battery attach, larger system sizes, we expect those trends to continue, throughout 2022. The Q4 effects here on labor productivity and product mix coming out of our backlog, I'd view as temporary.

So, you can think about those as really reversing out, as we get past Q1 here in 2022.

And then, I think the big question, the one that we've touched on a couple of times here is this question of just how well-matched sales and installed capacity are, throughout the year. We definitely grew backlog at a pretty astronomical rate, this past year.

If you think about 31% installed growth and 57% backlog growth, that's a dynamic that we're working hard to open up incremental fulfillment capabilities and options.

And we mentioned in Q4, flexing a bit more into slightly more expensive fulfillment options, as well. And so, we'll continue to work to get capacity well aligned, and that drag will go away.

But then I think the general ongoing trends of finding ways to improve cost and improve customer experience and make the whole end-to-end journey much simpler and a much better customer value prop will be positive for us.

Maheep Mandloi

Got it, got it. And then maybe just part of that customer experience, just another question on the Ford F-150 partnership. I know it's still too early, but how should we think about the attach rates or expectations for either the Charge Station Pro or for the home backup systems?

Thomas VonReichbauer

Yeah, so, we haven't broken out any specific items to think about, there. Obviously, we are the nationwide installation partner here for the bidirectional inverter and charger, and so, we'll have some customers who are just getting that set of hardware, initially.

And our first consultation with them, or conversation with them will be the moment where maybe they consider going solar. Others, they may choose to align these two, as the vehicle goes into production and they're finalizing their order and saying, "Yeah, I want to get solar and my charger at the same time."

And so, we're working on bringing those discrete customer offers to market. And I think, as we get into actual delivery and deployment here, it will be easier for us to give you a little more color on the nature of that relationship and some of the metrics, therein.

Maheep Mandloi

Got it. Look forward to that and thanks for the answers.

Operator

Thank you. We have next question from the line of Joseph Osha with Guggenheim Partners. Please go ahead.

Joseph Osha

Hello, everybody. Two questions for you. First, following up a little bit on what Julien was saying. In the past, we have communicated about cash generation relative to the pace of new capacity additions. I understand this year is a little disruptive.

But over the longer term, how should we think about the relationship between either new business generation, or value added if you prefer to talk about it that way, relative to cash generation?

Edward Fenster

Hey, Joe, it's Ed. Great question. We continue, over a longer term, even medium term, to be confident that cash generation can grow faster than megawatts deployed. Just some of the special factors and arcs of this year make the production a little bit more challenging.

Joseph Osha

Okay. But that's a reasonable--still a reasonable way to think long term. That's helpful. And then secondly, you alluded to this in your comments, Ed, about the PUC sort of crossing the Rubicon in terms of messing with existing assets.

I'm wondering if you've seen any impact, in terms of the way existing assets are trading or accessing debt or securitization markets. Has there been any expansion of spreads, based on a reaction to the CPUC's proposal there?

Edward Fenster

Good questions to ask. So first, in terms of customers, obviously, we think honoring promises made to customers in written cases is important. And we would hope that that is--we'd hope that that occurs. That said, it has happened a couple of times--

Joseph Osha

--There is that. Yes. It seems like a good idea.

Edward Fenster

It has happened a couple of times in the company's history where changes in rate structures have put customers underwater. It happened once in Nevada, as you're probably aware, also once in California, after the restructuring of the tiered rates.

We did not see any noticeable changes in collections or payment performance or anything other than maybe some aggravated views about the utility in those instances. So, I don't anticipate, even if there were a negative effect there necessarily, a financial impact on us, obviously, some upset customers, potentially, at other people.

I think as to the debt markets, we are not seeing any impact from that. Some people ask questions and--just because that's something that's important to do. We haven't seen any noticeable reduction in interest.

At this point, I think people also think that this will probably work to a reasonable perspective. There was a securitization in the industry, yesterday. My understanding is this was not a topic of discussion amongst the lenders in that transaction, either.

So, I'm optimistic that people here perceive that this will be worked out in a reasonable place and that there's not a reason for concern.

Joseph Osha

Okay, thank you.

Operator

Thank you. We have next question from the line of Tristan Richardson with Truist Securities. Please go ahead.

Tristan Richardson

Hi, good afternoon, guys. I really appreciate all the overview on margins, this year, and all the puts and takes there. I mean, I think, historically, you guys have talked about all the dynamics that could really expand margins, whether it be greater battery attach rates, EV adoption dictating larger system sizes, additional services, per household.

I guess thinking long term, maybe just outside of 2022 guidance, does the business support some of that expansion towards net subscriber values that run put up in the past? Potentially something with an 8 handle on it or a 9 handle on it, longer term as labor productivity issues subside and you have pricing power or pricing flexibility.

Mary Powell

Yes. This is Mary. 100%, we absolutely see it the same way. And I think again, that's why I made the point of, even with some of those challenges we outlined, we delivered a really strong best reported margin, right?

So, when you're starting there and then you're looking to the future and you're looking at the partnership we're doing with Ford, you're looking at really us being the leader, in terms of battery attachment rate, etc., in the country.

There just become more and more opportunities to add value to customers' lives and help them transform their relationship with energy and to do it in a way that, yes, is additive from a margin perspective.

Tristan Richardson

Appreciate it. Thank you, Mary, very much.

Operator

Thank you. We have next question from the line of Andrew Percoco with Morgan Stanley. Please go ahead.

Andrew Percoco

Great, thanks for taking my question, tonight. Just one on battery availability. Just wondering if you could talk through maybe timeline of when you'd maybe add a fourth supplier and maybe an outlook for how quickly you can--you'd expect to grow your battery business, this year.

Thomas VonReichbauer

Yeah. So certainly, battery attach, we expect to grow quite meaningfully, here in 2022. I would assess the overall supply picture as better than it was for 2021, overall, especially the second half of the year.

We--as we mentioned, we deployed more than 100% year-over-year growth in batteries this year--or this past year and expect that to continue to grow. We qualified the third supplier at the end of Q3. And while we had some supply chain unavailability challenges throughout Q4, we expect those to abate, here in early 2022.

Adding another one, we're--as we mentioned before, we're constantly evaluating all of the different products that are coming to market, looking at performance criteria, price points, whether it meets the real customer need, and then working through the challenges of availability and who we want to partner with.

But certainly, it wouldn't be unbalanced for us to think about adding some here faster rather than slower, but nothing more concrete to share on that, today.

Andrew Percoco

Great. That's super helpful. And just one other question from me. Mary, I think you talked about some additional potential product offerings. Any timeline on that or maybe a sneak preview as to what that might look like?

Mary Powell

No sneak preview but we do have a number of things that we're working on, for sure. And another value proposition, as I know we've talked about in the past, is really again, this aggregation we're doing of so many distributed devices, the solar battery network that we're building.

And sort of from a--not even long-term but longer-term view, there is nothing but upside from the perspective of the owner and operator of so many of those assets to leverage from a grid value perspective.

Andrew Percoco

Great. Thank you, I'll leave it there.

Mary Powell

Thank you.

Operator

Thank you. We have next question from the line of Ameet Thakkar with BMO Capital Markets. Please go ahead.

Ameet Thakkar

Hi, thanks for taking my questions. Just real quick on the \$18 million kind of headwind on product mix. I'm sorry if I missed it, but was that really kind of reflective of perhaps like less battery sales? Or is that kind of the mix between subscribers and kind of cash purchases? I have one quick follow-up.

Thomas VonReichbauer

Yeah, battery is the primary item there. So, as you think about what transpired for us in Q4 in the quarter, we're generating new business. We enter in with a chunk of backlog. And just given Omicron-related impacts on crew and labor availability in given markets, the resulting portion of that backlog that was installed was a little different than we had anticipated at the start of the quarter.

So, just a different subset of our customer base that was installed and slightly less advantageous, but on the battery front, that being one of the primary items, there.

Edward Fenster

I mean if you recall, our installations are done in crews of perhaps five people. Not everyone is battery-qualified. And managing through the absenteeism was a challenge and required heavier staffing on jobs and different sorts of jobs in those part of what you saw in the quarter.

Ameet Thakkar

Great, thanks for that color. And then, just thinking back to the third quarter call, I think Mary had talked about potentially kind of radical collaboration kind of being needed with the utility industry. And I think it's fair to say that kind of the NEM proceedings have been fairly acrimonious.

And then, we kind of look to Florida and the state's kind of incumbent utility has kind of, I guess, supported some legislation that is again, kind of a little bit less favorable for residential solar.

Mary, I was just wondering if you could give any kind of thoughts to kind of expand on kind of how you see that radical collaboration maybe kind of starting to kind of take shape or form?

Mary Powell

Well, I think it's a great question. And yes, I'm as bullish on radical collaboration as I was in the fall last year, the year before, because it is just so essential for the long-term health of an energy grid system or ability to build an energy grid system of the future that can serve society in the most cost-effective, resilient way.

So yes. So while we have California and Florida going on, we also--you may have seen this wonderful news, an example of radical collaboration coming out of Hawaii, just last week.

So, what you'll see in the sort of evolution and radical collaboration is many times, it comes out of the pain of failed attempts at looking at things from a very traditional perspective. And I think that's very much what we have going on, here.

It's the pains of looking at things from a very traditional perspective versus a very forward-looking perspective on how to create value not just for society, not just for customers, not just for the planet, but for the grid, overall, through radical collaboration. So, yes.

So I'm very encouraged by what we saw come out of Hawaii. We were a big part of that effort, working with HECO, and it was very impressive what they did and what we all accomplished. So, I still have that same drive and optimism and energy for pushing it forward to the future.

Ameet Thakkar

Thank you.

Operator

Thank you. We have next question from the line of Biju Perincheril with Susquehanna. Please go ahead.

Biju Perincheril

Hi, thanks for taking my question. One more on battery availability. Can you talk--when do you expect to start taking deliveries from the third supplier? And then, can you also talk about opportunity to increase supplies from your two existing vendors? Do you have to sort of relax your pricing criteria to get more supplies from them?

Thomas VonReichbauer

Yeah, so on the--I'll take the second one first, just on general availability here. Remember that over the last couple of years, we've seen rapidly escalating consumer demand that has simply outpaced manufacturing capacity. And many of the suppliers across the industry, the ones we work with and otherwise, have been working hard to ramp that.

So, getting our hands on more batteries from existing suppliers, in part, has just largely been a function of us working hand-in-hand with them, as they ramp their supply chain. And I think we're confident in the outlook we have now, from our suppliers and other prospective suppliers on availability over the course of the year that doesn't, necessarily, require concessions on our part in order to get access to product.

I think our position as the largest player in the industry now puts us in a strong position to get preferred access to supply on terms that work for both us and them and I think--we're happy with that.

On the third supplier, we have begun receiving product and, again, are ramping that, and we'll continue to look to add others here, as we move throughout 2022.

Edward Fenster

Biju, this is Ed. I might just add, if we take the projections from the manufacturers at face value, you'd actually be very encouraged as to the battery availability in '22. Obviously, we do have a recent history of occasional negative surprises in the supply chain, upstream of our manufacturers, that have reduced deliveries.

So, we're taking a little bit of a hedge to that as we think through what we'll be able to accomplish. But at least the good news is the mood at the manufacturers is upbeat.

Biju Perincheril

A follow-up to that. It seems like the attach rate is around mid-teens in fourth quarter. As you sort of proceed through the year with the additional supplies, what do you think you can get to, say, by the end of the year? Any thoughts around that?

Thomas VonReichbauer

Nothing concrete that we'd say, yet. I think, as we noted a few times, there's another area where the California NEM decision will have a material impact. The initial proposal would dramatically incentivize the adoption of batteries and for customers to store surplus power on-site and not export to the grid. And so, that would be a meaningful mover.

And I think we need to see exactly where that lands. But the multiyear trend that we've seen, I think, is continuing and accelerating in many respects, given where utility reliability has trended, over the last few years. And customers want more affordable, more reliable power, and this is one of the best ways for them to get it.

Mary Powell

Yeah, 100%. This is Mary. I would just add to that. What we are seeing, definitely, is increased customer demand. And to Tom's point, as we are seeing more climatic events and we're seeing more--particularly in California, where you have the utilities forcing outages because of fire risk, we do expect that attach rate to really rev up as, supply loosens up in the market.

Biju Perincheril

That's helpful. Thank you.

Operator

Thank you. We have next question from the line of Philip Shen with ROTH Capital Partners. Please go ahead.

Philip Shen

Hi, everyone. Thanks for taking my questions. I just had a follow-up on the subscriber value. I was wondering if you could give a sense for where you expect net subscriber value to trend in Q1 and Q2 versus the \$7,000 from Q4? Thanks.

Thomas VonReichbauer

Yeah, so, as we noted, many of the labor-related effects of Omicron continued in early Q1. And then as a result, we expect Q1 net subscriber values to look comparable to Q4.

And as we move throughout the year, obviously, we expect that to improve from there quite meaningfully, full year total value generated growth exceeding our growth rate and volumes, as we expand margins and get back to more normalized levels, as some of these events subside.

Philip Shen

Thanks, Tom. Also, in terms of Q4, the mix of customers purchasing systems looks like it increased to 26% versus the historical average of about 15%. What's driving that? Do you expect that to sustain, as we get

through '22? What's your latest thinking on solar loans? Would you ever consider putting loans on balance sheet?

Thomas VonReichbauer

Yeah, so, a few things there. Normally, you do see a mix of higher loans in Q4, as customers look to push for a tax credit for their annual tax filings. We've made some improvements in our loan offering, as well.

As you think about overall product mix that was installed in the quarter, as I mentioned earlier, this is one of the spots where the specific shakeout of what came out of our backlog given managing crews and availability in different regions at different moments in time shifted a little further from the historical trend.

I'd say leases remain our core service offering, and most customers continue to favor that due to the strong value prop there and no upfront costs, no impact on personal credit and balance sheets, the general alignment of interest around performance guarantees and ongoing service.

So, we continue to be really bullish and optimistic on the lease but also, continue to provide a suite of financial services available to customers.

Edward Fenster

And maybe just to answer your last question. Phil, this is Ed. I think we continue to think that the ROE of holding loans on balance sheet, particularly in an increasing interest rate environment, aren't necessarily meeting our corporate return thresholds.

So, it's generally been our perspective that, while we're super happy to sell a cash system or a loan to any customer who wants one just as our business philosophy has been at this point, that we'd likely dispose of that loan to a third party.

Mary Powell

And I would just add on to that. And most important, I think, customers, from a customer perspective, the lease product is just so incredibly powerful. And in fact, recent data would suggest a shift back towards that product in our mix, right now.

Philip Shen

Great, thanks. Mary. One last one, if I may in terms of--

Operator

--I'm sorry to interrupt. Sir, you may come back in the question queue.

Philip Shen

Sure, thanks.

Operator

Thank you. We have next question from the line of Sophie Karp with KeyBanc. Please go ahead.

Sophie Karp

Hi, good afternoon. Thank you for squeezing me in, here. A lot has been discussed, already. I was wondering if you could maybe give us your read on the current situation with the Build Back Better plan that, obviously, appears to be dead for now. But any chance for environmental-only legislation or anything that's coming out of D.C. that could be, incrementally, positive for you guys?

Edward Fenster

Hi, Sophie, it's Ed. I think that the climate provisions that were in Build Back Better have broad support and have a reasonable chance of passing. There are going to be probably two opportunities for that. One would be in March after the return from the--to the senators--the senator from New Mexico, who's currently out sick.

And the other one would probably be as part of tax extenders at the end of the year. And I think there's a bit of a chance that the Build Back Better climate provisions would pass as written or they could be slightly scaled back. But I do think there's interest, including bipartisan interest, frankly, in trying to get something done there, where possible.

Sophie Karp

Got it. Thank you. And then, also maybe it's a little bit of a qualitative discussion, but you identified multiple factors as reasons for that being challenging to quantify value creation this year in the--California was one of them but also, I think you mentioned interest rates and some other factors.

I guess, how much of that is California versus all of the other noise that we have in the macro backdrop? If you had the decision in California, let's say, within two months, would you be able to then more confidently quantify your value creation potential in 2022 and beyond and give us that guidance? Or would that still be clouded by other factors, at that point?

Thomas VonReichbauer

Yeah, I'd say, on the total value generated guidance, it's disproportionately, California, things like the ITC or things that would have an impact on safe harboring and cash consumption. Interest rate environment might have an impact on timing of project finance deals, which would hit the cash generation side of it. But on total value generated, California is the disproportionate effect.

Sophie Karp

So, if California gets resolved, you would have, potentially, more clarity to give us?

Thomas VonReichbauer

Yeah, certainly.

Sophie Karp

Okay, thank you. That's all for me.

Operator

Thank you. We have last question from the line of Colin Rusch with Oppenheimer & Co. Please go ahead.

Colin Rusch

Thanks so much, guys. Can you talk about how many markets you're bringing into now in the ancillary services side of things? And then I just have a question around how much growth you're seeing outside of California, what the growth rate looks like embedded in the guidance.

Edward Fenster

I'm sorry. Can you just confirm, was the second question the growth rate, outside of California for 2022? We didn't hear you.

Colin Rusch

Yeah, that's correct.

Thomas VonReichbauer

Yeah, we haven't broken out our results, state by state, but we, obviously, have a number of markets that continue to grow quite nicely, outside of California.

Frankly, even more mature markets like Hawaii continue to grow at a really nice clip. But continuing to see strong growth, we're in 22 states and Puerto Rico, and continuing to be happy with the footprint we have. There's a lot of untapped market potential in those.

Mary Powell

Yeah, and again, we're in 22 states. And we--back to your question on ancillary services, I mean again, our partnership with Ford is in all 50 states. So, that gives us an entree to 28 additional states for services.



Colin Rusch

Okay, great, I'll follow up, offline. Thanks for this.

Operator

Thank you. Ladies and gentlemen, this concludes today's conference. You may now disconnect your lines. Thank you for your participation.

Forward Looking Statements

This communication contains forward-looking statements related to Sunrun (the "Company") within the meaning of Section 27A of the Securities Act of 1933, and Section 21E of the Securities Exchange Act of 1934 and the Private Securities Litigation Reform Act of 1995. Such forward-looking statements include, but are not limited to, statements related to: the impact of COVID-19 on the Company and its business and operations; the Company's leadership team and talent development; the Company's financial and operating guidance and expectations; the Company's business plan, trajectory and expectations heading into 2022, market leadership, competitive advantages, operational and financial results and metrics (and the assumptions related to the calculation of such metrics); the Company's momentum in the company's business strategies, expectations regarding market share, total addressable market, customer value proposition, market penetration, financing activities, financing capacity, product mix, and ability to manage cash flow and liquidity; the growth of the solar industry; the Company's ability to manage suppliers, inventory, and workforce; supply chains and regulatory impacts affecting supply chains; factors outside of the Company's control such as macroeconomic trends, public health emergencies, natural disasters, and the impacts of climate change; the legislative and regulatory environment of the solar industry; expectations regarding the Company's storage and energy services businesses, the Company's acquisition of Vivint Solar (including cost synergies), anticipated emissions reductions due to utilization of the Company's solar systems; expectations regarding the growth of home electrification, electric vehicles, virtual power plants, and distributed energy resources. These statements are not guarantees of future performance; they reflect the Company's current views with respect to future events and are based on assumptions and estimates and are subject to known and unknown risks, uncertainties and other factors that may cause actual results, performance or achievements to be materially different from expectations or results projected or implied by forward-looking statements. The risks and uncertainties that could cause the Company's results to differ materially from those expressed or implied by such forward-looking statements include: the impact of COVID-19 on the Company's operations; the Company's continued ability to manage costs and compete effectively; the availability of additional financing on acceptable terms; worldwide economic conditions, including slow or negative growth rates; rising interest rates; changes in policies and regulations, including net metering and interconnection limits or caps and licensing restrictions; the Company's ability to attract and retain the Company's solar partners; supply chain risks and associated costs; the successful integration of Vivint Solar; realizing the anticipated benefits of past or future investments, strategic transactions, or acquisitions, and integrating those acquisitions; the Company's leadership team and ability to attract and retain key employees; changes in the retail prices of traditional utility generated electricity; the availability of rebates, tax credits and other incentives; the availability of solar panels, batteries, and other components and raw materials; the Company's business plan and the Company's ability to effectively manage the Company's growth and labor constraints; the Company's ability to meet the covenants in the Company's investment funds and debt facilities; factors impacting the solar industry generally, and such other risks and uncertainties identified in the reports that we file with the U.S. Securities and Exchange Commission from time to time. All forward-looking statements used herein are based on information available to us as of the date hereof, and we assume no obligation to update publicly these forward-looking statements for any reason, except as required by law.