

# Sunrun Vulcan Issuer 2021-1, LLC

**\$201,000,000 Solar Asset Backed Notes, Series 2021-1**

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## Executive Summary

This transaction report summarizes Kroll Bond Rating Agency's (KBRA) analysis of Sunrun Vulcan Issuer 2021-1, LLC, a solar lease and power purchase agreements ("PPA") ABS transaction. The report is based on information regarding the underlying contracts, solar equipment, insurance policies and the terms of the securitization as of March 17, 2021. This report does not constitute a recommendation to buy, hold, or sell securities.

Rated Notes					
Class	Initial Amount (\$000's)	Interest Rate (%)	Anticipated Repayment Date	Final Maturity Date	KBRA Rating
Series 2021-1 Notes	201,000	2.46%	July 31, 2028	January 30, 2052	A- (sf)
Total	201,000				

As of January 31, 2021 (the "Cut-Off Date"), the transaction is collateralized by a diversified pool of 16,686 leases and PPAs associated with residential solar photovoltaic installations ("PV Systems"), some of which have energy storage equipment. The aggregate discounted solar asset balance ("ADSAB"), consisting of the discounted payments of the leases and PPAs is approximately \$279.6 million. The securitization share of the ADSAB is approximately \$251.3 million. The portfolio consists of approximately 84.7% PPA agreements and 15.3% lease agreements by ADSAB of host customer solar assets and approximately 83.9% PPA agreements and 16.1% lease agreements by number. The weighted average original tenor of the contracts is 256 months and the weighted average remaining term is 246 months. The weighted average FICO of the related customers of the PV Systems is 749.

KBRA analyzed the transaction using the [Global General Rating Methodology for Asset-Backed Securities](#) and the [Global Structured Finance Counterparty Methodology](#). In applying the methodology, KBRA analyzed the historical data associated with solar collections, asset performance and the legal framework of the various tax equity structures and insurance policies. The capital structure was tested by applying stressed assumptions in KBRA's cash flow analysis of the transaction.

Transaction Parties	
Issuer	Sunrun Vulcan Issuer 2021-1, LLC
Depositor	Sunrun Vulcan Depositor 2021-1, LLC
Originator	Vivint Solar Developer, LLC
Transaction Manager	Vivint Solar Provider, LLC
Performance Guarantor	Sunrun Inc. ("Sunrun")
Transaction Transition Manager / Indenture Trustee / Custodian	Wells Fargo Bank, National Association
Project Companies	Vivint Solar Fund 26 Project Company, LLC ("Fund 26") Vivint Solar Fund 27 Project Company, LLC ("Fund 27") Vivint Solar Owner VIII, LLC ("Owner VIII")
Managing Members	Fund 26 Project Company: Vivint Solar Fund 26 Manager, LLC Fund 27 Project Company: Vivint Solar Fund 27 Manager, LLC Owner VIII Project Company: Vivint Solar Owner VIII Manager, LLC
Tax Loss Insurer (Fund 26)	AIG Specialty Insurance Company
Initial Purchasers	Credit Suisse Securities (USA) LLC and Truist Securities, Inc.

Key Credit Considerations	+/-
<p><b>Experienced Originator / Servicer</b></p> <p>Sunrun is an experienced and capable originator/aggregator and servicer of residential solar leases and PPAs. The Company has been operating in the residential solar market since 2007 and is one of the largest companies in the industry. Sunrun's management team is experienced and has managed the company through the financial crisis. As of December 31, 2020, the Company's portfolio performance has been strong with average delinquencies as a percentage of total billings for receivables more than 120 days past due at 0.68%. KBRA believes the performance of the Company's portfolio reflects its underwriting, loss mitigation and collection practices.</p> <p>On October 8, 2020, Sunrun completed its acquisition of Vivint Solar, Inc. ("Vivint Solar"). Vivint Solar is a direct, wholly-owned subsidiary of Sunrun.</p>	+



<p><b>Above Average Credit Profile of Underlying Customers</b></p> <p>The weighted average FICO (by ADSAB) of the underlying customers of the PV Systems is 749. Customers with a FICO greater than 700 represent approximately 74.3% of the PV Systems. Per traditional credit metrics, these customers would be classified as “prime”.</p>	<b>+</b>
<p><b>Lack of Historical Static Pool Data</b></p> <p>Although Sunrun began offering leases and PPAs to homeowners in 2007, the portfolio has not experienced a complete economic cycle. Further, residential solar systems are a relatively new asset class and the business model for solar developers continues to evolve. As such, only limited performance data is available for this sector. As a proxy, KBRA employed elements of its RMBS methodologies to forecast payment defaults.</p>	
<p><b>Transaction Structure – Credit Enhancement</b></p> <p>Transaction benefits from credit enhancement and a structure that accelerates principal payments to the Notes upon weakening asset performance. The credit enhancement levels in the transaction are sufficient to cover KBRA’s stressed cash flow assumptions for the assigned rating. Credit enhancement for the notes consists of overcollateralization, a liquidity reserve account, a supplemental reserve account, and excess cash flows:</p> <ul style="list-style-type: none"><li>▪ <b>Overcollateralization:</b> The Notes benefit from overcollateralization resulting from the expected payments by the underlying customers of the PV Systems. At closing the overcollateralization relative to the securitization share of the ADSAB is 20.0%.</li><li>▪ <b>Liquidity Reserve Account:</b> At closing a liquidity reserve account will be fully funded in an amount equal to six months of projected interest for the Notes.</li><li>▪ <b>Supplemental Reserve Account:</b> At closing a supplemental reserve account will be funded with \$1.0 million plus the deposit associated with all assets that have not achieved permission to operate (“PTO”). The account will accumulate additional funds over time for future inverter replacement costs and the withdrawal option associated with the related fund.</li><li>▪ <b>Excess cash flow:</b> The transaction features excess cash flow, which results from the difference between the discounted rate used to value cash flows expected from the aggregate distributions to the respective managing members and the weighted average interest rate on the Notes.</li></ul>	<b>+</b>
<p><b>Potential for Tax Basis Adjustments</b></p> <p>The PV Systems were financed via limited liability companies (each a “Project Company”) whose membership and economic interests are divided between a managing member and the related tax equity investor (other than with respect to Owner VIII, which is owned solely by its managing member). Each Project Company holds the right to an investment tax credit (“ITC”) in an amount that is based on the purchase price of the PV Systems it owns. This is equal to the fair market value (“FMV”) of the related PV Systems at the time of purchase, as established by an appraisal. The tax equity investor maintains its substantial interest in the Project Company until the “flip date”, which, depending on the tax equity fund, occurs either on a specified date or once the tax equity investor realizes a specified rate of return.</p> <p>To the extent an IRS challenge results in an adjustment in the FMV of the PV Systems relating to Fund 26, Vivint Solar effectively indemnifies the tax equity investor for the loss of ITCs. The Project Company will have the benefit of a tax loss insurance policy to cover any such tax loss. For Fund 26, Vivint Solar is the named insured, while Fund 26 is an additional insured. In general, the tax loss insurance policy covers tax loss payments to the tax equity investor in an amount equal to a minimum of 36% of the ITCs claimed by Fund 26 with respect to the PV Systems and fees and expenses (“Contest Costs”) incurred by the Project Company related to its defense or appeal against such fair market value related claim by the IRS.</p> <p>The insurer will be AIG Specialty Insurance Company (the “Tax Loss Insurer”) for Fund 26. KBRA has performed a credit estimate of the Tax Loss Insurer and does not view its creditworthiness to be a constraint on the rating of the notes, although it should be noted that the transaction documents will not require the replacement of an insurer if an insurer is downgraded by one or more credit rating agencies.</p>	



### **Refund Payments May Reduce Available Cash Flow**

The majority of PV Systems under lease agreements contain a minimum performance guaranty that entitles the underlying customer to a performance guaranty payment from Vivint Solar to the extent that the cumulative energy production for the PV System during a specified period is less than the contractual guaranteed amount at that point. Moreover, the amount of the payment usually contains an annual escalator to account for the anticipated annual increase in costs associated with obtaining energy from a traditional utility provider to supplement the energy deficit. While performance guaranty payments are obligations of Vivint Solar, KBRA assumed in its analysis that cash flow from the transaction would be used for these payments. Consequently, prolonged underperformance of PV Systems under lease agreements will lead to increasing performance guaranty payments over time, which would adversely impact available cash flow to service interest and principal of the rated Notes.

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The expected performance of the PV Systems was estimated by Leidos Engineering, LLC, an independent engineer. Per the independent engineer's report, the PV Systems' average energy production as of October 2020 is 98.2% of expected output, while the annual degradation of this output is 0.75% per annum. However, under the A- rating scenario KBRA assumes the PV Systems will operate at a P90 generation profile with an annual degradation rate of 1.15% per annum. KBRA's rating analysis results in a performance guaranty payment of approximately \$3.6 million under KBRA's A- scenario. KBRA notes that lease agreements constitute only 15.3% of the collateral by ADSAB, thus limiting the magnitude of potential refund payments.

### **Geographical Concentration**

California residents represent approximately 59.0% by number of obligors on the underlying PV Systems in the transaction and the top three states (CA, MA, CT) account for approximately 75.1% of obligors. KBRA believes that geographic concentration for the subject transaction is significant as the top three states (CA, MA, CT) account for 79.3% of the portfolio by ADSAB. Transactions with greater geographic diversity are better insulated from regional home price decline relative to pools with higher geographic concentration. A regional downturn may result in increased defaults and reduced cash flow.

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### **Write-off Policy Atypical for Consumer Assets**

A PV System is deemed defaulted if the underlying customer is more than 120 days past due on any portion of the contract and the PV System has not been reassigned or removed and redeployed within 240 days after the end of 120-day period. The total period of 360 days until recognition of a default is twice as long as the generally accepted standard timeframe for most consumer assets. On the next payment date after a default is recognized, 75% of the DSAB from the defaulted PV System prior to the recognition of the default is payable to the Notes, thereby accelerating the repayment of debt in an amount determined by the lost cash flows from related defaulted contracts.

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Despite the atypical default recognition policy, the impact of non-payment by any underlying customer is captured in the debt service coverage ratio ("DSCR") calculation. An early amortization period is triggered if the DSCR is equal to or less than 1.15 for two consecutive determination dates.

### **Potential Impact of COVID-19**

The economic effects of COVID-19 have the potential to impact this transaction as well as the Sunrun's business operations, including Sunrun's financial performance and liquidity.

KBRA notes that the Company's performance during COVID-19 has remained stable. Sunrun did not report a significant increase in defaults from its customers in 2020 as a result of the pandemic. Collections as a percentage of billed amount have remained high at close to 99%. The percentage of customers who are enrolled to pay their solar bill through ACH is approximately 80% as of December 2020 and has increased slightly since December 2019.

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In order to test the transaction's strength against a potential COVID-19 impact, KBRA ran sensitivity scenarios in which the credit default timing curve was compressed from 10 years to 5 years for all rating scenarios. These COVID-19 sensitivity runs further reduced cash flow available to service the debt. As shown in the cash flow modeling section, the transaction structure was able to withstand these stresses and the Notes were repaid in their respective rating scenarios.

## Key Changes from Vivint Solar Financing VII, LLC (VSLR 2020-1)

Company	
Vivint Acquisition	On October 8, 2020, Sunrun completed its acquisition of Vivint Solar. Vivint Solar is a direct wholly-owned subsidiary of Sunrun.
Collateral	
Collateral Composition	<p>Below are some changes related to the collateral compared to VSLR 2020-1:</p> <ul style="list-style-type: none"> <li>▪ Inclusion of 25-year contracts (27.0% vs. 0.0%)</li> <li>▪ Inclusion of solar systems with storage units (2.8% vs. 0.0%)</li> <li>▪ Higher collateral concentration in California by count (59.0% vs. 51.2%)</li> <li>▪ Lower weighted average FICO score (749 vs. 751)</li> <li>▪ Higher weighted average solar service agreement price per kWh (\$0.17 vs. \$0.16)</li> <li>▪ Higher percentage of lease agreements by ADSAB (15.3% vs. 10.0%)</li> <li>▪ Higher weighted average agreement remaining term (246 months vs. 221 months)</li> </ul>
Transaction Structure	
Credit Enhancement	<ul style="list-style-type: none"> <li>▪ The initial hard credit enhancement supporting the Series 2021-1 Notes is lower than that for VSLR 2020-1 Class A Notes (20.0% vs. 26.0%)</li> </ul>
Pre-PTO Assets	<ul style="list-style-type: none"> <li>▪ As of the cut-off date, approximately 2.5% of the customer contracts are associated with PV Systems that have not achieved permission to operate ("PTO") from the connecting utility. On the closing date, the Sponsor will deposit into the Supplemental Reserve Account an amount equal to 75% of the total DSAB of these assets. If any of these PV Systems have not achieved PTO by April 30, 2021, amounts on deposit associated with the assets will be released and become available as collections.</li> </ul>

## Transaction Overview

The transaction is secured by the equity interests of the managing members in the related Project Companies that in the aggregate, own a portfolio of 16,686 customer agreements associated with residential solar PV Systems. Cash flow related to the portfolio is net of operations and maintenance ("O&M") expenses, administrative and insurance expenses and any distributions to a tax equity investor per the organizational documents for the respective Project Company.

The transaction is structured such that interest is paid on the Notes and then principal is paid to the Notes.

To the extent the aggregate principal balance of the Notes is unpaid after the anticipated repayment date ("ARD"), additional interest ("step-up interest") will accrue on the Notes at a minimum rate of 5.0% per annum. Post-ARD step-up interest is subordinated to the interest calculated at the rate as of the closing date for the transaction and any principal payments due on the Notes. Moreover, any unpaid post-ARD step-up interest in any collection period is not capitalized. KBRA's rating does not address the payment of post-ARD step-up interest.

The Notes benefit from credit enhancement in the form of excess spread, an interest reserve account and a supplemental reserve account. Proceeds deposited in the supplemental reserve account will be used to fund the replacement of active inverters in the portfolio that fail over time, the withdrawal option associated with the related Project Company.

## Sunrun Transaction Comparison

Transactions	Sunrun 2021-1	Sunnova 2020-2	VSLR 2020-1	Sunnova 2020-1	Sunrun 2019-2	Sunrun 2018-1
<b>Collateral Detail</b>						
Total PV Systems	16,686	13,610	22,914	17,804	28,237	34,493
Aggregate Discounted Balance (\$ millions)	280	294	338	361	439	547
Securitization Share of ADSAB (\$ millions)	251	268	293	337	391	445
Aggregate PV System size (MW DC)	111	104	160	133	209	250
Initial Term	256 months	300 months	240 months	300 months	260 months	239 months
Weighted Average Agreement Remaining Term	246 months	291 months	221 months	281 months	254 months	222 months
Weighted average FICO (residential)	749	741	751	740	738	734
Weighted Average Solar Service Agreement Price per kWh	\$0.17	\$0.17	\$0.16	\$0.16	\$0.15	\$0.15
Percentage of ADB (residential)	100%	100%	100%	100%	100%	100%
Tax Equity Structure Type	Partnership Flip/Unencumbered	Partnership Flip	Partnership Flip	Partnership Flip	Partnership Flip	Various
<b>Note Balance</b>						
Class A	\$201,000,000	\$209,100,000	\$217,000,000	\$256,200,000	\$312,400,000	\$322,000,000
Class B	N/A	\$45,600,000	\$29,500,000	\$53,900,000	\$58,600,000	\$56,500,000
<b>Advance Rate on Securitization Share of ADSAB</b>						
Class A	80.0%	78.0%	74.0%	76.0%	80.0%	72.3%
Class B	N/A	95.0%	84.1%	92.0%	95.0%	85.0%
<b>KBRA Rating</b>						
Class A	A- (sf)	A- (sf)	A- (sf)	A- (sf)	A (sf)	A- (sf)
Class B	N/A	BB- (sf)	BBB (sf)	BB- (sf)	BB (sf)	NR

## Tax Equity Structure

The PV Systems are owned by three separate Project Companies. Vivint Solar Developer, LLC sold the PV Systems to the Project Companies appraised at FMV. Two of the Project Companies are jointly owned via a partnership between a tax equity investor and a managing member that is an indirect subsidiary of Sunrun. The tax equity investor has a substantial interest in the Project Company, which permits the tax equity investor to receive 99% of both the investment tax credits ("ITCs") granted and the associated depreciation in its Project Company. At closing, the managing members will become subsidiaries of Sunrun Vulcan Issuer 2021-1, LLC (the "Issuer").

The total ITCs are equal to 30% of the aggregate purchase price (i.e. FMV) of the PV Systems sold to the Project Company. Moreover, depending on the structure of the Project Company, any rebates or PBIs may also be paid to the Project Companies.

Vivint Solar Developer relied on a third-party appraisal to determine the FMV of the PV Systems. The appraisal calculates the FMV of the PV Systems using a blend of the following approaches:

- Income method (discounted cash flows of the net cash and tax benefits to the system owner)
- Market method (precedent sales of comparable properties)
- Cost method (replacement costs of the PV Systems)

## Partnership Flip

PPA and lease payments less O&M, administrative and insurance expenses ("Distributable Cash") are distributed in accordance with a contractual schedule for the respective Project Company. Each tax equity investor receives a distribution of cash flow from the Project Company. Tax equity distributions are based on a contractual fixed percentage of Distributable Cash set forth in the partnership agreement, with certain Project Companies featuring minimum distributions to the tax equity investors based on a fixed schedule when applicable.

When a tax equity investor reaches a contractual internal after-tax rate of return ("IRR") or a specific date, its cash distribution reduces or "flips". The flip date for Fund 26 is dynamic and depends on the specific IRR, while the flip date for Fund 27 is April 30, 2027. After the flip, the managing member has a call option to purchase all of the tax equity investor's partnership interest in the Project Company after the flip date has occurred. The timing of the purchase varies by Project Company; with respect to Fund 27, the purchase option is available within a specified period of time after the end of the recapture period, and with respect to Fund 26, the purchase option is available within a specified period of time after the flip date or the 60-month anniversary of the date the last PV System receives PTO from the local utility.

The option price is the generally the greater of:

- the FMV of the tax equity investor's interest at the time of the purchase; and
- the amount of cash Sunrun would have to distribute to the tax equity investor for it to reach the buyout IRR.

The FMV is determined by an agreement between the managing member and tax equity investor or by a third-party appraisal.

Project Company	Anticipated Flip Date
Fund 26 Project Company	3/31/2027
Fund 27 Project Company	4/30/2027



ITCs claimed by the respective Project Company are subject to a five-year recapture period. Recapture of the ITCs is triggered if:

- the property ceases to be a qualified energy facility; or
- a change in ownership interest occurs.

To avoid ITC recapture, the members of the partnership must retain at least two thirds ownership of the PV Systems for the five-year period following the year the last system is placed in service.

### **Tax Loss Insurance Policies**

After auditing a fund, the IRS may attempt to recapture a portion of the ITCs of a Project Company to the extent it concludes the claimed FMV of the PV Systems on the Project Company's tax return was overstated. The FMV serves as the basis for the ITCs granted. The permitted ITCs are equal to 30% of the Cost basis the partnership has in the assets. The ITCs claimed by a Project Company are equal to 30% of the purchase price FMV of the PV Systems sold to the Project Company. If the IRS suspects the claimed FMV overstates the value of the PV Systems at the time of the sale to a Project Company, it may seek to adjust the Project Company's tax return in audit.

Following the audit, the IRS may formally challenge the FMV calculation. The IRS must submit its challenge within three years following the filing of a Project Company's tax return. If a challenge is made during this period, the statute of limitations tolls until a decision is made regarding the challenge. The minimum expected duration of an ITC challenge until resolution is approximately four years. Cash flow received by the Issuer from payments under the lease and PPA agreements would still be available to service interest and principal payments on the Notes during an IRS challenge.

To the extent an IRS challenge results in an adjustment in the FMV, Vivint Solar will have to repay the tax equity 30¢ for every \$1 reduction in the FMV. To mitigate against any reduction in the distributions to the managing members associated with potential IRS recapture of ITCs, the tax loss insurance policy for Fund 26 names Vivint Solar as insured. The premiums for the tax loss insurance policies are single non-refundable premiums that have been paid prior to the closing date.

The maximum protection provided by each tax loss insurance policy represents a portion of the ITCs claimed by each Project Company. After a review of Vivint Solar's value chain and the associated cost per kilowatt to install a PV System, KBRA concluded that the potential sum of tax loss payments and Contest Costs does not exceed the ITCs claimed in an "A-" level stress to the FMV.

AIG Specialty Insurance Company will be the tax loss insurer for Fund 26, providing a total insured liability of \$44 million, with a retention of retention of \$175,000 in respect of contest expenses. Although Fund 27 excludes an ITC recapture by the IRS as an event that warrants a tax loss indemnity, Sunrun will still maintain a master insurance policy that names Fund 27 as loss payee. The total insured liability for ITC-related claims for Fund 27 is \$10,035,501.

KBRA performed a credit assessment of the insurance provider for Fund 26 and determined that it has investment grade credit characteristics. However, the transaction does not provide for a replacement mechanism or any structural protections in the event the insurance provider is downgraded by one or more credit rating agencies.

KBRA notes that the tax loss insurance policies only protect against tax losses and Contest Costs in an amount that is a portion of the ITCs claimed by each of the Project Companies for the related PV Systems. Based on KBRA's valuation approach of the PV Systems, it is not anticipated that any adjustment to the FMV of the PV Systems would result in the sum of the Contest Costs and tax loss payments to exceed this amount. KBRA believes these tax loss insurance policies act as an effective mitigant to the tax basis adjustment risk posed by partnership flip structures that are sometimes used in solar securitizations.

### **Originator and Manager Review**

Sunrun is a publicly traded solar company located in San Francisco, CA engaged in originating, financing, installing, and servicing residential solar leases and PPAs. KBRA performed an on-site operational review of Sunrun at its San Francisco headquarters as part of its rating process for this transaction, with satisfactory results.

Sunrun was founded in 2007 as a California limited liability company and was converted to a Delaware corporation in 2008. As of December 31, 2020, Sunrun had approximately 8,500 employees.

Sunrun structures its customer agreements as cash sales, leases or PPAs. Lease customers pay a fixed monthly fee with an electricity production guarantee. PPA customers pay a fee based on the amount of electricity the solar energy system



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produces. Cash sale customers purchase their solar energy systems outright, which includes a workmanship warranty but no electricity production guarantee and have the option to obtain a loan through third-party lender partners.

On October 8, 2020, Sunrun completed its acquisition of Vivint Solar. Vivint Solar is a direct, wholly-owned subsidiary of Sunrun.

## **Customer Acquisition & Development**

The solar assets in the portfolio were originated under Vivint Solar's customer acquisition and development practices. It is expected that Vivint Solar will adopt the Sunrun policy. Vivint Solar markets and sells its products and services through a national sales organization that relies primarily on direct direct-to-home sales force in which sales representatives meet with customers in their homes.

Due to the unique design and energy requirements associated with each home, Vivint Solar Provider begins the sales process by evaluating the potential customer's historical consumption against the projected energy generated by the system to estimate the potential savings against the customer's current bill. Satellite imaging technology is then used to evaluate the suitability of the site for solar's products and services.

## **Underwriting**

Vivint Solar has a standardized credit protocol to qualify prospective residential host customers, which protocol may, at times, include additional credit criteria negotiated with tax equity investors with respect to assets in which such tax equity investors will have an interest. Vivint Solar obtains FICO scores directly from the credit bureaus through the Company's proprietary software.

For residential host customers, the credit underwriting policy requires a minimum FICO score of 650; however, a limited number of host customers have a FICO score below 650 due to subsequent transfers of the solar assets.

## **Site Survey**

Site surveyors visit each site to verify assumptions made by the salesperson when generating a proposal. An audit involves verification of the following:

- Key dimensions and measurements (to make corrections to the initial 3D model, which is created based on multi-view aerial photography);
- Obstructions and shading;
- Characteristics of the mounting plane(s) (roof surface, protrusions, etc.);
- Structural characteristics (including an attic entry to verify rafter size, spacing, truss design);
- Electrical characteristics (service panel location/age/rating, code compliance); and
- Safety hazards

Surveyors digitally record information for Vivint Solar's solar energy estimate tool, Suneye-360. After receiving the site survey information, the design team creates a full CAD engineering packet.

## **Engineering Design**

Following the site audit, the design team reviews site survey photos, measurements, and information to create a permit and installation packet. During this design process, the design team reviews designs to ensure compliance with fire code and municipal regulations; depending on utility or internal constraints, system offsets a maximum of 90 to 100 percent of a customer's expected annual electrical usage at the residence; threshold production requirements by local market; and roof and structural limitations. The sales representative presents the design to the customer to receive their approval. Throughout the design and installation process, Vivint Solar apprises customers of the project status with regular updates from the customer experience team.

## **Installation**

Installation is performed by a team of 4-5 persons. Vivint Solar obtains all necessary building permits prior to installation. Vivint Solar Developer is a licensed contractor or uses licensed subcontractors in every community it services and is responsible for every customer installation. Vivint Solar has an 86-point checklist for installers to ensure that the quality of the installation is maintained. Vivint Solar has an internal digital work order program to manage installation which verifies 90% of installations on the same day and 99% in 48 hours and a quality assurance function that physically reviews 10% of systems on site.

## Monitoring & Maintenance

Vivint Solar monitors its solar energy system by using a combination of internally developed solutions as well as capabilities provided by suppliers. The solar energy systems use communication gateways and monitoring services to transmit performance data remotely and this data is used to ensure the solar energy systems are operating properly.

An operations manager at each warehouse is accountable for asset performance and manages the field of technicians in each market. Two-person teams are assigned to geographical regions in which Vivint Solar operates. Each team monitors their accounts to keep them proactively serviced.

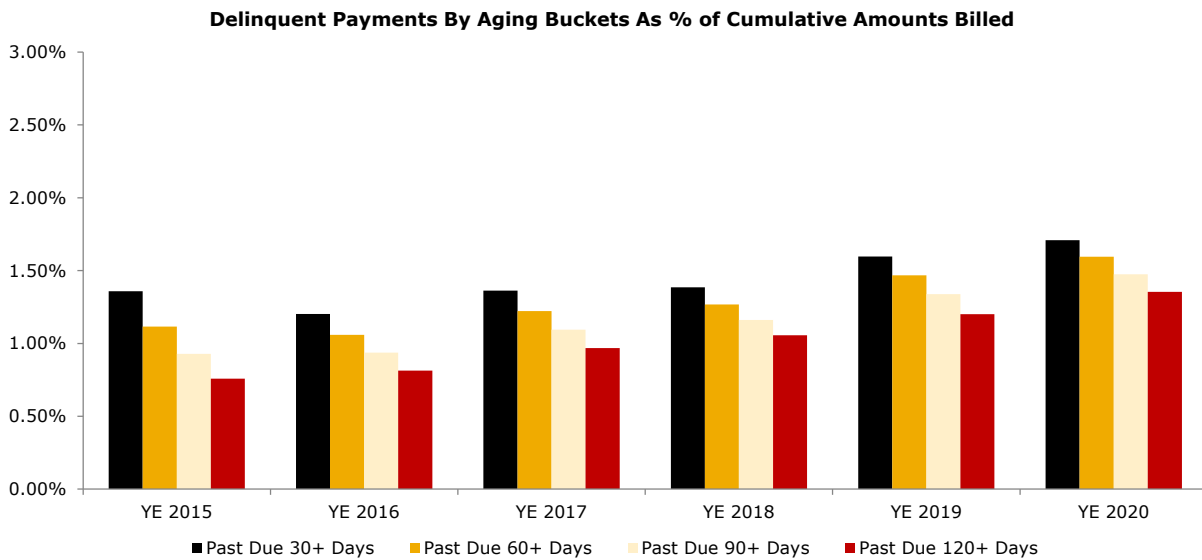
## Collections Policy

Vivint Solar Provider uses a third-party service provider, LeaseDimensions (“LD”), to manage its billing and collection activities. LD was founded in 1995 and acquired in mid-2017 by Genpact, an international business process outsourcing company that reported over \$3.9 billion in revenue and over 700 clients worldwide in their annual report filed with the SEC for the year ended December 31, 2020.

Collections activities generally begin with a theme of “How can we help?” in the first 30 days of delinquency, then move to “We’ll help you resolve your delinquency” in the 30-60 day timeframe, followed by “It’s urgent that we resolve this delinquency” in the 60-90 day timeframe. If collection efforts do not result in the customer paying their account as agreed, Vivint Solar Provider pursues an escalating series of remedial actions as follows:

- System shut-off letter, followed by turning off the solar energy system
- Default letter calls the account due at a default price specified in the customer agreement
- Site review to visit customer and assess the solar energy system’s condition
- Credit review to determine if the customer’s credit situation has degraded, plus an evaluation of employment status and home equity to determine if placement at a collections agency or pursuing a legal judgment might be warranted

Below are Vivint Solar Provider’s receivables aging data from December 31, 2020.



## Contract Reassignments

Vivint Solar Provider has the right to remove PV Systems upon default or failure of the customer to pay all amounts outstanding and costs incurred. System removals are rare and account for a small percentage of the Company's portfolio. Since inception until December 31, 2020 more than 54,000 home transfers have occurred, with recovery of 99.9% of the base contract value.

Generally, contract reassignments are the result of the sale of the home or customer financial distress (short sale, foreclosure, divorce or death of the customer). In cases of death and divorce the agreement is reassigned to surviving heir or spouse that will remain in the residence where the system is installed. In other cases, the Company attempts to redeploy a system by offering it at a discount to a prospective customer who has similar energy and engineering requirements to the repossessed system.

Below are Vivint Solar Provider's reassignment and recovery data as of December 31, 2020:

<b>Transfer Analysis by Category</b>				
<b>Category</b>	<b># of Completed Reassignments</b>	<b>% of Completed Reassignments</b>	<b>Transfer with Loss Incurred</b>	<b>Recovery (%)</b>
Standard	24,865	96.7%	0	100.0%
Buyout	475	1.8%	188	105.3%
Prepayment	88	0.3%	21	104.7%
Discounted	149	0.6%	107	67.7%
Total Loss	137	0.5%	137	-5.3%
<b>Total</b>	<b>25,714</b>	<b>100.0%</b>	<b>453</b>	<b>99.4%</b>

## Production Estimate

The amount of energy output from a solar system is dependent upon the solar resource. Vivint Solar engaged Leidos Engineering, LLC ("Independent Engineer" or "IE") to evaluate its solar resource assessment that is a primary input into its pro forma forecast. The solar resource assessment is based on using the Company's forecasting engine, which incorporates elements of Cobblestone and Project Sunroof.

The IE evaluated the production performance of a representative portion of Vivint Solar's fleet of PV Systems. The production data obtained by the IE was then compared to Vivint Solar's original forecast, which is consistent with a P50 generation profile. P50 production is the median expected production of a PV System. Based on the IE's findings, the average production of the portfolio of PV Systems as of October 2020 was 98.2% of the P50 production estimate.

## KBRA Production Estimate

Probability of exceedance values ("P-values") provide insight into the volatility of the solar resource over a given period. Monte Carlo simulations are used to calculate P-values for the portfolio's energy production. A one-year P-value represents the probability of exceedance for any given individual year. For example, the actual energy production for any given year is equally likely to be higher or lower than the P50 value. Similarly, a multi-year P-value represents the probability of exceedance for any given multi-year (i.e., the average energy production for a given 10-year period is 90% likely to exceed to the 10-year P90). KBRA analyzed the securitization's cash flows under a one-year P90 to account for the use of satellite data and uncertainty imbedded in the solar resource forecast. However, unlike large scale utility projects, the securitization benefits from a portfolio effect, which should result in a reduction in inter-annual variability as poor production in one region might be offset by stronger production in another area.

KBRA's rating stress incorporates a reduction in each system's availability rate in order to account for the risk that the systems are offline for a given period of time and unable to produce power. KBRA uses a 1.15% per annum degradation assumption under the A- rating scenario to account for the risk that the amount of energy the system can produce deteriorates over time. It should be noted that KBRA's 1.15% per annum degradation assumptions are substantially higher than the IE's base case assumption of 0.75% per annum.

## P-50 Production Estimates

Sunrun 2021-1 P-50 Production for One Year Period												
Year of Operation	P50 LTD	AZ	CA North	CA South	CT	IL	MA	MD	NJ	NV	NY	PA
1	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%
3	98.5%	98.5%	98.5%	98.5%	98.5%	98.5%	98.5%	98.5%	98.5%	98.5%	98.5%	98.5%
4	97.8%	97.8%	97.8%	97.8%	97.8%	97.8%	97.8%	97.8%	97.8%	97.8%	97.8%	97.8%
5	97.0%	97.0%	97.0%	97.0%	97.0%	97.0%	97.0%	97.0%	97.0%	97.0%	97.0%	97.0%
6	96.3%	96.3%	96.3%	96.3%	96.3%	96.3%	96.3%	96.3%	96.3%	96.3%	96.3%	96.3%
7	95.5%	95.5%	95.5%	95.5%	95.5%	95.5%	95.5%	95.5%	95.5%	95.5%	95.5%	95.5%
8	94.8%	94.8%	94.8%	94.8%	94.8%	94.8%	94.8%	94.8%	94.8%	94.8%	94.8%	94.8%
9	94.0%	94.0%	94.0%	94.0%	94.0%	94.0%	94.0%	94.0%	94.0%	94.0%	94.0%	94.0%
10	93.3%	93.3%	93.3%	93.3%	93.3%	93.3%	93.3%	93.3%	93.3%	93.3%	93.3%	93.3%
11	92.5%	92.5%	92.5%	92.5%	92.5%	92.5%	92.5%	92.5%	92.5%	92.5%	92.5%	92.5%
12	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%
13	91.0%	91.0%	91.0%	91.0%	91.0%	91.0%	91.0%	91.0%	91.0%	91.0%	91.0%	91.0%
14	90.3%	90.3%	90.3%	90.3%	90.3%	90.3%	90.3%	90.3%	90.3%	90.3%	90.3%	90.3%
15	89.5%	89.5%	89.5%	89.5%	89.5%	89.5%	89.5%	89.5%	89.5%	89.5%	89.5%	89.5%
16	88.8%	88.8%	88.8%	88.8%	88.8%	88.8%	88.8%	88.8%	88.8%	88.8%	88.8%	88.8%
17	88.0%	88.0%	88.0%	88.0%	88.0%	88.0%	88.0%	88.0%	88.0%	88.0%	88.0%	88.0%
18	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%
19	86.5%	86.5%	86.5%	86.5%	86.5%	86.5%	86.5%	86.5%	86.5%	86.5%	86.5%	86.5%
20	85.8%	85.8%	85.8%	85.8%	85.8%	85.8%	85.8%	85.8%	85.8%	85.8%	85.8%	85.8%
21	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%
22	84.3%	84.3%	84.3%	84.3%	84.3%	84.3%	84.3%	84.3%	84.3%	84.3%	84.3%	84.3%
23	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%
24	82.8%	82.8%	82.8%	82.8%	82.8%	82.8%	82.8%	82.8%	82.8%	82.8%	82.8%	82.8%
25	82.0%	82.0%	82.0%	82.0%	82.0%	82.0%	82.0%	82.0%	82.0%	82.0%	82.0%	82.0%

## P-90 Production Estimates

Sunrun 2021-1 P-90 Production for One Year Period												
Year of Operation	P50 LTD	AZ	CA North	CA South	CT	IL	MA	MD	NJ	NV	NY	PA
1	100.0%	95.4%	94.1%	94.7%	93.0%	93.4%	93.7%	92.2%	91.9%	95.1%	92.5%	91.8%
2	99.3%	94.7%	93.4%	94.0%	92.3%	92.7%	93.0%	91.5%	91.2%	94.4%	91.8%	91.1%
3	98.5%	93.9%	92.7%	93.3%	91.6%	92.0%	92.3%	90.8%	90.5%	93.7%	91.1%	90.4%
4	97.8%	93.2%	92.0%	92.6%	90.9%	91.3%	91.6%	90.2%	89.8%	93.0%	90.4%	89.7%
5	97.0%	92.5%	91.3%	91.9%	90.2%	90.6%	90.9%	89.5%	89.1%	92.3%	89.7%	89.0%
6	96.3%	91.8%	90.6%	91.2%	89.5%	89.9%	90.2%	88.8%	88.5%	91.5%	89.0%	88.3%
7	95.5%	91.1%	89.9%	90.5%	88.8%	89.2%	89.5%	88.1%	87.8%	90.8%	88.3%	87.6%
8	94.8%	90.4%	89.2%	89.8%	88.1%	88.5%	88.8%	87.4%	87.1%	90.1%	87.6%	86.9%
9	94.0%	89.6%	88.5%	89.1%	87.4%	87.8%	88.1%	86.7%	86.4%	89.4%	86.9%	86.3%
10	93.3%	88.9%	87.8%	88.3%	86.7%	87.1%	87.4%	86.0%	85.7%	88.7%	86.3%	85.6%
11	92.5%	88.2%	87.1%	87.6%	86.0%	86.4%	86.7%	85.3%	85.0%	88.0%	85.6%	84.9%
12	91.8%	87.5%	86.4%	86.9%	85.3%	85.7%	86.0%	84.6%	84.3%	87.3%	84.9%	84.2%
13	91.0%	86.8%	85.7%	86.2%	84.6%	85.0%	85.3%	83.9%	83.6%	86.6%	84.2%	83.5%
14	90.3%	86.1%	85.0%	85.5%	83.9%	84.3%	84.6%	83.2%	82.9%	85.8%	83.5%	82.8%
15	89.5%	85.4%	84.3%	84.8%	83.2%	83.6%	83.9%	82.5%	82.3%	85.1%	82.8%	82.1%
16	88.8%	84.6%	83.6%	84.1%	82.5%	82.9%	83.2%	81.9%	81.6%	84.4%	82.1%	81.4%
17	88.0%	83.9%	82.8%	83.4%	81.8%	82.2%	82.5%	81.2%	80.9%	83.7%	81.4%	80.7%
18	87.3%	83.2%	82.1%	82.7%	81.1%	81.5%	81.8%	80.5%	80.2%	83.0%	80.7%	80.1%
19	86.5%	82.5%	81.4%	82.0%	80.4%	80.8%	81.1%	79.8%	79.5%	82.3%	80.0%	79.4%
20	85.8%	81.8%	80.7%	81.2%	79.7%	80.1%	80.4%	79.1%	78.8%	81.6%	79.3%	78.7%
21	85.0%	81.1%	80.0%	80.5%	79.0%	79.4%	79.7%	78.4%	78.1%	80.8%	78.6%	78.0%
22	84.3%	80.3%	79.3%	79.8%	78.3%	78.7%	79.0%	77.7%	77.4%	80.1%	77.9%	77.3%
23	83.5%	79.6%	78.6%	79.1%	77.7%	78.0%	78.3%	77.0%	76.7%	79.4%	77.2%	76.6%
24	82.8%	78.9%	77.9%	78.4%	77.0%	77.3%	77.6%	76.3%	76.1%	78.7%	76.5%	75.9%
25	82.0%	78.2%	77.2%	77.7%	76.3%	76.6%	76.9%	75.6%	75.4%	78.0%	75.8%	75.2%

## Operations & Maintenance

Vivint Solar Provider is responsible for performing operations, maintenance and administrative services for all PV Systems in the pool. Each Project Company entered into a maintenance services agreement (“MSA”) and administrative services agreement (“ASA”) and with Vivint Solar Provider at such Project Company’s inception. Under the terms of the MSAs, Vivint Solar Provider provides all services necessary to operate, maintain, and repair each PV System. These services include normal maintenance, reporting and monitoring and administrative services.

In addition to providing routine maintenance and administrative services, Vivint Solar Provider is responsible for replacing defective equipment, such as panels, inverters, batteries and/or meters. All inverters and batteries are expected to be replaced over the tenor of the transaction given KBRA's useful life assumption of 10-15 years. While it is likely that the MSA fee payment compensates it for this expense, KBRA has made the assumption that Vivint Solar Provider's credit quality is weaker than the Notes and at some point it is replaced. As such, KBRA believes the Issuer will be responsible for these maintenance expenses and has included this as an expense in its ratings stresses.

Vivint Solar Provider's MSAs provide for a fixed annual fee of \$16.50 (or, in the case of the Owner VIII fund, \$21.00) and ASAs provide for a fixed annual fee of \$4.50 per year (except for the Owner VIII fund) per DC kilowatt of installed nameplate capacity, both of which increase annually by 2.0%. However, KBRA's rating scenarios utilize higher rates (A-stress scenario: \$27/kW) which KBRA believes are needed to attract a new O&M provider in a distressed scenario. Wells Fargo Bank, National Association will serve as the Transition Manager and will have the responsibility of identifying a replacement manager in a default scenario. Noteholder approval of the new manager is also required. KBRA views the inclusion of the Transition Manager favorably as it allows the securitization to continue to operate as expected if Vivint Solar Provider as manager needs to be replaced.

## Summary of Collateral

The tables below illustrate key collateral characteristics such as average customer balance, system size, credit quality, and geographical concentration by Project Company.

The ADSAB, consisting of the discounted payments of the leases and PPAs is approximately \$279.6 million. The securitization share of the ADSAB is approximately \$251.3 million. The portfolio consists of approximately 84.7% PPA agreements and 15.3% lease agreements by ADSAB of host customer solar assets and approximately 83.9% PPA agreements and 16.1% lease agreements by number. The weighted average original tenor of the contracts is 256 months and the weighted average remaining term is 246 months. The weighted average FICO of the related customers of the PV Systems is 749.

Portfolio Summary	
Number of PV Systems	16,686
ADSAB	\$279,611,127
Average DSAB	\$16,757.23
Aggregate PV System Size (MW)	111.29
Range of PV System Sizes (kW)	2.00 to 504.30
Weighted Average Agreement Initial Term (months)	256
Weighted Average Agreement Remaining Term (months)	246
Weighted Average Agreement Seasoning (months)	10
Number of Utility Servicer Providers	52
Weighted Average FICO Score	749
Range of FICO Scores	506 to 850
Weighted Average Year 1 Price per kWh	0.17
Range of Year 1 Price per kWh	\$0.070 to \$0.305
Weighted Average Solar Service Agreement Year 1 Price per kWh Escalator	2.81%

Fund Data	Fund 26	Fund 27	Owner 8
PV Systems	11,845	4,284	557
Aggregate PV System size (MW DC)	79.53	27.93	3.83
Weighted average FICO	748	749	749
ADSAB (\$ millions)	\$198.2	\$74.4	\$7.0
Average Discounted Solar Asset Balance	\$16,730	\$17,368	\$12,637
Range of customer agreements - Months remaining	220-298	228-300	145-292
Weighted average customer agreement - Months remaining	245	254	212
California	62.2%	67.3%	50.6%
Massachusetts	12.5%	12.0%	16.4%
Connecticut	3.9%	2.8%	2.9%
New Jersey	3.2%	4.2%	7.1%
Maryland	3.7%	2.7%	5.9%
Hawaii	2.8%	3.1%	1.8%
Arizona	3.1%	2.3%	2.3%
Illinois	3.0%	1.8%	0.0%
Nevada	2.0%	1.4%	1.4%
New York	1.7%	1.1%	1.7%
Other	1.8%	1.3%	10.0%

# Cash Flow Assumptions

## Base Case Scenario

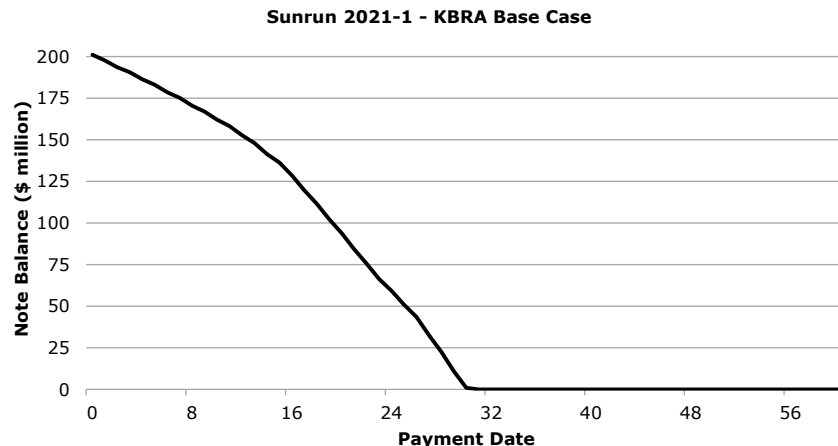
KBRA performed cash flow modeling on the Sunrun Vulcan Issuer 2021-1, LLC, Series 2021-1 transaction to determine whether the projected cash flow from the PPAs and leases were sufficient to withstand KBRA’s cash flow stresses.

KBRA’s assumed default rate is typically spread evenly over the first ten years of the transaction. However, this timeframe was compressed to five years to account for additional stress that may arise owing to the COVID-19 economic disruption.

KBRA’s base case assumes the following:

- P50 energy production
- 4.16% of residential leases/PPAs default and never pay again. Lease/PPA defaults were based on the lowest FICO scores defaulting first and defaults were spread evenly over 5 years. The default rates were determined by doubling the probability of default output determined by the KBRA RMBS Credit Model, based on each obligor’s FICO score.
- KBRA assumed in years 5, 10, and 15 a portion (5%/10%/15%) of residential customers whose PPA/lease rate is higher than their projected utility rate would default and not make payments for 3 months. After 3 months, the defaulting customers would renegotiate their lease/PPA rate to 5% below the prevailing utility rate in their respective states at that time. KBRA used current utility rate data found on [www.EIA.gov](http://www.EIA.gov) and grew the current rate by 1% annually. The contracts that were most out of the money were modified first. Renegotiated contract rates grow at 1% annually. Based on the above stresses it was assumed:
  - 188 contracts were renegotiated in year 5
  - 864 contracts were renegotiated in year 10
  - 1,662 contracts were renegotiated in year 15
- No credit given to any PPAs/leases that are more than 60 days delinquent
- Management fee of \$24/kW DC for systems without storage and \$29.50/kW DC for systems with storage, increasing at 2% annually
- All string inverters are replaced for \$1,000 each during years 11-13
- 14.0% of the microinverters are replaced with string inverters for \$1,000 each during years 10-12
- All storage units are replaced for \$5,000 each during years 11-13 and again during years 21-23
- Flip dates are as follows:
  - Fund 26: 3/31/2027
  - Fund 27: 4/30/2027
- Managing members do not exercise the purchase options for the respective Project Companies
- Module degradation rate: 0.75% per annum
- System availability of 98%
- Notes are not refinanced on the ARD

Under the base case scenario, the Notes are repaid in semiannual period 31 (year 16). The chart on the following page illustrates KBRA’s base case scenario projections.





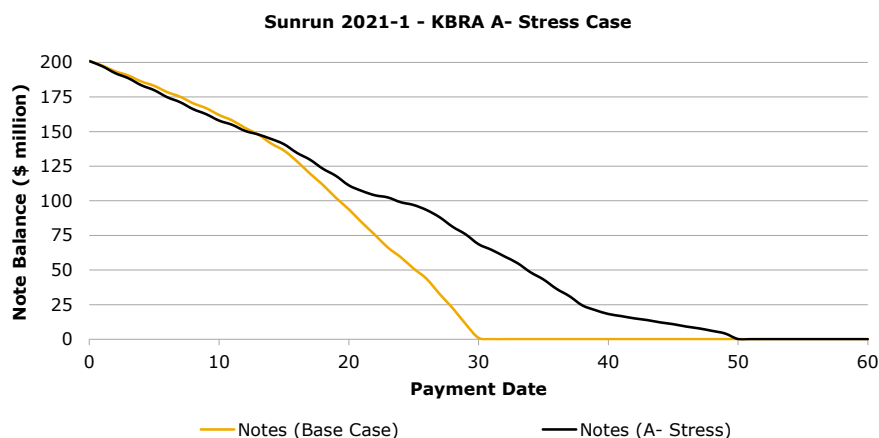
KBRA ran a number of sensitivities to test the transaction structure to test stresses related to timing of defaults, cumulative net losses, energy production and reduced contract rates. The scenarios detailed below were analyzed to determine if the transaction structure and cash flows could sustain KBRA's stressed assumptions. Based on the analysis, the transaction appears to be able to withstand such stresses.

## A- Stress Scenario

Under the A- stress scenario the following stresses were applied to the structure:

- P90 energy production
- 15.90% of residential leases/PPAs default and never pay again. Lease/PPA defaults were based on the lowest FICO scores defaulting first and defaults were spread evenly over 5 years. The default rates were determined using two components and taking the sum of both results. The first component (15.29%) was calculated by doubling the PD output determined by KBRA RMBS Credit Model, based on each obligor's FICO score. The second component (0.61%) was calculated as the present value of the estimated refund payments for the cash flow scenario expressed as a percentage of the ADSAB.
- KBRA assumed in years 5, 10, and 15, a portion (30%/40%/50%) of residential customers whose PPA/lease rate is higher than their projected utility rate would default and not make payments for 12 months. After 12 months, the defaulting customers would renegotiate their lease/PPA rate to 19% below the prevailing utility rate in their respective states at that time. KBRA used current utility rate data found on www.EIA.gov and grew the current rate by 1% annually. The contracts that were most out of the money were modified first. Renegotiated contract rates grow at 1% annually. Based on the above stresses it was assumed:
  - 1,163 contracts were renegotiated in year 5
  - 3,312 contracts were renegotiated in year 10
  - 3,569 contracts were renegotiated in year 15
- No credit given to any PPAs/leases that are more than 60 days delinquent
- Management fee of \$27.0/kW DC for systems without storage and \$33.00/kW DC for systems with storage, increasing at 2% annually
- All string inverters are replaced for \$1,325 each during years 11-13
- 42.0% of the microinverters are replaced with string inverters for \$1,325 each during years 10-12
- All storage units are replaced for \$6,625 each during years 11-13 and again during years 21-23
- Flip dates are as follows:
  - Fund 26: 3/31/2028
  - Fund 27: 4/30/2027
- Managing members do not exercise the purchase options for the respective Project Companies
- Module degradation rate: 1.15% per annum
- System availability of 95.5%
- No refinancing at the ARD

Under the A- stress scenario, the Notes are repaid in semiannual period 51 (year 26). The charts on the following page illustrates KBRA's A- stress case scenario projections.



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## Rating Sensitivity and Surveillance

The rating assigned to Sunrun 2021-1 will be monitored through the life of the transaction. If performance of the transaction, including DSCR, differs meaningfully from the expected levels, KBRA may consider making a rating change.

The table below illustrates the potential for downgrade of the rating on the Notes if the expected DSCR levels are below initial expectations based upon the leverage in the transaction currently. 'Stable' means a downgrade is unlikely. 'Moderate' means a potential downgrade of up to one rating category is possible. 'Severe' indicates a multi-category downgrade is possible.

<b>DSCR Decrease</b>	<b>Class A Notes</b>
10%	Stable
20%	Stable
30%	Moderate
40%	Severe

It should also be noted that many factors, including economic stress, market conditions and servicing operations can impact the performance of the pool and influence rating decisions. If there is the need for any change in the rating of the notes, KBRA will provide a detailed explanation as to the rationale for such change in rating and the likelihood and factors surrounding any further potential rating changes.



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## ESG Considerations

### Environmental Factors

#### **Clean Source of Energy**

Photovoltaic solar systems provide a clean and renewable form of energy as an alternative to energy sources that produce carbon emissions such as coal, natural gas, and petroleum. Furthermore, in many instances solar energy has proven to be more cost-effective for consumers than other major sources of energy, making the choice of installing solar more appealing. While KBRA views the growth of clean energy as a positive environmental factor, KBRA tests the persistence of the savings offered to the homeowner under the PPA or lease contract relative to the costs from traditional sources of energy. Please refer to the [Cash Flow Assumptions](#) section for the additional information regarding the value proposition stresses that KBRA applies. Generally, KBRA projects the contracts that will have their value proposition eroded at multiple points in time. As a result of the decline in savings, KBRA assumes that a portion of those contracts is assumed to renegotiate to a lower contract rate in order to reestablish the value proposition originally provided by the solar system.

### Social Factors

#### **Demographic Trends**

Demographic trends drive consumer preferences and the overall direction of the economy, which influences the demand for products and performance of financial assets. Changes in demographic trends and consumer preferences impact the long-term viability of the product and Company. KBRA considers changes in demographic trends, consumer preferences and the long-term viability of the product and Company in its rating assessment. Products with low customer satisfaction, that are inefficient or have not embraced technological developments have a greater likelihood of being disintermediated or replaced by newer products that address these factors. Demand for financial products are also affected by population growth and consumers' age, demographic changes, employment rates, consumer behavior and other secular trends.

### Governance Factors

#### **Experience of Management, Historical Performance**

KBRA believes Sunrun's management team has the knowledge and industry experience manage the company's operations, underwrite loans in accordance with their credit policy and to service the securitized pool.

Historical performance data, which includes defaults, recoveries and prepayments, are important considerations used to predict future performance of the underlying assets. Sunrun has limited operating history for its originations, servicing and underwriting criteria used to originate the solar contracts held as collateral in this securitization.

#### **Transaction Structure**

Transaction structure is an important governance factor in structured finance transactions as many structural aspects, such as adherence to representations and warranties, compliance with origination standards and eligibility criteria, reporting of collateral performance, and segregation and application of cashflows, require parties to act in good faith and certify the accuracy of such information. Failure to do so could impact actual performance and KBRA's ratings. KBRA considers the transaction structural features such as, but not limited to: cash management arrangements; primary servicer's capabilities; back-up servicer arrangements; reserve requirements for upfront and ongoing obligations; waterfall provisions; the bankruptcy remoteness of the Issuer; and underlying collateral for the debt; as applicable, in our ratings analysis. Please refer to the [Transaction Structure](#) section for additional information regarding the structure.

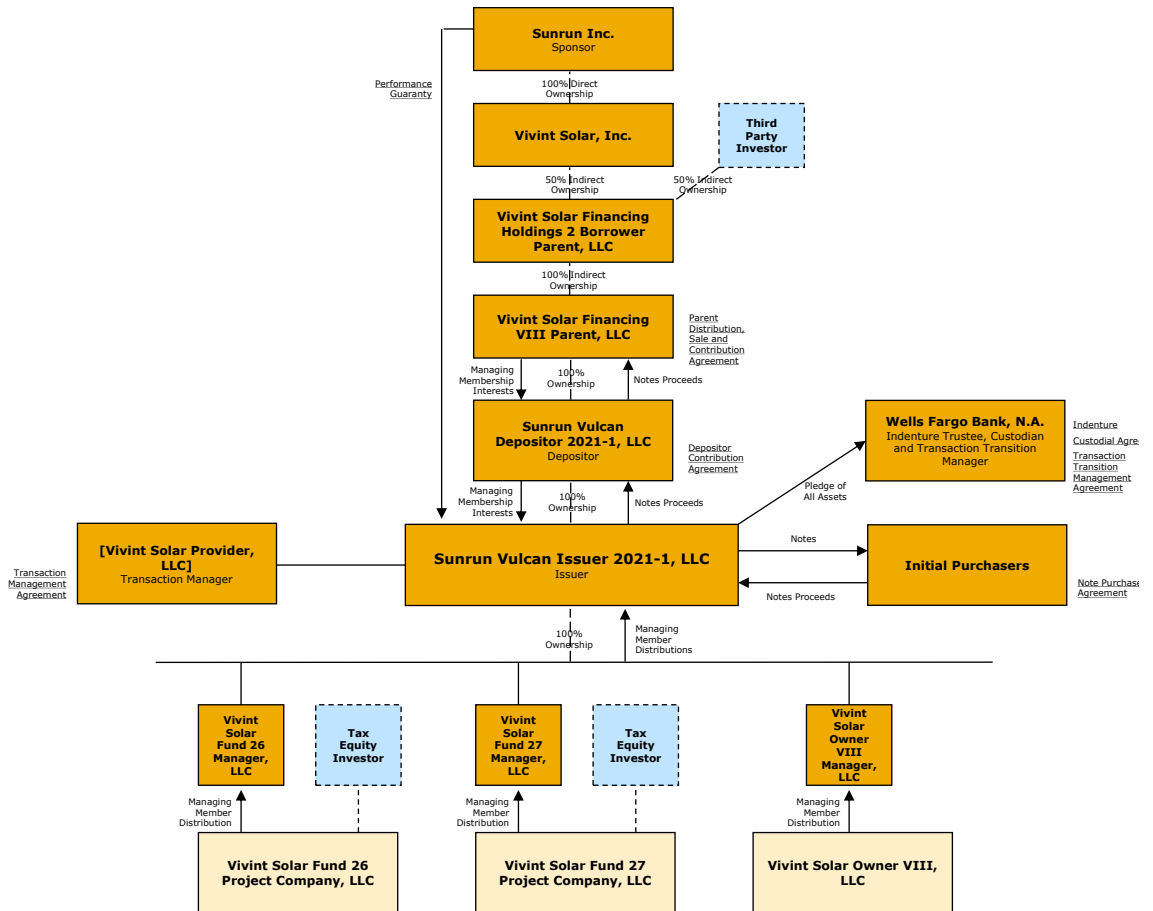
# Transaction Structure

Please note that the following is intended to be a concise summary of the transaction structure. It does not contain all the information that may be relevant to understanding the transaction's mechanics, which are available in the offering materials and/or transaction documents.

## Legal Structure

### Transaction Structure

The Sunrun Vulcan Issuer 2021-1, LLC, Series 2021-1 Notes are newly issued asset-backed notes secured by the equity interests of the managing members in the related Project Companies that own a portfolio of PV Systems. The following diagram illustrates the basic securitization structure:





## Priority of Payments

On each payment date, available funds will be distributed to pay the following amounts in the following order:

- i. Accrued and unpaid Indenture Trustee fees and capped expenses (uncapped if there are certain Events of Default), Backup Servicer/Transaction Transition Manager fees and capped expenses (uncapped if there is an Event of Default), and Custodian fees and capped expenses;
- ii. Transaction Manager fee;
- iii. Interest on the Notes;
- iv. To the liquidity reserve account up to the required amount;
- v. To the supplemental reserve account up to the required amount;
- vi. To the Noteholders:
  1. During a regular amortization period in the following order:
    - a) Scheduled Note Principal Payment;
    - b) Unscheduled Note Principal Payment\*, until the outstanding note balance of Notes is zero;
  2. During an Early Amortization Period, to the Notes until paid in full;
- vii. To the Indenture Trustee, the Transaction Transition Manager and the Custodian, any incurred and not reimbursed out-of-pocket expenses and indemnities, to the extent not paid in accordance with (i) above;
- viii. Any fees and expenses related to the Letter of Credit
- ix. Any Post-ARD step-up interest due and unpaid; and
- x. To or at the direction of the Issuer.

\* Unscheduled Note Principal Payments generally include payments relating to the following categories:

- Terminated solar assets
- Defaulted solar assets
- Customers who have exercised purchase options prior to expiry of the customer agreement
- Prepayments
- Liquidated damages payable by the Depositor for breaches of asset-level representations or warranties
- customer agreements subject to payment modifications (as permitted by the transaction documents)
- Certain material events occurring with respect to a Project Company, such as bankruptcy or being deemed an investment company

The Unscheduled Note Principal Payment amount due is equal to the product (i) 75.00% and (ii) the sum of the discounted solar asset balance for any PV System associated with any of the categories mentioned above.



<b>Early Amortization Period</b>	<p>An "Early Amortization Period" will commence if:</p> <ul style="list-style-type: none"><li>i. The DSCR is less than or equal to 1.15 for two consecutive determination dates;</li><li>ii. The insurance required to be maintained by any Project Company is not in effect (other than tax loss insurance policies);</li><li>iii. On any date after the ARD, the outstanding note balance is greater than zero;</li><li>iv. An Event of Default has occurred; or</li><li>v. If the replacement of the Administrative Services Provider and/or Maintenance Services Provider of any Project Company causes the aggregate Project Company expenses to be more than 25% greater than the Project Company expenses prior to replacement.</li></ul> <p>For clause i. the Early Amortization Period will continue until the DSCR is greater than 1.15 for two consecutive determination dates.</p> <p>For clause ii. the Early Amortization Period will continue until all insurance required to be maintained by any Project Company is in effect.</p>
<b>Events of Default</b>	<p>The occurrence of any of the following events will be an "Event of Default" under the indenture:</p> <ul style="list-style-type: none"><li>i. failure to pay any note interest (excluding Post-ARD Additional Note Interest) when due for three business days;</li><li>ii. failure to pay the aggregate outstanding note balance of the Notes by the legal final maturity date;</li><li>iii. certain bankruptcy or insolvency events occur with respect to the Issuer, all Project Companies, or managing members;</li><li>iv. failure by the Issuer to perform certain covenants set forth in the indenture which has not been cured within the applicable cure period;</li><li>v. certain representations, warranties or statements of the Issuer (other than certain representations and warranties relating to the eligibility of the solar assets) prove to be incorrect in any material respect as of the time when the same shall have been made and such condition is not remedied within 30 days after notice;</li><li>vi. failure of the Indenture Trustee to have a first perfected priority security interest in the trust estate in favor of the Indenture Trustee;</li><li>vii. the Issuer, any Project Company or any managing members become subject to registration as an "investment company";</li><li>viii. the Issuer, all Project Companies or all managing members become taxable as an association or publicly traded partnership taxable as a corporation;</li><li>ix. the Originator or Depositor fails to pay the liquidated damages amount for a defective solar asset; or</li><li>x. there remains in force, undischarged, unsatisfied, and unstayed for more than 30 consecutive days, any final non-appealable judgment in the amount of \$100,000 or more against the Issuer not covered by insurance.</li></ul>
<b>Manager Termination Events</b>	<p>The occurrence of any of the following events will constitute a "Transaction Manager Termination Event" under the Management Agreement:</p> <ul style="list-style-type: none"><li>i. failure by the Transaction Manager to make any required payment, transfer or deposit within five business days of being due;</li><li>ii. failure by the Transaction Manager to deliver to the Indenture Trustee the semi-annual Manager report or the quarterly Transaction Manager report within five business days of being due;</li><li>iii. failure by the Transaction Manager to perform in any material respect any covenant of the Manager which failure continues beyond any applicable cure periods and has a material adverse effect on the Noteholders;</li><li>iv. certain events of bankruptcy or insolvency with respect to the Transaction Manager;</li><li>v. certain representations, warranties or statement of the Transaction Manager prove to be incorrect in any material respect as of the time when the same shall have been made resulting in a material adverse effect on the Noteholders, and such condition has a material adverse effect on the collateral or the Noteholders, subject to certain grace periods set forth in the Transaction Management Agreement;</li></ul>



	<ul style="list-style-type: none"><li>vi. the Transaction Manager ceases to be engaged in the business of monitoring or maintaining energy equipment of a type comparable to the related PV Systems;</li><li>vii. if Vivint Solar Provider is the Transaction Manager, an Event of Default shall have occurred and is continuing; or</li><li>viii. the DSCR is less than 1.05 on any two consecutive Determination Dates.</li></ul>
<b>Representations and Warranties</b>	For more detailed information regarding the representations, warranties and enforcement mechanisms available under the transaction documents, please see KBRA's Sunrun Vulcan Issuer 2021-1, LLC, Representations and Warranties Disclosure, which is being published contemporaneously with this Report. The Representations and Warranties Disclosure is available <a href="#">here</a> .

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