UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM ABS-15G

ASSET-BACKED SECURITIZER
REPORT PURSUANT TO SECTION 15G OF
THE SECURITIES EXCHANGE ACT OF 1934

Check the appropriate box to indicate the filing obligation to which this form is intended to satisfy:

☐ **Rule 15Ga-1 under the Exchange Act (17 CFR 240.15Ga-1) for the reporting period _____ to _____**

Date of Report (Date of earliest event reported)_____

Commission File Number of securitizer: _____

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Indicate by check mark whether the securitizer has no activity to report for the initial period pursuant to Rule15Ga-1(c)(1) ☐

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☒ **Rule 15Ga-2 under the Exchange Act (17 CFR 240.15Ga-2)**

Central Index Key Number of depositor: 0001469367

Sunrun Vulcan Issuer 2021-1, LLC

(Exact name of issuing entity as specified in its charter)

Central Index Key Number of issuing entity (if applicable): 0001849046

Central Index Key Number of underwriter (if applicable): Not applicable

Jeanna Steele, (415) 982-9000
Name and telephone number, including area code, of the person to contact in connection with this filing

INFORMATION TO BE INCLUDED IN THE REPORT

FINDINGS AND CONCLUSIONS OF THIRD-PARTY DUE DILIGENCE REPORTS

Item 2.01 Findings and Conclusions of a Third Party Due Diligence Report Obtained by the Issuer

Attached as Exhibit 99.1 hereto is a consultant's report, dated February 18, 2021, obtained by Vivint Solar, Inc., a wholly owned subsidiary of Sunrun Inc., which report sets forth a summary of the findings and conclusions of Leidos Engineering, LLC with respect to certain residential photovoltaic solar assets.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the reporting entity has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Sunrun Inc.

Date March 3, 2021

/s/ Jeanna Steele

Name: Jeanna Steele
Title: General Counsel

EXHIBIT INDEX

Exhibit Number	Description
99.1	Consultant's Report, dated February 18, 2021, of Leidos Engineering, LLC, setting forth findings and conclusions of Leidos with respect to certain residential photovoltaic solar assets.

February 18, 2021

Via E-mail (bsunderland@vivintsolar.com)

Vivint Solar, Inc., a wholly-owned subsidiary of Sunrun Inc.
3301 N. Thanksgiving Way, Suite 500
Lehi, UT 84043

Subject: Consultant's Report of Findings and Conclusions
Vivint Solar Residential Photovoltaic Portfolio

Ladies and Gentleman:

Introduction

Leidos Engineering, LLC ("Leidos") has reviewed certain aspects of the methods and procedures used by Vivint Solar, Inc. ("Vivint Solar'') for residential rooftop photovoltaic ("PV'') power generation installations (individually referred to as a "Facility" or, if more than one Facility, the "Facilities") that may be developed by Vivint Solar for inclusion in a future equity investment fund (a "Fund"). The Facilities may be located on residential rooftops located in Arizona, California, Colorado, Connecticut, Delaware, Florida, Hawaii, Illinois, Maryland, Massachusetts, Nevada, New Hampshire, New Jersey, New Mexico, New York, Pennsylvania, Rhode Island, South Carolina, Texas, Utah, Vermont, Virginia, and the District of Columbia. Based upon our review, we issued a report to Vivint Solar (the "Consultant's Report") detailing our analyses, considerations and assumptions, and our conclusions. Presented herein is a summary of our review and our findings and conclusions ("Findings and Conclusions") from the Consultant's Report. The Consultant's Report was prepared in connection with debt and equity transactions related to the Facilities. The Report was prepared in accordance with the Master Professional Services Agreement dated April 9, 2014, as amended, and the Task Authorization dated February 25, 2019 between Leidos and Vivint Solar. In order to gain a complete understanding of our review and of our findings and conclusions, the Consultant's Report should be read in its entirety.

The Facilities are to be mounted in fixed-tilt rooftop configurations. The various Facilities are expected to typically have capacities ranging from 1 kilowatt ("kW")-direct current ("DC") to 30 kW-DC. Vivint Solar is to construct, own, and operate the Facilities, including performance of the operation and maintenance ("O&M") activities. The owners of the sites on which the Facilities are to be located are herein individually referred to as a "Site Owner."

Our Review

We reviewed and analyzed the methodologies and processes that Vivint Solar uses to develop residential rooftop sites similar to the Facilities. Our review did not include a review of any information that is specific to any Facilities that may be included in a Fund. However, besides the methodologies and processes that Vivint Solar uses to develop residential rooftop sites, we also reviewed the energy production estimates of 29 installations (the "Reference Installations"), which Vivint Solar reported it expects to be substantially similar to the Facilities.

During the preparation of the Consultant's Report, we reviewed Vivint Solar's methodology for developing energy production estimates for the proposed Facilities. Our review process involved selecting a solar resource dataset and identifying various user input values based on system equipment and design. Further, for each of the Reference Installations we have reviewed the design package, reviewed Vivint Solar's energy production estimates and prepared independent energy production estimates. We reviewed an executed Maintenance Services Agreement ("MSA") and an Administrative Services Agreement ("ASA") that were provided by Vivint Solar for a recently closed Fund. Our scope did not include review of the construction cost and schedule projections or individual Facility specific O&M costs.

Vivint Solar is responsible for Facility development, including sales, design, engineering, permitting, equipment procurement, scheduling, construction, and commissioning. Vivint Solar is also responsible for the O&M services after Facilities become operational. We reviewed Vivint Solar's relevant experience and capabilities. As of December 31, 2019, Vivint Solar had installed more than 220,291 facilities. Of these 220,291 installed systems, approximately 10,062 were awaiting PTO and more than 210,291 installations were operational. Vivint Solar currently employs more than 3,900 people (including active sales representatives) and has 58 field offices.

Historically Vivint Solar has self-performed all tasks related to business development, design, installation, operation, and O&M services, but as of January 2018, Vivint Solar introduced a program which utilizes third-party dealers ("Dealers") on some Facilities to assume certain roles and responsibilities based on a hierarchy of dealer categories (the "Dealer Program"). Dealers must execute a Master Services Agreement (a "Dealer MSA") before performing any services. Through the Dealer Program, Vivint Solar is able to integrate with third-party businesses to execute tasks which are dependent upon the category that each third party is assigned. The categories of Dealers are: (1) "Sales-Only Dealers" and (2) "Hybrid Dealers". As of February 2020, Vivint Solar had over 60 active Sales-Only Dealers operating in the states where they have installations and 14 active Hybrid Dealers operating in Arizona, California, Connecticut, Florida, Hawaii, Illinois, Massachusetts, Nevada, New Jersey, New York, New Hampshire, Rhode Island, Pennsylvania and Utah.

We reviewed Vivint Solar's project development processes including site selection; design and engineering; equipment selection; electrical design; electrical interconnection; structural evaluation and design; quality control; installation; and commercial operation. During 2014 and the first few months of 2015, we performed a monthly desktop audit of Vivint Solar residential installations. During that period, we audited over 600 installations. The purpose of the audits was to verify consistency across the design documents regarding module type, inverter type, inputs to the energy model, appropriate protection of the circuits, design of the system (voltage drop), and the presence of appropriate structural calculations. Generally speaking, we found there to be consistency between the various design documents.

Vivint Solar utilizes several software tools in its design process. Starting in the fall of 2015, Vivint Solar began deployment of its next generation site survey and PV design toolset; referred to as "Cobblestone". In early 2018, the design team transitioned all of its authority having jurisdiction ("AHJ") design-related information from a spreadsheet-based AHJ database to an internally managed program. This Vivint Solar developed program is called the "AHJ Manager." Vivint Solar also uses a spreadsheet-based tool, the "Electrical Design Tool," to generate the electrical design diagrams. Cobblestone utilizes inputs gained during the site survey and the AHJ Manager to limit the number of decisions required of the designer. Vivint Solar reports that Cobblestone and AHJ Manager maintain consistency in the design process and helps ensure compliance with codes and standards.

In conjunction with the AHJ Manager, Vivint Solar also utilizes design tools developed by the racking suppliers in performance of the structural design and system layout. Vivint Solar reports that in the event a racking supplier does not have a design tool that meets Vivint Solar's needs for a particular racking product, that Vivint Solar would develop a design tool or it would work with such a racking supplier to refine existing AHJ Manager tools. Currently, Vivint Solar utilizes "Unirac" and "Ecofasten" and has built the supplier structural data and requirements into the AHJ Manager. The structural data on spanning and loading is based on wind tunnel testing and follows Vivint Solar's structural design process described in the Consultant's Report.

Cobblestone is a web based PV system design software used to create system layouts, run shade analysis, and generate production estimates. Within the Cobblestone program, based on the milestone for the site, three deliverables can be published directly to Salesforce. These deliverables are the: (1) proposal, (2) permit packet, and (3) as built drawings. Each of these deliverables are published directly from Cobblestone to Salesforce through a secure API connection.

Cobblestone incorporates the Solmetric PV Designer simulation software ("PV Designer") to estimate energy production. Cobblestone aims to minimize data discrepancies by: (1) utilizing satellite imagery for remote roof measurements and identifying roof obstructions, reducing manual measurements during site surveys, (2) using the SunEye 360 shade measuring tool when necessary, and (3) using electronic data entry for all processes. Iterations of Facility designs are tracked to allow for proper documentation of design changes. Cobblestone also provides operational efficiencies including simplified roof plane, module layout and racking design, and an integrated permit drawing process.

Vivint Solar primarily uses a Google Inc. published application called "Project Sunroof" ("GSR") as a tool for developing a system design and energy production estimate for each residence. GSR enables Vivint Solar to replace on site measurements of localized shade and roof orientation (tilt and azimuth) with computer based analytical tools, thus reducing costs while decreasing the period required to provide prospective Site Owners with final proposals. Specifically, Vivint Solar uses GSR to determine how much solar radiation reaches every location on a roof, considering localized shading as well as weather, which information is used to determine the exact number and location of PV modules on a roof and to estimate the Facility's annual energy production.

If GSR images are available, Vivint Solar currently uses GSR with Cobblestone as the primary method of energy estimation. Historically, if GSR data was not available SunEye 360 data was used for the shading calculations. Vivint Solar has developed shading analysis tool ("Solstice") to estimate shading impacts when GSR data is not available. However, for all facility locations, a site survey is always performed to collect the electrical and structural data required for a site design.

In 2018 and 2019, the representatives of the Institute for Building Technology and Safety ("IBTS") inspected 39 installations that had recently achieved permission to operate ("PTO") and we reviewed the IBTS reports. In December 2015, we visited and made general observations of 11 operating installations in Massachusetts and California constructed by Vivint Solar (the "Existing Installations") that are expected to be similar in design and constructed using methods similar to the Facilities contemplated for a Fund. The visits were made to confirm that the methods of design and construction of the Existing Installations were consistent with the proposed methods of design and construction for the Facilities. The general field observations were visual, above-ground examinations of selected areas, which we deemed adequate to allow us to comment on the existing condition of the respective Existing Facility, but which were not at the level of detail necessary to reveal conditions with respect to the structural integrity of the rooftops, environmental conditions, the internal physical condition of any equipment, or conformance with agreements, codes, permits, rules, or regulations of any AHJ with respect to an Existing Facility or an Existing Facility site.

Our observations during visits to the Existing Installations indicate that they were constructed in a manner consistent with other similar PV facilities with which we are familiar. All major components were functional including: panels, inverters, protection, disconnects, communications, and grounding systems. The external appearance of the equipment, systems and related spaces appeared orderly, clean and well maintained. All evidence of wear and tear observed was judged to be normal and comparable to similar operating facilities with a similar operational history.

Vivint Solar maintains and periodically updates an approved vendor list ("AVL") for PV modules, inverters, and optimizers. The current AVL module suppliers are Canadian Solar, Hanwha, JA Solar, Jinko, Longi, and Trina (the "Module Suppliers"). The current AVL inverter suppliers are Enphase, Fronius, SolarEdge and SMA (the "Inverter Suppliers"). The current AVL optimizer suppliers are SolarEdge and Tigo. The AVL includes battery energy storage systems ("BESS") from LG Chem Ltd. ("LG Chem") for use with SolarEdge inverters. We reviewed the AVL suppliers. We also reviewed the PV module, inverter and optimizer technologies used by the AVL suppliers.

Each Site Owner enters into a power purchase agreement ("PPA") or lease for a period of 20 years, which automatically extends until terminated by the Site Owner. We reviewed a typical PPA and lease. Vivint Solar also indicated that its equipment selection, design, and installation practices are intended to deliver a Facility that will operate with minimal O&M for the duration of the PPA or lease (whether 20 years or longer). There is an option in the PPA or lease that allows the Site Owner to pay a fee for Vivint Solar to remove and re-install facility equipment to facilitate roof repairs.

We reported on the useful life of a facility; which can be thought of narrowly as a technical question, or more broadly as an economic concern. The technical useful life of a rooftop PV facility is dependent on such characteristics as the integrity of the host building, the design of the system, the technology employed, the quality of the installation, and the provision of sufficient parts and service to monitor and maintain the facility. While PV panels are typically designed (and warranted) in connection with a 25-year life, it is not uncommon for panels to remain in service for considerably longer, albeit with degradation effects continuing, and with risks of panel failure increasing as they age. Beyond the panels themselves, the continued maintenance and repair or replacement of roof structure components, racking, and electrical components (electrical panels, inverters, etc.) is necessary to assure optimal generation as a facility continues to age. Economic useful life is a measure of the facility's potential to generate revenues sufficient to cover costs and meet the owner's (and by extension, other investors' or lenders') required return on investment. This depends not only on the technical factors noted above, but also on such considerations as energy (PPA) pricing, lease terms, O&M costs, and energy production.

Solar resource and energy production estimates were not developed for the Facilities. Rather, we evaluated Vivint Solar's methodology for developing energy production estimates, both in general and as applied to the 16 existing Reference Installations, which we chose from a list of operating installations provided by Vivint Solar.

Vivint Solar provided us with actual energy production data (the "Production Data") and energy production estimates, as well as other system specifications, for 137,305 facilities within its operating fleet (the "Representative Fleet") that had at least one year of operating data (collectively, the "Performance Dataset"). Our assumption for the analysis presented below is that the information included within the Performance Dataset is accurate. For each facility in the Performance Dataset, we compared the energy estimates developed by Vivint Solar and actual energy production reported by Vivint Solar for the period from November 1, 2019 through October 31, 2020. In order to complete the analysis, we adjusted the energy production from Vivint Solar to account for differences in the solar resource and an estimated impact of degradation.

We reviewed Vivint Solar's O&M programs and procedures. Vivint Solar provided both an executed MSA and an executed ASA for our review that it indicates are typical of the agreements that it executes with its various funds. We reviewed the projected operating costs contained in the spreadsheet file named "VS O&M Model—2020-03-05.xlsx" provided to us by Vivint Solar on March 5, 2020 (the "O&M Estimate"). The O&M Estimate contains the projected O&M costs related to the scope of service in the MSA, which contains a fee of $16.50 per kW-DC, as discussed above. Vivint Solar did not provide a cost estimate representative of the ASA scope of services.

The O&M Estimate is necessarily based upon assumptions for equipment failure rates.

Table 1 shows Vivint Solar's assumed component replacement rates for 2021 through 2023 which are included in the O&M Estimate. When developing these failure rates, Vivint Solar utilized: (1) failure rate data from the equipment manufacturers; (2) technology reviews by third party engineers; and (3) Vivint Solar's O&M experience. We note that Vivint Solar's assumed failure rates meet or exceed the manufacturers' reported values, which we find to be a conservative approach. The O&M Estimate includes equipment failure rates which vary over time, reflecting both initial equipment failures ("infant mortality") and end of useful life assumptions. Vivint Solar does not ramp down O&M activities or O&M costs in the later years of the O&M Estimate. Vivint Solar assumes the Facilities will have a useful life beyond the term of the O&M Estimate and have planned for ongoing O&M support of the Facilities.

Table 1
Major System Component Failure Rate Assumptions

	Assumed Annual Failure Rates (Percent)		
	2021	2022	2023
Module			
Canadian Solar	0.11	0.11	0.11
Jinko	0.11	0.11	0.11
Hanwha	0.11	0.11	0.11
Inverter			
Enphase	0.50	0.50	0.50
SolarEdge Inverter (1)	3.00	1.50	1.50
SolarEdge Optimizer	0.54	0.54	0.54
SMA (2)(3)	0.53	0.53	0.53
Module Shutdown Device	0.10	0.10	0.10

1) SolarEdge inverters are deployed with DC-DC optimizers.
2) SMA describes the field failure rate for the inverters as on average, less than 0.8 percent annually for models installed before 2010. For inverters installed after 2010, the SMA rate is less than 0.5 percent.
3) SMA inverters are deployed with module shutdown devices.

The long term supply agreements ("LTSAs") with Enphase and SolarEdge commit the parties to enter an escrow agreement with a mutually agreeable third-party escrow agent. Vivint Solar Developer, LLC executed an Escrow Service Agreement with Iron Mountain Intellectual Property Management, Inc. ("Iron Mountain") with an effective date of September 30, 2014 (the "Escrow Agreement"). Enphase and SolarEdge have executed "Depositor Enrollment Forms" making them parties to the Escrow Agreement as "Depositors."

Vivint Solar reported the Facilities are to be designed, constructed, and operated in accordance with applicable environmental laws, regulations, policies, codes, and standards. Vivint Solar is responsible for obtaining and maintaining all governmental approvals and permits. Vivint Solar has provided us with, and we reviewed, a general description of the permits and approvals required for construction and operation of the Facilities.

Conclusions

Set forth below are the principal opinions we have reached after our review. For a complete understanding of the estimates, assumptions, and calculations upon which these opinions are based, the Consultant's Report should be read in its entirety. On the basis of our review and analyses of the Reference Facilities and the assumptions set forth in the Consultant's Report, we are of the opinion that:

1. Vivint Solar has previously demonstrated the capability to construct and operate facilities of similar design and technology as those proposed to comprise the Facilities.

2. Vivint Solar has established Dealer procedures which, if adhered to, should result in Facilities designed and built by Hybrid Dealers which are equivalent to those designed and installed by Vivint Solar directly.

3. Vivint Solar's integration of GSR into its existing Cobblestone based design process has not resulted in a lessening of the overall accuracy of its energy production estimates. Specifically, it is our opinion that site visits previously required to gather shading and roof segment details, using the SunEye 360 instrument, can be eliminated and replaced with data from GSR, with no loss in overall accuracy.

4. Vivint Solar's plan to integrate Solstice into their existing Cobblestone based design process will result in no material decrease in the overall accuracy of their energy production estimates. Specifically, it is our opinion that site visits using the SunEye 360 instrument previously required to gather shading and roof segment details when GSR data was not available, can be eliminated and replaced with Solstice, with no material loss in overall accuracy.

5. Vivint Solar's site selection process considers the critical technical and environmental factors that typically impact the suitability of sites for construction, operation, and maintenance of residential PV installations such as those proposed to comprise the Facilities. The proposed method of design, installation, and commissioning of the Facilities is generally consistent with other residential PV installations with which we are familiar in regions similar to the locations of the Facilities.

6. The Module Suppliers and Inverter Suppliers have previously demonstrated the capability to supply PV modules and inverters, respectively, to facilities of similar size and technology as those proposed to comprise the Facilities. Additionally, we are of the opinion that the PV technologies proposed for the Facilities are sound and proven methods of energy generation. Accordingly, the Module Suppliers and Inverter Suppliers should be acceptable, from a technical perspective, as suppliers of modules and inverters, respectively, for the Facilities. Further, in the event that a particular supplier was no longer able to service its warranty, Vivint Solar should be able to acquire modules from another company that could be substituted as a replacement with minor modifications to the racking if required.

7. Provided that: (1) the systems are designed and installed in accordance with good industry practices; (2) all equipment is operated in accordance with manufacturer recommendations; (3) all required renewals and replacements are made on a timely basis; (4) the components meet their respective warranty provisions and continue to operate post-expiration in general accordance with those provisions; and (5) any roof repairs or other mitigation techniques required to support the equipment are implemented, installations such as those proposed to comprise the Facilities should be capable of achieving technical useful lives of 35 years.

8. Vivint Solar's proposed methodology for selecting typical global horizontal irradiance year for the Facilities is reasonable, on average, for a large portfolio of similar composition to the current operating fleet. Based on our review of the approach for modeling energy production and the energy production estimates for the Reference Installations, we are of the opinion that Vivint Solar's methodology for estimating energy production is reasonable within the bounds of uncertainty discussed above. Based on our analysis of the Performance Dataset, the aggregate weather adjusted energy production is within the bounds of uncertainty of the Vivint Solar estimates. Vivint Solar's assumed degradation rate of 0.70 percent is the median of the NREL National Renewable Energy Laboratory ("NREL") study described herein; however, for PV modules such as those proposed for installation at the Facilities, we typically assume a degradation rate of 0.75 percent, which is more consistent with the mean of the NREL study and considers both module effects and system level effects.

9. The O&M practices proposed for the Facilities and the scope of services in the MSA and ASA are consistent with generally accepted industry practices for residential PV installations.

10. The methodology used by Vivint Solar in preparing the O&M Estimate is reasonable and the $16.50 perkW-DC MSA fee is comparable to fees for other residential PV portfolios with which we are familiar. Furthermore, the assumed equipment failure rates used collectively in the O&M Estimate, in aggregate, form a reasonable basis to estimate the O&M costs.

11. The information required to be deposited with Iron Mountain by Enphase and SolarEdge pursuant to the LTSAs should be sufficient to enable Vivint Solar to replace the monitoring services currently being provided by Enphase and SolarEdge, should a release condition occur.

12. The combined MSA and ASA fee of $21 per kW-DC of installed nameplate capacity is comparable to other residential PV projects with which we are familiar.

13. While we have not performed a review of the specific permit requirements for the individual Facilities, Vivint Solar has identified the general types of key permits and approvals that are typically necessary to construct and operate the Facilities.

Principal Considerations and Assumptions

In the preparation of the Consultant's Report and the opinions presented in the Consultant's Report, we made certain assumptions with respect to conditions which may exist or events which may occur in the future. Please refer to the Consultant's Report for a full discussion of our considerations and assumptions.

The principal considerations and assumptions made by us and the principal information provided to us by others include the following:

1. As an Independent Engineer, we have made no determination as to the validity and enforceability of any contract, agreement, rule, or regulation applicable to the Facilities. For the purposes of the Consultant's Report, we have assumed that all contracts, agreements, rules, and regulations will be fully enforceable in accordance with the contractual terms. Moreover, it is assumed that all parties will comply with and fulfill the provisions of the contracts and agreements.
2. The design, manufacturing, and construction of the Facilities will be completed in accordance with the reviewed Vivint Solar programs and procedures and good industry practices.
3. The structural integrity of the rooftops are adequate to support the equipment.
4. The Facilities will be operated in accordance with the policies and procedures proposed by Vivint Solar, with input collected from its monitoring systems.
5. The Facilities will be maintained in accordance with good engineering and maintenance practices, all required renewals and replacements of equipment will be made in a timely manner, and the equipment will not be operated to cause it to exceed the equipment manufacturers' recommended maximum ratings.
6. Qualified and competent personnel will be employed who will properly operate and maintain the Facilities in accordance with the equipment manufacturers' recommendations and generally accepted industry practices and will generally operate the Facilities in a sound and businesslike manner.
7. The design and installation of the Facilities will be consistent with the Reference Installations.

Respectfully submitted,
LEIDOS ENGINEERING, LLC