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

FORM 10-Q

(Mark One)

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended June 30, 2023

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from _________ to _________

Commission File Number: 001-38995

Sunnova Energy International Inc.
(Exact name of registrant as specified in its charter)

Delaware	**30-1192746**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification Number)**

20 East Greenway Plaza, Suite 540
Houston, Texas 77046
(Address, including zip code, of principal executive offices)

(281) 892-1588
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Trading Symbol(s)	Name of Each Exchange on Which Registered
Common Stock, $0.0001 par value per share	NOVA	New York Stock Exchange

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

The registrant had 116,401,041 shares of common stock outstanding as of July 24, 2023.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This report contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Unless the context otherwise requires, the terms "Sunnova," "the Company," "we," "us" and "our" refer to Sunnova Energy International Inc. ("SEI") and its consolidated subsidiaries. Forward-looking statements generally relate to future events or Sunnova's future financial or operating performance. Actual outcomes and results may differ materially from what is expressed or forecast in such forward-looking statements. In some cases, you can identify these statements because they contain words such as "anticipate," "believe," "contemplate," "continue," "could," "estimate," "expect," "future," "goal," "intend," "likely," "may," "plan," "potential," "predict," "project," "seek," "should," "target," "will" or the negative of these words or other similar terms or expressions that concern our expectations, strategy, plans or intentions. Forward-looking statements contained in this report include, but are not limited to, statements about:

- federal, state and local statutes, regulations and policies;
- determinations of the Internal Revenue Service ("IRS") of the fair market value of our solar energy systems;
- the price of centralized utility-generated electricity and electricity from other sources and technologies;
- technical and capacity limitations imposed by operators of the power grid;
- the availability of tax rebates, credits and incentives, including changes to the rates of, or expiration of, federal tax credits and the availability of related safe harbors;
- our need and ability to raise capital to finance the installation and acquisition of distributed solar energy systems, refinance existing debt or otherwise meet our liquidity needs;
- our expectations concerning relationships with third parties, including the attraction, retention, performance and continued existence of our dealers;
- our ability to manage our supply chains and distribution channels and the impact of natural disasters and other events beyond our control;
- our ability to retain or upgrade current customers, further penetrate existing markets or expand into new markets;
- our investment in our platform and new product offerings and the demand for and expected benefits of our platform and product offerings;
- the ability of our solar energy systems, energy storage systems or other product offerings to operate or deliver energy for any reason, including if interconnection or transmission facilities on which we rely become unavailable;
- our ability to maintain our brand and protect our intellectual property and customer data;
- our ability to manage the cost of solar energy systems, energy storage systems and our service offerings;
- the willingness of and ability of our dealers and suppliers to fulfill their respective warranty and other contractual obligations;
- our expectations regarding litigation and administrative proceedings; and
- our ability to renew or replace expiring, canceled or terminated solar service agreements at favorable rates or on a long-term basis.

Our actual results and timing of these events may differ materially from those anticipated in these forward-looking statements as a result of many factors, including but not limited to those discussed under "*Risk Factors*" and elsewhere in this Quarterly Report on Form 10-Q. Moreover, we operate in a very competitive and rapidly changing environment and new risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed in this Quarterly Report on Form 10-Q may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements. We undertake no obligation to update publicly any forward-looking statements for any reason after the date of this Quarterly Report on Form 10-Q to conform these statements to actual results or to changes in our expectations, except as required by law.

PART I - FINANCIAL INFORMATION

Item 1. Financial Statements.

SUNNOVA ENERGY INTERNATIONAL INC.
UNAUDITED CONDENSED CONSOLIDATED BALANCE SHEETS
(in thousands, except share amounts and share par values)

	As of June 30, 2023	As of December 31, 2022
Assets		
Current assets:		
Cash and cash equivalents	$ 187,331	$ 360,257
Accounts receivable—trade, net	28,764	24,435
Accounts receivable—other	114,081	212,397
Other current assets, net of allowance of $4,093 and $3,250 as of June 30, 2023 and December 31, 2022, respectively	416,590	351,300
Total current assets	746,766	948,389
Property and equipment, net	4,512,510	3,784,801
Customer notes receivable, net of allowance of $98,244 and $77,998 as of June 30, 2023 and December 31, 2022, respectively	3,228,299	2,466,149
Intangible assets, net	148,292	162,512
Goodwill	13,150	13,150
Other assets	957,778	961,891
Total assets (1)	$ 9,606,795	$ 8,336,892
Liabilities, Redeemable Noncontrolling Interests and Equity		
Current liabilities:		
Accounts payable	$ 138,843	$ 116,136
Accrued expenses	105,617	139,873
Current portion of long-term debt	241,968	214,431
Other current liabilities	94,042	71,506
Total current liabilities	580,470	541,946
Long-term debt, net	6,123,923	5,194,755
Other long-term liabilities	914,277	712,741
Total liabilities (1)	7,618,670	6,449,442
Commitments and contingencies (Note 14)		
Redeemable noncontrolling interests	100,081	165,737
Stockholders' equity:		
Common stock, 116,393,942 and 114,939,079 shares issued as of June 30, 2023 and December 31, 2022, respectively, at $0.0001 par value	12	11
Additional paid-in capital—common stock	1,661,949	1,637,847
Accumulated deficit	(272,186)	(364,782)
Total stockholders' equity	1,389,775	1,273,076
Noncontrolling interests	498,269	448,637
Total equity	1,888,044	1,721,713
Total liabilities, redeemable noncontrolling interests and equity	$ 9,606,795	$ 8,336,892

(1) The consolidated assets as of June 30, 2023 and December 31, 2022 include $3,813,101 and $3,201,271, respectively, of assets of variable interest entities ("VIEs") that can only be used to settle obligations of the VIEs. These assets include cash of $43,794 and $40,382 as of June 30, 2023 and December 31, 2022, respectively; accounts receivable—trade, net of $11,273 and $8,542 as of June 30, 2023 and December 31, 2022, respectively; accounts receivable—other of $486 and $810 as of June 30, 2023 and December 31, 2022, respectively; other current assets of $535,309 and $422,364 as of June 30, 2023 and December 31, 2022, respectively; property and equipment, net of $3,171,393 and $2,680,587 as of June 30, 2023 and December 31, 2022, respectively; and other assets of $50,846 and $48,586 as of June 30, 2023 and December 31, 2022, respectively. The consolidated liabilities as of June 30, 2023 and December 31, 2022 include $72,509 and $66,441, respectively, of liabilities of VIEs whose creditors have no recourse to Sunnova Energy International Inc. These liabilities include accounts payable of $10,870 and $9,015 as of June 30, 2023 and December 31, 2022, respectively; accrued expenses of $82 and $287 as of June 30, 2023 and December 31, 2022, respectively; other current liabilities of $4,504 and $4,420 as of June 30, 2023 and December 31, 2022, respectively; and other long-term liabilities of $57,053 and $52,719 as of June 30, 2023 and December 31, 2022, respectively.

See accompanying notes to unaudited condensed consolidated financial statements.

SUNNOVA ENERGY INTERNATIONAL INC.
UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except share and per share amounts)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Revenue	$ 166,377	$ 147,012	$ 328,073	$ 212,734
Operating expense:				
Cost of revenue—depreciation	30,322	23,314	58,519	45,272
Cost of revenue—inventory sales	26,543	48,967	78,322	48,967
Cost of revenue—other	31,394	9,838	50,618	17,407
Operations and maintenance	29,865	7,252	40,604	14,013
General and administrative	101,384	68,242	202,645	138,465
Other operating (income) expense	6,640	(7,870)	5,917	(14,453)
Total operating expense, net	226,148	149,743	436,625	249,671
Operating loss	(59,771)	(2,731)	(108,552)	(36,937)
Interest expense, net	56,947	24,571	142,554	23,556
Interest income	(26,292)	(13,311)	(51,080)	(24,243)
Other (income) expense	3,172	(160)	3,408	(315)
Loss before income tax	(93,598)	(13,831)	(203,434)	(35,935)
Income tax expense	7,183	—	7,693	—
Net loss	(100,781)	(13,831)	(211,127)	(35,935)
Net income (loss) attributable to redeemable noncontrolling interests and noncontrolling interests	(14,690)	27,306	(43,953)	40,260
Net loss attributable to stockholders	$ (86,091)	$ (41,137)	$ (167,174)	$ (76,195)
Net loss per share attributable to stockholders—basic and diluted	$ (0.74)	$ (0.36)	$ (1.45)	$ (0.67)
Weighted average common shares outstanding—basic and diluted	116,236,741	114,548,970	115,658,570	114,027,097

See accompanying notes to unaudited condensed consolidated financial statements.

SUNNOVA ENERGY INTERNATIONAL INC.
UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022
CASH FLOWS FROM OPERATING ACTIVITIES		
Net loss	$ (211,127)	$ (35,935)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	67,875	50,807
Impairment and loss on disposals, net	17,344	789
Amortization of intangible assets	14,216	14,224
Amortization of deferred financing costs	10,734	5,919
Amortization of debt discount	7,909	3,705
Non-cash effect of equity-based compensation plans	14,318	15,596
Unrealized (gain) loss on derivatives	8,011	(1,017)
Unrealized (gain) loss on fair value instruments and equity securities	9,328	(14,761)
Other non-cash items	2,441	(25,381)
Changes in components of operating assets and liabilities:		
Accounts receivable	89,158	(61,246)
Other current assets	(90,896)	(71,994)
Other assets	(98,175)	(59,273)
Accounts payable	(38)	7,343
Accrued expenses	(29,876)	15,500
Other current liabilities	13,599	(2,931)
Other long-term liabilities	(7,363)	(3,688)
Net cash used in operating activities	(182,542)	(162,343)
CASH FLOWS FROM INVESTING ACTIVITIES		
Purchases of property and equipment	(748,152)	(380,435)
Payments for investments and customer notes receivable	(517,099)	(573,248)
Proceeds from customer notes receivable	80,931	52,653
Proceeds from investments in solar receivables	4,929	5,620
Other, net	5,468	1,418
Net cash used in investing activities	(1,173,923)	(893,992)
CASH FLOWS FROM FINANCING ACTIVITIES		
Proceeds from long-term debt	1,760,680	1,239,903
Payments of long-term debt	(808,564)	(348,716)
Payments on notes payable	(1,915)	—
Payments of deferred financing costs	(21,684)	(16,052)
Proceeds from issuance of common stock, net	(1,049)	(3,178)
Contributions from redeemable noncontrolling interests and noncontrolling interests	319,356	177,279
Distributions to redeemable noncontrolling interests and noncontrolling interests	(18,372)	(12,330)
Payments of costs related to redeemable noncontrolling interests and noncontrolling interests	(5,312)	(8,172)
Other, net	(6,375)	(406)
Net cash provided by financing activities	1,216,765	1,028,328
Net decrease in cash, cash equivalents and restricted cash	(139,700)	(28,007)
Cash, cash equivalents and restricted cash at beginning of period	545,574	391,897
Cash, cash equivalents and restricted cash at end of period	405,874	363,890
Restricted cash included in other current assets	(37,825)	(53,842)
Restricted cash included in other assets	(180,718)	(101,934)
Cash and cash equivalents at end of period	$ 187,331	$ 208,114

	Six Months Ended June 30,	
	2023	2022
Non-cash investing and financing activities:		
Change in accounts payable and accrued expenses related to purchases of property and equipment	$ 4,315	$ 11,246
Change in accounts payable and accrued expenses related to payments for investments and customer notes receivable	$ 9,200	$ 1,904
Non-cash issuance of common stock related to the settlement of contingent consideration	$ 10,832	$ 16,014
Non-cash settlement of receivables and payables with primarily dealers	$ 12,803	$ —
Supplemental cash flow information:		
Cash paid for interest	$ 123,966	$ 61,148
Cash paid for income taxes	$ 9,193	$ —

See accompanying notes to unaudited condensed consolidated financial statements.

SUNNOVA ENERGY INTERNATIONAL INC.
UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF REDEEMABLE NONCONTROLLING INTERESTS AND EQUITY
(in thousands, except share amounts)

	Redeemable Noncontrolling Interests	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital - Common Stock	Accumulated Deficit	Total Stockholders' Equity	Noncontrolling Interests	Total Equity
December 31, 2021	$ 145,336	113,386,600	$ 11	$ 1,649,199	$ (459,715)	$ 1,189,495	$ 286,782	$ 1,476,277
Net income (loss)	(2,432)	—	—	—	(35,058)	(35,058)	15,386	(19,672)
Issuance of common stock, net	—	524,788	—	(2,976)	—	(2,976)	—	(2,976)
Contributions from redeemable noncontrolling interests and noncontrolling interests	3,757	—	—	—	—	—	48,132	48,132
Distributions to redeemable noncontrolling interests and noncontrolling interests	(1,122)	—	—	—	—	—	(4,732)	(4,732)
Costs related to redeemable noncontrolling interests and noncontrolling interests	(57)	—	—	—	—	—	(2,292)	(2,292)
Equity in subsidiaries attributable to parent	(173)	—	—	—	69,769	69,769	(69,596)	173
Equity-based compensation expense	—	—	—	10,864	—	10,864	—	10,864
Other, net	(123)	—	—	—	—	—	174	174
March 31, 2022	145,186	113,911,388	11	1,657,087	(425,004)	1,232,094	273,854	1,505,948
Net income (loss)	4,563	—	—	—	(41,137)	(41,137)	22,743	(18,394)
Issuance of common stock, net	—	745,829	—	15,828	—	15,828	—	15,828
Contributions from redeemable noncontrolling interests and noncontrolling interests	13,423	—	—	—	—	—	111,967	111,967
Distributions to redeemable noncontrolling interests and noncontrolling interests	(1,239)	—	—	—	—	—	(5,237)	(5,237)
Costs related to redeemable noncontrolling interests and noncontrolling interests	(193)	—	—	—	—	—	(2,417)	(2,417)
Equity in subsidiaries attributable to parent	(10,168)	—	—	—	83,316	83,316	(73,148)	10,168
Equity-based compensation expense	—	—	—	4,732	—	4,732	—	4,732
Other, net	(65)	—	—	—	(1)	(1)	(2,010)	(2,011)
June 30, 2022	$ 151,507	114,657,217	$ 11	$ 1,677,647	$ (382,826)	$ 1,294,832	$ 325,752	$ 1,620,584

	Redeemable Noncontrolling Interests	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital - Common Stock	Accumulated Deficit	Total Stockholders' Equity	Noncontrolling Interests	Total Equity
December 31, 2022	$ 165,737	114,939,079	$ 11	$ 1,637,847	$ (364,782)	$ 1,273,076	$ 448,637	$ 1,721,713
Net loss	(20,404)	—	—	—	(81,083)	(81,083)	(8,859)	(89,942)
Issuance of common stock, net	—	645,580	1	(1,625)	—	(1,624)	—	(1,624)
Contributions from redeemable noncontrolling interests and noncontrolling interests	60,203	—	—	—	—	—	114,748	114,748
Distributions to redeemable noncontrolling interests and noncontrolling interests	(1,448)	—	—	—	—	—	(7,106)	(7,106)
Costs related to redeemable noncontrolling interests and noncontrolling interests	(2,605)	—	—	—	—	—	(1,460)	(1,460)
Equity in subsidiaries attributable to parent	(21,528)	—	—	—	78,893	78,893	(57,365)	21,528
Equity-based compensation expense	—	—	—	9,515	—	9,515	—	9,515
Other, net	(453)	—	—	—	—	—	(110)	(110)
March 31, 2023	179,502	115,584,659	12	1,645,737	(366,972)	1,278,777	488,485	1,767,262
Net income (loss)	860	—	—	—	(86,091)	(86,091)	(15,550)	(101,641)
Issuance of common stock, net	—	809,283	—	11,409	—	11,409	—	11,409
Contributions from redeemable noncontrolling interests and noncontrolling interests	40,201	—	—	—	—	—	104,204	104,204
Distributions to redeemable noncontrolling interests and noncontrolling interests	(2,498)	—	—	—	—	—	(7,320)	(7,320)
Costs related to redeemable noncontrolling interests and noncontrolling interests	(719)	—	—	—	—	—	(721)	(721)
Equity in subsidiaries attributable to parent	(111,121)	—	—	—	180,877	180,877	(69,756)	111,121
Equity-based compensation expense	—	—	—	4,803	—	4,803	—	4,803
Other, net	(6,144)	—	—	—	—	—	(1,073)	(1,073)
June 30, 2023	$ 100,081	116,393,942	$ 12	$ 1,661,949	$ (272,186)	$ 1,389,775	$ 498,269	$ 1,888,044

See accompanying notes to unaudited condensed consolidated financial statements.

NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

(1) Description of Business and Basis of Presentation

We are a leading Energy as a Service provider, serving over 348,000 customers in more than 45 United States ("U.S.") states and territories. Sunnova Energy Corporation was incorporated in Delaware on October 22, 2012 and formed Sunnova Energy International Inc. ("SEI") as a Delaware corporation on April 1, 2019. We completed our initial public offering on July 29, 2019 (our "IPO"); and in connection with our IPO, all of Sunnova Energy Corporation's ownership interests were contributed to SEI. Unless the context otherwise requires, references in this report to "Sunnova," the "Company," "we," "our," "us," or like terms, refer to SEI and its consolidated subsidiaries.

We have a differentiated dealer model in which we partner with local dealers who originate, design and install our customers' solar energy systems, energy storage systems and related products and services on our behalf. Our focus on our dealer model enables us to leverage our dealers' specialized knowledge, connections and experience in local markets to drive customer origination while providing our dealers with access to high quality products at competitive prices, as well as technical oversight and expertise. We believe this structure provides operational flexibility, reduces exposure to labor shortages and lowers fixed costs relative to our peers, furthering our competitive advantage.

We provide our services through long-term agreements with a diversified pool of credit quality customers. Our solar service agreements typically are structured as either a legal-form lease (a "lease") of a solar energy system and/or energy storage system to the customer, the sale of the solar energy system's output to the customer under a power purchase agreement ("PPA") or the purchase of a solar energy system, energy storage system and/or accessory either with financing provided by us (a "loan") or paid in full by the customer (a "sale"); however, we also offer service plans and repair services for systems we did not originate. We make it possible in some states for a customer to obtain a new roof and/or other ancillary products. We also allow customers originated through our homebuilder channel the option of purchasing the system when the customer closes on the purchase of a new home. The initial term of our solar service agreements is typically between 10 and 25 years, during which time we provide or arrange for ongoing services to customers, including monitoring, maintenance and warranty services. Our lease and PPA agreements typically include an opportunity for customers to renew for up to an additional 10 years, via two five-year or one 10-year renewal options. Customer payments and rates can be fixed for the duration of the solar service agreement or escalated at a pre-determined percentage annually. We also receive tax benefits and other incentives from leases and PPAs, a portion of which we finance through tax equity, non-recourse debt structures and hedging arrangements in order to fund our upfront costs, overhead and growth investments. Our future success depends in part on our ability to raise capital from third-party investors and commercial sources. We have an established track record of attracting capital from diverse sources. From our inception through June 30, 2023, we have raised more than $13.3 billion in total capital commitments from equity, debt and tax equity investors.

Basis of Presentation

The accompanying interim unaudited condensed consolidated financial statements ("interim financial statements") include our consolidated balance sheets, statements of operations, statements of redeemable noncontrolling interests and equity and statements of cash flows and have been prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP") from records maintained by us. We have condensed or omitted certain information and note disclosures normally included in the financial statements prepared in accordance with GAAP pursuant to the applicable rules and regulations of the Securities and Exchange Commission ("SEC") regarding interim financial reporting. As such, these interim financial statements should be read in conjunction with our 2022 annual audited consolidated financial statements and accompanying notes included in our Annual Report on Form 10-K filed with the SEC on February 23, 2023. Our interim financial statements reflect all normal recurring adjustments necessary, in our opinion, to state fairly our financial position and results of operations for the reported periods. Amounts reported for interim periods may not be indicative of a full year period because of our continual growth, seasonal fluctuations in demand for power, timing of maintenance and other expenditures, changes in interest expense and other factors.

Our interim financial statements include our accounts and those of our subsidiaries in which we have a controlling financial interest. In accordance with the provisions of the Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") 810, *Consolidation*, we consolidate any VIE of which we are the primary beneficiary. We form VIEs with our investors in the ordinary course of business to facilitate the funding and monetization of certain attributes associated with our solar energy systems. The typical condition for a controlling financial interest is holding a majority of the voting interests of an entity. However, a controlling financial interest may also exist in entities, such as VIEs, through arrangements that do not involve holding a majority of the voting interests. A primary beneficiary is defined as the party that has (a) the power to direct the activities of a VIE that most significantly impact the VIE's economic performance and (b) the obligation to absorb losses or receive benefits from the VIE that could potentially be significant to the VIE. We do not consolidate a VIE in which we have a majority ownership interest when we are not considered the primary beneficiary. We have considered the provisions within the contractual arrangements that grant us power to manage and make decisions that affect the operation of our VIEs, including determining the solar energy systems contributed to the VIEs, and the installation, operation and maintenance of the solar energy systems. We consider the rights granted to the other investors under the contractual arrangements to be more protective in nature rather than substantive participating rights. As such, we have determined we are the primary beneficiary of our VIEs and evaluate our relationships with our VIEs on an ongoing basis to determine whether we continue to be the primary beneficiary. We have eliminated all intercompany transactions in consolidation.

Revisions

We have revised our previously issued interim financial statements to correct immaterial errors pertaining to our interest rate derivative financial instruments, specifically the credit valuation adjustment to account for the counterparties' credit risk. We originally did not record the estimated reduction to the derivative assets related to the credit valuation adjustment as of March 31, 2022 and June 30, 2022. These immaterial errors impacted our consolidated balance sheets, consolidated statements of operations, consolidated statements of cash flows and consolidated statements of redeemable noncontrolling interests and equity. The following tables present the impact of these revisions on the interim financial statements:

Consolidated Balance Sheets

	As of March 31, 2022		
	As Previously Reported	Revisions	As Revised
	(in thousands)		
Other assets	$ 662,456	$ (1,475)	$ 660,981
Accumulated deficit	$ (423,529)	$ (1,475)	$ (425,004)

	As of June 30, 2022		
	As Previously Reported	Revisions	As Revised
	(in thousands)		
Other assets	$ 802,862	$ (5,609)	$ 797,253
Accumulated deficit	$ (377,217)	$ (5,609)	$ (382,826)

Consolidated Statements of Operations

	Three Months Ended March 31, 2022		
	As Previously Reported	Revisions	As Revised
	(in thousands)		
Interest expense, net	$ (2,490)	$ 1,475	$ (1,015)
Loss before income tax	$ (20,629)	$ (1,475)	$ (22,104)
Net loss	$ (20,629)	$ (1,475)	$ (22,104)
Net loss attributable to stockholders	$ (33,583)	$ (1,475)	$ (35,058)
Net loss per share attributable to stockholders—basic and diluted	$ (0.30)	$ (0.01)	$ (0.31)

	Three Months Ended June 30, 2022			Six Months Ended June 30, 2022		
	As Previously Reported	Revisions	As Revised	As Previously Reported	Revisions	As Revised
	(in thousands)					
Interest expense, net	$ 20,437	$ 4,134	$ 24,571	$ 17,947	$ 5,609	$ 23,556
Loss before income tax	$ (9,697)	$ (4,134)	$ (13,831)	$ (30,326)	$ (5,609)	$ (35,935)
Net loss	$ (9,697)	$ (4,134)	$ (13,831)	$ (30,326)	$ (5,609)	$ (35,935)
Net loss attributable to stockholders	$ (37,003)	$ (4,134)	$ (41,137)	$ (70,586)	$ (5,609)	$ (76,195)
Net loss per share attributable to stockholders—basic and diluted	$ (0.32)	$ (0.04)	$ (0.36)	$ (0.62)	$ (0.05)	$ (0.67)

Consolidated Statements of Cash Flows

	Three Months Ended March 31, 2022		
	As Previously Reported	Revisions	As Revised
	(in thousands)		
Net loss	$ (20,629)	$ (1,475)	$ (22,104)
Unrealized gain on derivatives	$ (35,349)	$ 1,475	$ (33,874)
Net cash used in operating activities	$ (92,129)	$ —	$ (92,129)

	Six Months Ended June 30, 2022		
	As Previously Reported	Revisions	As Revised
	(in thousands)		
Net loss	$ (30,326)	$ (5,609)	$ (35,935)
Unrealized gain on derivatives	$ (6,626)	$ 5,609	$ (1,017)
Net cash used in operating activities	$ (162,343)	$ —	$ (162,343)

Consolidated Statements of Redeemable Noncontrolling Interests and Equity

	Accumulated Deficit		
	As Previously Reported	Revisions	As Revised
	(in thousands)		
December 31, 2021	$ (459,715)	$ —	$ (459,715)
Net loss attributable to stockholders	(33,583)	(1,475)	(35,058)
Equity in subsidiaries attributable to parent	69,769	—	69,769
March 31, 2022	(423,529)	(1,475)	(425,004)
Net loss attributable to stockholders	(37,003)	(4,134)	(41,137)
Equity in subsidiaries attributable to parent	83,316	—	83,316
Other, net	(1)	—	(1)
June 30, 2022	$ (377,217)	$ (5,609)	$ (382,826)

(2) Significant Accounting Policies

Included below are updates to significant accounting policies disclosed in our 2022 annual audited consolidated financial statements.

Use of Estimates

The application of GAAP in the preparation of the interim financial statements requires us to make estimates and assumptions that affect the amounts reported in the interim financial statements and accompanying notes. We base our estimates on historical experience and on various other assumptions believed to be reasonable, the results of which form the basis for making judgments about the carrying values of assets and liabilities. Actual results could differ materially from those estimates.

Accounts Receivable

Accounts Receivable—Trade. Accounts receivable—trade primarily represents trade receivables from customers that are generally collected in the subsequent month. Accounts receivable—trade is recorded net of an allowance for credit losses, which is based on our assessment of the collectability of customer accounts based on the best available data at the time. We review the allowance by considering factors such as historical experience, customer credit rating, contractual term, aging category and current economic conditions that may affect a customer's ability to pay to identify customers with potential disputes or collection issues. We write off accounts receivable when we deem them uncollectible. The following table presents the changes in the allowance for credit losses recorded against accounts receivable—trade, net in the unaudited condensed consolidated balance sheets:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
	(in thousands)			
Balance at beginning of period	$ 1,887	$ 1,065	$ 1,676	$ 1,044
Provision for current expected credit losses	1,177	614	2,105	1,089
Write off of uncollectible accounts	(969)	(546)	(1,748)	(1,052)
Recoveries	48	65	110	117
Balance at end of period	$ 2,143	$ 1,198	$ 2,143	$ 1,198

Accounts Receivable—Other. Accounts receivable—other primarily represents receivables from our dealers or other parties related to the sale of inventory and the use of inventory procured by us.

Inventory

Inventory is stated at the lower of cost and net realizable value using the first-in, first-out method. Inventory primarily represents (a) raw materials, such as energy storage systems, photovoltaic modules, inverters, meters and modems, (b) homebuilder construction in progress and (c) other associated equipment purchased. These materials are typically procured by us and used by our dealers, sold to our dealers or held for use as original parts on new solar energy systems or replacement parts on existing solar energy systems. We remove these items from inventory and record the transaction in typically one of these manners: (a) expense to operations and maintenance expense when installed as a replacement part for a solar energy system, (b) recognize in accounts receivable—other when procured by us and used by our dealers, (c) expense to cost of revenue—inventory sales if sold directly to a dealer or other party, (d) capitalize to property and equipment when installed on an existing home or business or (e) capitalize to property and equipment when placed in service under the homebuilder program. We periodically evaluate our inventory for unusable and obsolete items based on assumptions about future demand and market conditions. Based on this evaluation, provisions are made to write inventory down to net realizable value. The following table presents the detail of inventory as recorded in other current assets in the unaudited condensed consolidated balance sheets:

	As of June 30, 2023	As of December 31, 2022
	(in thousands)	
Energy storage systems and components	$ 109,800	$ 74,968
Homebuilder construction in progress	44,555	43,116
Modules and inverters	23,362	32,798
Meters and modems	1,492	1,166
Other	—	65
Total	$ 179,209	$ 152,113

Fair Value of Financial Instruments

Fair value is an exit price representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. As such, fair value is a market-based measurement that should be determined based on assumptions market participants would use in pricing an asset or a liability. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. ASC 820 establishes a three-tier fair value hierarchy, which prioritizes inputs that may be used to measure fair value as follows:

- Level 1—Observable inputs that reflect unadjusted quoted market prices in active markets for identical assets or liabilities that are accessible at the measurement date.
- Level 2—Observable inputs other than Level 1 prices, such as quoted market prices for similar assets or liabilities in active markets, quoted market prices in markets that are not active or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

- Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

In certain cases, the inputs used to measure fair value may fall into different levels of the fair value hierarchy. In such cases, the level in the fair value hierarchy must be determined based on the lowest level input that is significant to the fair value measurement. An assessment of the significance of a particular input to the fair value measurement in its entirety requires judgment and consideration of factors specific to the asset or liability. Our financial instruments include cash, cash equivalents, accounts receivable, customer notes receivable, investments in solar receivables, accounts payable, accrued expenses, long-term debt, interest rate swaps and caps and contingent consideration. The carrying values of accounts receivable, accounts payable and accrued expenses approximate the fair values due to the fact that they are short-term in nature (Level 1). We estimate the fair value of our customer notes receivable based on interest rates currently offered under the loan program with similar maturities and terms (Level 3). We estimate the fair value of our investments in solar receivables based on a discounted cash flows model that utilizes market data related to solar irradiance, production factors by region and projected electric utility rates in order to build up revenue projections (Level 3). In addition, lease-related revenue and maintenance and service costs were supported through the use of available market studies and data. We estimate the fair value of our fixed-rate long-term debt based on an analysis of debt with similar book values, maturities and required market yields based on current interest rates (Level 3). We determine the fair values of the interest rate derivative transactions based on a discounted cash flow method using contractual terms of the transactions and counterparty credit risk as key inputs. The floating interest rate is based on observable rates consistent with the frequency of the interest cash flows (Level 2). For contingent consideration, we estimate the fair value of the installation earnout using the Monte Carlo model based on the forecasted placements for the installations and the microgrid earnout using a scenario-based methodology based on the probabilities of the microgrid earnout, both using Level 3 inputs. See Note 6, Customer Notes Receivable, Note 7, Long-Term Debt and Note 8, Derivative Instruments.

The following tables present our financial instruments measured at fair value on a recurring basis as of June 30, 2023 and December 31, 2022:

	As of June 30, 2023			
	Total	Level 1	Level 2	Level 3
	(in thousands)			
Financial assets:				
Investments in solar receivables	$ 68,362	$ —	$ —	$ 68,362
Derivative assets	122,271	—	122,271	—
Total	$ 190,633	$ —	$ 122,271	$ 68,362
Financial liabilities:				
Contingent consideration	$ 22,243	$ —	$ —	$ 22,243
Total	$ 22,243	$ —	$ —	$ 22,243

	As of December 31, 2022			
	Total	Level 1	Level 2	Level 3
	(in thousands)			
Financial assets:				
Investments in solar receivables	$ 72,171	$ —	$ —	$ 72,171
Derivative assets	112,712	—	112,712	—
Total	$ 184,883	$ —	$ 112,712	$ 72,171
Financial liabilities:				
Contingent consideration	$ 26,787	$ —	$ —	$ 26,787
Total	$ 26,787	$ —	$ —	$ 26,787

Changes in the fair value of our investments in solar receivables are included in other operating expense/income in the consolidated statements of operations. The following table summarizes the change in the fair value of our financial assets accounted for at fair value on a recurring basis using Level 3 inputs as recorded in other current assets and other assets (see Note 4, Detail of Certain Balance Sheet Captions) in the unaudited condensed consolidated balance sheets:

	Six Months Ended June 30,	
	2023	2022
	(in thousands)	
Balance at beginning of period	$ 72,171	$ 82,658
Additions	969	—
Settlements	(5,145)	(4,412)
Gain (loss) recognized in earnings	367	(3,376)
Balance at end of period	$ 68,362	$ 74,870

Changes in the fair value of our contingent consideration are included in other operating expense/income in the consolidated statements of operations. The following table summarizes the change in the fair value of our financial liabilities accounted for at fair value on a recurring basis using Level 3 inputs as recorded in other long-term liabilities in the unaudited condensed consolidated balance sheets:

	Six Months Ended June 30,	
	2023	2022
	(in thousands)	
Balance at beginning of period	$ 26,787	$ 67,895
Settlements	(10,831)	(16,014)
(Gain) loss recognized in earnings	6,287	(17,821)
Balance at end of period	$ 22,243	$ 34,060

The following table summarizes the significant unobservable inputs used in the valuation of our liabilities as of June 30, 2023 using Level 3 inputs:

	Unobservable Input	Weighted Average
Liabilities:		
Contingent consideration - installation earnout	Volatility	35.00%
	Revenue risk premium	15.30%
	Risk-free discount rate	5.00%
Contingent consideration - microgrid earnout	Probability of success	25.00%
	Risk-free discount rate	5.00%

Significant increases or decreases in the volatility, revenue risk premium, probability of success or risk-free discount rate in isolation could result in a significantly higher or lower fair value measurement.

Revenue

The following table presents the detail of revenue as recorded in the unaudited condensed consolidated statements of operations:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
	(in thousands)			
PPA revenue	$ 39,155	$ 31,159	$ 60,901	$ 52,344
Lease revenue	34,159	24,025	65,502	45,805
Inventory sales revenue	26,492	54,245	86,406	54,245
Service revenue	19,981	1,726	35,959	2,715
Solar renewable energy certificate revenue	15,055	14,687	22,846	20,931
Cash sales revenue	21,724	15,414	38,543	26,762
Loan revenue	8,112	4,194	15,255	7,570
Other revenue	1,699	1,562	2,661	2,362
Total	$ 166,377	$ 147,012	$ 328,073	$ 212,734

We recognize revenue from contracts with customers as we satisfy our performance obligations at a transaction price reflecting an amount of consideration based upon an estimated rate of return, net of cash incentives. We express this rate of return as the solar rate per kilowatt hour ("kWh") in the customer contract. The amount of revenue we recognize does not equal customer cash payments because we satisfy performance obligations ahead of cash receipt or evenly as we provide continuous access on a stand-ready basis to the solar energy system. We reflect the differences between revenue recognition and cash payments received in accounts receivable, other assets or deferred revenue, as appropriate. Revenue allocated to remaining performance obligations represents contracted revenue we have not yet recognized and includes deferred revenue as well as amounts that will be invoiced and recognized as revenue in future periods. Contracted but not yet recognized revenue was approximately $4.1 billion as of June 30, 2023, of which we expect to recognize approximately 3% over the next 12 months. We do not expect the annual recognition to vary significantly over approximately the next 20 years as the vast majority of existing solar service agreements have at least 20 years remaining, given the average age of the fleet of solar energy systems under contract is less than four years.

Certain customers may receive cash incentives. We defer recognition of the payment of these cash incentives and recognize them over the life of the contract as a reduction to revenue. The deferred payment is recorded in other assets for customers who receive the cash incentives under our lease and PPA agreements, and as a contra-liability in other long-term liabilities for customers who receive the cash incentives under our loan agreements.

PPAs. Customers purchase electricity from us under PPAs. Pursuant to ASC 606, we recognize revenue based upon the amount of electricity delivered as determined by remote monitoring equipment at solar rates specified under the PPAs. All customers must pass our credit evaluation process. The PPAs generally have a term of 20 or 25 years with an opportunity for customers to renew for up to an additional 10 years, via two five-year or one 10-year renewal options.

Leases. We are the lessor under lease agreements for solar energy systems and energy storage systems, which do not meet the definition of a lease under ASC 842 and are accounted for as contracts with customers under ASC 606. We recognize revenue on a straight-line basis over the contract term as we satisfy our obligation to provide continuous access to the solar energy system. All customers must pass our credit evaluation process. The lease agreements generally have a term of 20 or 25 years with an opportunity for customers to renew for up to an additional 10 years, via two five-year or one 10-year renewal options.

In most cases, we provide customers under our lease agreements a performance guarantee that each solar energy system will achieve a certain specified minimum solar energy production output, which is a significant proportion of its expected output. The specified minimum solar energy production output may not be achieved due to natural fluctuations in the weather or equipment failures from exposure and wear and tear outside of our control, among other factors. We determine the amount of the guaranteed output based on a number of different factors, including: (a) the specific site information related to the tilt of the panels, azimuth (a horizontal angle measured clockwise in degrees from a reference direction) of the panels, size of the system, and shading on site; (b) the calculated amount of available irradiance (amount of energy for a given flat surface facing a specific direction) based on historical average weather data and (c) the calculated amount of energy output of the solar energy system. While actual irradiance levels can significantly change year over year due to natural fluctuations in the weather, we expect the levels to average out over the term of a lease and to approximate the levels used in determining the amount of the performance guarantee. Generally, weather fluctuations are the most likely reason a solar energy system may not achieve a certain specified minimum solar energy production output.

If the solar energy system does not produce the guaranteed production amount, we are required to refund a portion of the previously remitted customer payments, where the repayment is calculated as the product of (a) the shortfall production amount and (b) the dollar amount (guaranteed rate) per kWh that is fixed throughout the term of the contract. These remittances of a customer's payments, if needed, are payable as early as the first anniversary of the solar energy system's placed in service date and then every annual period thereafter. See Note 14, Commitments and Contingencies.

Inventory Sales. Inventory sales revenue represents revenue from the direct sale of inventory to our dealers or other parties. We recognize the related revenue under ASC 606 upon shipment. Shipping and handling costs are included in cost of revenue—inventory sales in the consolidated statements of operations.

Service Revenue. Service revenue includes revenue from the direct sale of solar energy systems and energy storage systems to customers with financing provided by us and sales of service plans and repair services. We recognize revenue from the direct sale of energy storage systems in the period in which the storage components are placed in service. Service plans are available to customers whose solar energy system was not originally sold by Sunnova. We recognize revenue from service plan contracts on a straight-line basis over the life of the contract, which is typically 10 years. We recognize revenue from repair services in the period in which the service was performed.

Solar Renewable Energy Certificates. Each solar renewable energy certificate ("SREC") represents the environmental benefit of one megawatt hour (1,000 kWh) generated by a solar energy system. SRECs can be sold separate from the actual electricity generated by the renewable-based generation source. We account for the SRECs we generate from our solar energy systems as governmental incentives with no costs incurred to obtain them and do not consider those SRECs output of the underlying solar energy systems. We classify these SRECs as inventory held until sold and delivered to third parties. As we did not incur costs to obtain these governmental incentives, the inventory carrying value for the SRECs was $0 as of June 30, 2023 and December 31, 2022. We enter into economic hedges related to expected production of SRECs through forward contracts. While these fixed price forward contracts serve as an economic hedge against spot price fluctuations for the SRECs, the contracts do not qualify for hedge accounting and are not designated as cash flow hedges or fair value hedges. The contracts require us to physically deliver the SRECs upon settlement. We recognize the related revenue under ASC 606 upon satisfaction of the performance obligation to transfer the SRECs to the stated counterparty. Payments are typically received within one month of transferring the SREC to the counterparty. The costs related to the sales of SRECs are generally limited to broker fees (recorded in cost of revenue—other), which are only paid in connection with certain transactions. In certain circumstances we are required to purchase SRECs on the open market to fulfill minimum delivery requirements under our forward contracts.

Cash Sales. Cash sales revenue represents revenue from a customer's purchase of a solar energy system from us typically when purchasing a new home. We recognize the related revenue under ASC 606 upon verification of the home closing.

Loans. See discussion of loan revenue in the "*Loans*" section below.

Other Revenue. Other revenue includes certain state and utility incentives. We recognize revenue from state and utility incentives in the periods in which they are earned.

Loans

We offer a loan program, under which the customer finances the purchase of a solar energy system, energy storage system and/or accessory through a solar service agreement, typically for a term of 10, 15 or 25 years. We recognize cash payments received from customers on a monthly basis under our loan program (a) as interest income, to the extent attributable to earned interest on the contract that financed the customer's purchase; (b) as a reduction of a note receivable on the balance sheet, to the extent attributable to a return of principal (whether scheduled or prepaid) on the contract that financed the customer's purchase; and (c) as revenue, to the extent attributable to payments for operations and maintenance services provided by us. To qualify for the loan program, a customer must pass our credit evaluation process, which requires the customer to have a minimum FICO® score of 600 to 710 depending on certain circumstances, and we secure the loans with the solar energy systems, energy storage systems or accessories financed. The credit evaluation process is performed once for each customer at the time the customer is entering into the solar service agreement with us.

Our investments in solar energy systems, energy storage systems and accessories related to the loan program that are not yet placed in service are recorded in other assets in the consolidated balance sheets and are transferred to customer notes receivable upon being placed in service. Customer notes receivable are recorded at amortized cost, net of an allowance for credit losses (as described below), in other current assets and customer notes receivable in the consolidated balance sheets. Accrued interest receivable related to our customer notes receivable is recorded in accounts receivable—trade, net in the consolidated balance sheets. Interest income from customer notes receivable is recorded in interest income in the consolidated statements of operations. The amortized cost of our customer notes receivable is equal to the principal balance of customer notes receivable outstanding and does not include accrued interest receivable. Customer notes receivable continue to accrue interest until they are written off against the allowance, which occurs when the balance is 180 days or more past due unless the balance is in the process of collection. Customer notes receivable are considered past due one day after the due date based on the contractual terms of the loan agreement. In all cases, customer notes receivable balances are placed on a nonaccrual status or written off at an earlier date when they are deemed uncollectible. Expected recoveries do not exceed the aggregate of amounts previously written off and expected to be written off. Accrued interest receivable for customer notes receivable placed on a nonaccrual status is recorded as a reduction to interest income. Interest received on such customer notes receivable is accounted for on a cash basis until the customer notes receivable qualifies for the return to accrual status. Customer notes receivable are returned to accrual status when there is no longer any principal or interest amounts past due and future payments are reasonably assured.

The allowance for credit losses is deducted from the customer notes receivable amortized cost to present the net amount expected to be collected. It is measured on a collective (pool) basis when similar risk characteristics (such as financial asset type, customer credit rating, contractual term and vintage) exist. In determining the allowance for credit losses, we identify customers with potential disputes or collection issues and consider our historical level of credit losses and current economic trends that might impact the level of future credit losses. Adjustments to historical loss information are made for differences in current loan-specific risk characteristics, such as differences in underwriting standards. Expected credit losses are estimated over the contractual term of the loan agreements based on the best available data at the time and adjusted for expected prepayments when appropriate. The contractual term excludes expected extensions, renewals and modifications unless either of the following applies: (a) we have a reasonable expectation at the reporting date that a troubled debt restructuring will be executed with an individual customer or (b) the extension or renewal options are included in the original or modified contract at the reporting date and are not unconditionally cancelable by us. Expected credit losses are recorded in general and administrative expense in the consolidated statements of operations. See Note 6, Customer Notes Receivable.

Deferred Revenue

Deferred revenue consists of amounts for which the criteria for revenue recognition have not yet been met and includes (a) payments for unfulfilled performance obligations that will be recognized on a straight-line basis over the remaining term of the respective solar service agreements, net of any cash incentives earned by the customers, (b) down payments and partial or full prepayments from customers and (c) differences due to the timing of energy production versus billing for certain types of PPAs. Deferred revenue was $297.8 million as of December 31, 2021. The following table presents the detail of deferred revenue as recorded in other current liabilities and other long-term liabilities in the unaudited condensed consolidated balance sheets:

	As of June 30, 2023	As of December 31, 2022
	(in thousands)	
Loans	$ 783,789	$ 586,128
PPAs and leases	30,235	24,893
Solar receivables	4,471	4,602
Other	11	—
Total (1)	$ 818,506	$ 615,623

(1) Of this amount, $41.3 million and $30.2 million is recorded in other current liabilities as of June 30, 2023 and December 31, 2022, respectively.

During the six months ended June 30, 2023 and 2022, we recognized revenue of $12.0 million and $8.1 million, respectively, from amounts recorded in deferred revenue at the beginning of the respective years.

Self-Insurance

In January 2023, we changed our health insurance policy for qualifying employees in the U.S. from a fully-insured policy to a self-insured policy in order to administer insurance coverage to our employees at a lower cost to us. The change in insurance policy did not have a significant impact on our consolidated financial statements and related disclosures. Under the self-insured policy, we maintain stop-loss coverage from a third party that limits our exposure to large claims. We record a liability associated with these benefits that includes an estimate of both claims filed and losses incurred but not yet reported based on historical claims experience. In estimating this accrual, we utilize a third-party actuary to estimate a range of expected losses, which are based on an analysis of historical data. Assumptions are monitored and adjusted when warranted by changing circumstances. We record our liability for estimated losses under our self-insured policy in accrued liabilities in the consolidated balance sheets. As of June 30, 2023, our liability for self-insured claims was $3.5 million, which represents our best estimate of the future cost of claims incurred as of that date. We believe we have adequate reserves for these claims as of June 30, 2023; however, the actual value of such claims could be significantly affected if future occurrences and claims differ from these assumptions.

New Accounting Guidance

New accounting pronouncements are issued by the FASB or other standard setting bodies and are adopted as of the specified effective date.

In March 2022, the FASB issued Accounting Standards Update ("ASU") No. 2022-02, *Financial Instruments—Credit Losses: Troubled Debt Restructurings and Vintage Disclosures*, to eliminate the accounting guidance for troubled debt restructurings while enhancing disclosure requirements for certain loan refinancings and restructurings by creditors when a borrower is experiencing financial difficulty. This ASU is effective for annual and interim reporting periods beginning in January 2023. We adopted this ASU in January 2023 and determined it did not have a significant impact on our consolidated financial statements and related disclosures.

(3) Property and Equipment

The following table presents the detail of property and equipment, net as recorded in the unaudited condensed consolidated balance sheets:

	Useful Lives	As of June 30, 2023	As of December 31, 2022
	(in years)	(in thousands)	
Solar energy systems and energy storage systems	35	$ 4,295,288	$ 3,719,727
Construction in progress		528,008	329,893
Asset retirement obligations	30	64,636	57,063
Information technology systems	3	84,871	72,797
Computers and equipment	3-5	6,371	4,976
Leasehold improvements	3-6	6,015	5,558
Furniture and fixtures	7	1,172	1,172
Vehicles	4-5	1,640	1,640
Other	5-6	158	157
Property and equipment, gross		4,988,159	4,192,983
Less: accumulated depreciation		(475,649)	(408,182)
Property and equipment, net		$ 4,512,510	$ 3,784,801

The amounts included in the above table for solar energy systems and energy storage systems and substantially all the construction in progress relate to our customer contracts (including PPAs and leases). These assets had accumulated depreciation of $418.2 million and $360.1 million as of June 30, 2023 and December 31, 2022, respectively.

(4) Detail of Certain Balance Sheet Captions

The following table presents the detail of other current assets as recorded in the unaudited condensed consolidated balance sheets:

	As of June 30, 2023	As of December 31, 2022
	(in thousands)	
Inventory	$ 179,209	$ 152,113
Current portion of customer notes receivable	150,966	114,910
Restricted cash	37,825	51,733
Prepaid assets	29,713	17,492
Deferred receivables	10,388	7,392
Current portion of investments in solar receivables	7,804	7,107
Other	685	553
Total	$ 416,590	$ 351,300

The following table presents the detail of other assets as recorded in the unaudited condensed consolidated balance sheets:

	As of June 30, 2023	As of December 31, 2022
	(in thousands)	
Construction in progress - customer notes receivable	$ 247,588	$ 382,611
Restricted cash	180,718	133,584
Exclusivity and other bonus arrangements with dealers, net	173,799	121,313
Investments in solar receivables	60,558	65,064
Straight-line revenue adjustment, net	57,803	53,086
Other	237,312	206,233
Total	$ 957,778	$ 961,891

The following table presents the detail of other current liabilities as recorded in the unaudited condensed consolidated balance sheets:

	As of June 30, 2023	As of December 31, 2022
	(in thousands)	
Interest payable	$ 42,910	$ 35,258
Deferred revenue	41,277	30,172
Current portion of operating and finance lease liability	3,455	3,247
Current portion of performance guarantee obligations	2,335	2,495
Other	4,065	334
Total	$ 94,042	$ 71,506

(5) Asset Retirement Obligations ("ARO")

AROs consist primarily of costs to remove solar energy system assets and costs to restore the solar energy system sites to the original condition, which we estimate based on current market rates. For each solar energy system, we recognize the fair value of the ARO as a liability and capitalize that cost as part of the cost basis of the related solar energy system. The related assets are depreciated on a straight-line basis over 30 years, which is the estimated average time a solar energy system will be installed in a location before being removed, and the related liabilities are accreted to the full value over the same period of time. We revise our estimated future liabilities based on recent actual experiences, including third party cost estimates, average size of solar energy systems and inflation rates, which we evaluate at least annually. Changes in our estimated future liabilities are recorded as either a reduction or addition in the carrying amount of the remaining unamortized asset and the ARO and either decrease or increase our depreciation and accretion expense amounts prospectively. The following table presents the changes in AROs as recorded in other long-term liabilities in the unaudited condensed consolidated balance sheets:

	Six Months Ended June 30,	
	2023	2022
	(in thousands)	
Balance at beginning of period	$ 69,869	$ 54,396
Additional obligations incurred	7,604	5,390
Accretion expense	2,234	1,735
Other	(44)	(58)
Balance at end of period	$ 79,663	$ 61,463

(6) Customer Notes Receivable

We offer a loan program, under which the customer finances the purchase of a solar energy system, energy storage system and/or accessory through a solar service agreement for a term of 10, 15 or 25 years. The following table presents the detail of customer notes receivable as recorded in the unaudited condensed consolidated balance sheets and the corresponding fair values:

	As of June 30, 2023	As of December 31, 2022
	(in thousands)	
Customer notes receivable	$ 3,481,602	$ 2,662,307
Allowance for credit losses	(102,337)	(81,248)
Customer notes receivable, net	$ 3,379,265	$ 2,581,059
Estimated fair value, net	$ 3,316,523	$ 2,554,948

The following table presents the changes in the allowance for credit losses related to customer notes receivable as recorded in the unaudited condensed consolidated balance sheets:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
	(in thousands)			
Balance at beginning of period	$ 91,459	$ 47,818	$ 81,248	$ 41,138
Provision for current expected credit losses	10,878	9,225	21,089	15,869
Recoveries	—	—	—	36
Balance at end of period	$ 102,337	$ 57,043	$ 102,337	$ 57,043

As of June 30, 2023 and December 31, 2022, we invested $247.6 million and $382.6 million, respectively, in loan solar energy systems, energy storage systems and accessories not yet placed in service. For the three months ended June 30, 2023 and 2022, interest income related to our customer notes receivable was $23.1 million and $13.1 million, respectively. For the six months ended June 30, 2023 and 2022, interest income related to our customer notes receivable was $43.2 million and $23.9 million, respectively. As of June 30, 2023 and December 31, 2022, accrued interest receivable related to our customer notes receivable was $23.2 million and $10.2 million, respectively. As of June 30, 2023 and December 31, 2022, there was $19.8 million and $12.6 million, respectively, of customer notes receivable not accruing interest and there was $436,000 and $278,000, respectively, of allowance recorded for loans on nonaccrual status. For the three months ended June 30, 2023 and 2022, interest income of $0 was recognized for loans on nonaccrual status and accrued interest receivable of $4,000 was written off by reversing interest income. For the six months ended June 30, 2023 and 2022, interest income of $0 was recognized for loans on nonaccrual status and accrued interest receivable of $17,000 and $497,000, respectively, was written off by reversing interest income.

We consider the performance of our customer notes receivable portfolio and its impact on our allowance for credit losses. We also evaluate the credit quality based on the aging status and payment activity. The following table presents the aging of the amortized cost of customer notes receivable:

	As of June 30, 2023	As of December 31, 2022
	(in thousands)	
1-90 days past due	$ 116,075	$ 91,668
91-180 days past due	26,263	16,859
Greater than 180 days past due	48,912	14,504
Total past due	191,250	123,031
Not past due	3,290,352	2,539,276
Total	$ 3,481,602	$ 2,662,307

As of June 30, 2023 and December 31, 2022, the amortized cost of our customer notes receivable more than 90 days past due but not on nonaccrual status was $55.4 million and $31.4 million, respectively. The following table presents the amortized cost by origination year of our customer notes receivable based on payment activity:

	Amortized Cost by Origination Year						
	2023	2022	2021	2020	2019	Prior	Total
	(in thousands)						
Payment performance:							
Performing	$ 882,708	$ 1,384,684	$ 714,073	$ 218,295	$ 110,807	$ 122,123	$ 3,432,690
Nonperforming (1)	—	19,007	13,534	4,224	4,388	7,759	48,912
Total	$ 882,708	$ 1,403,691	$ 727,607	$ 222,519	$ 115,195	$ 129,882	$ 3,481,602

(1) A nonperforming loan is a loan in which the customer is in default and has not made any scheduled principal or interest payments for 181 days or more.

(7) Long-Term Debt

Our subsidiaries with long-term debt include Sunnova Energy Corporation, Sunnova EZ-Own Portfolio, LLC ("EZOP"), Sunnova Helios II Issuer, LLC ("HELII"), Sunnova RAYS I Issuer, LLC ("RAYSI"), Sunnova Helios III Issuer, LLC ("HELIII"), Sunnova TEP Holdings, LLC ("TEPH"), Sunnova Sol Issuer, LLC ("SOLI"), Sunnova Helios IV Issuer, LLC ("HELIV"), Sunnova Asset Portfolio 8, LLC ("AP8"), Sunnova Sol II Issuer, LLC ("SOLII"), Sunnova Helios V Issuer, LLC ("HELV"), Sunnova Sol III Issuer, LLC ("SOLIII"), Sunnova Helios VI Issuer, LLC ("HELVI"), Sunnova Helios VII Issuer, LLC ("HELVII"), Sunnova Helios VIII Issuer, LLC ("HELVIII"), Sunnova Sol IV Issuer, LLC ("SOLIV"), Sunnova Helios IX Issuer, LLC ("HELIX"), Sunnova Helios X Issuer, LLC ("HELX"), Sunnova Inventory Supply, LLC ("IS"), Sunnova Sol V Issuer, LLC ("SOLV") and Sunnova Helios XI Issuer, LLC ("HELXI"). The following table presents the detail of long-term debt, net as recorded in the unaudited condensed consolidated balance sheets:

	Six Months Ended June 30, 2023 Weighted Average Effective Interest Rates	As of June 30, 2023		Year Ended December 31, 2022 Weighted Average Effective Interest Rates	As of December 31, 2022	
		Long-term	Current		Long-term	Current
	(in thousands, except interest rates)					
SEI						
0.25% convertible senior notes	0.71 %	$ 575,000	$ —	0.71 %	$ 575,000	$ —
2.625% convertible senior notes	3.05 %	600,000	—	3.11 %	600,000	—
Debt discount, net		(21,762)	—		(24,324)	—
Deferred financing costs, net		(856)	—		(920)	—
Sunnova Energy Corporation						
Note payable	8.34 %	—	4,924		—	—
5.875% senior notes	6.59 %	400,000	—	6.52 %	400,000	—
Debt discount, net		(3,141)	—		(3,767)	—

Deferred financing costs, net		(6,349)	—		(7,339)	—
EZOP						
Revolving credit facility	8.51 %	721,000	—	5.10 %	500,000	—
Debt discount, net		(393)	—		(532)	—
HELII						
Solar asset-backed notes	5.69 %	199,339	8,985	5.69 %	204,016	8,632
Debt discount, net		(27)	—		(30)	—
Deferred financing costs, net		(3,255)	—		(3,591)	—
RAYSI						
Solar asset-backed notes	5.62 %	102,396	11,432	5.54 %	105,878	9,957
Debt discount, net		(842)	—		(960)	—
Deferred financing costs, net		(3,225)	—		(3,451)	—
HELIII						
Solar loan-backed notes	4.47 %	90,342	10,208	4.42 %	94,247	10,438
Debt discount, net		(1,393)	—		(1,536)	—
Deferred financing costs, net		(1,337)	—		(1,474)	—
TEPH						
Revolving credit facility	10.03 %	473,840	—	7.74 %	425,700	—
Debt discount, net		(1,510)	—		(2,043)	—
SOLI						
Solar asset-backed notes	3.95 %	342,701	14,807	3.92 %	348,962	16,063
Debt discount, net		(81)	—		(87)	—
Deferred financing costs, net		(6,302)	—		(6,827)	—
HELIV						
Solar loan-backed notes	4.19 %	101,472	11,169	4.15 %	105,655	11,494
Debt discount, net		(488)	—		(564)	—
Deferred financing costs, net		(2,279)	—		(2,609)	—
AP8						
Revolving credit facility	9.61 %	177,000	—	20.52 %	74,535	465
SOLII						
Solar asset-backed notes	3.44 %	226,853	7,003	3.41 %	232,276	6,409
Debt discount, net		(60)	—		(64)	—
Deferred financing costs, net		(4,263)	—		(4,576)	—
HELV						
Solar loan-backed notes	2.49 %	139,219	13,925	2.47 %	143,940	14,367
Debt discount, net		(614)	—		(690)	—
Deferred financing costs, net		(2,378)	—		(2,661)	—
SOLIII						
Solar asset-backed notes	2.83 %	266,311	16,776	2.78 %	275,779	16,632
Debt discount, net		(109)	—		(117)	—
Deferred financing costs, net		(5,247)	—		(5,616)	—
HELVI						
Solar loan-backed notes	2.12 %	165,314	13,947	2.08 %	167,669	16,770
Debt discount, net		(36)	—		(40)	—
Deferred financing costs, net		(2,629)	—		(2,909)	—
HELVII						
Solar loan-backed notes	2.53 %	125,963	11,786	2.50 %	126,856	16,058
Debt discount, net		(35)	—		(38)	—
Deferred financing costs, net		(2,000)	—		(2,193)	—
HELVIII						
Solar loan-backed notes	3.64 %	245,888	25,490	3.54 %	250,014	31,099
Debt discount, net		(4,812)	—		(5,267)	—
Deferred financing costs, net		(3,751)	—		(4,080)	—
SOLIV						
Solar asset-backed notes	5.94 %	332,915	8,240	5.76 %	338,251	8,080

Debt discount, net		(10,324)	—		(11,190)	—
Deferred financing costs, net		(7,395)	—		(7,996)	—
HELIX						
Solar loan-backed notes	5.68 %	191,508	27,083	5.46 %	193,837	29,632
Debt discount, net		(3,312)	—		(3,589)	—
Deferred financing costs, net		(3,062)	—		(3,303)	—
HELX						
Solar loan-backed notes	7.36 %	201,011	24,889	6.23 %	162,301	18,335
Debt discount, net		(18,779)	—		(12,459)	—
Deferred financing costs, net		(3,489)	—		(3,319)	—
IS						
Revolving credit facility	8.40 %	37,100	—		—	—
SOLV						
Solar asset-backed notes	6.70 %	316,566	6,934		—	—
Debt discount, net		(17,195)	—		—	—
Deferred financing costs, net		(7,515)	—		—	—
HELXI						
Solar loan-backed notes	6.00 %	261,101	24,370		—	—
Debt discount, net		(12,894)	—		—	—
Deferred financing costs, net		(5,777)	—		—	—
Total		$ 6,123,923	$ 241,968		$ 5,194,755	$ 214,431

Availability. As of June 30, 2023, we had $301.1 million of available borrowing capacity under our various financing arrangements, consisting of $54.0 million under the EZOP revolving credit facility, $226.2 million under the TEPH revolving credit facility, $8.0 million under the AP8 revolving credit facility and $12.9 million under the IS revolving credit facility. There was no available borrowing capacity under any of our other financing arrangements. As of June 30, 2023, we were in compliance with all debt covenants under our financing arrangements.

Weighted Average Effective Interest Rates. The weighted average effective interest rates disclosed in the table above are the weighted average stated interest rates for each debt instrument plus the effect on interest expense for other items classified as interest expense, such as the amortization of deferred financing costs, amortization of debt discounts and commitment fees on unused balances for the period of time the debt was outstanding during the indicated periods.

EZOP Debt. In February 2023, we amended the EZOP revolving credit facility to, among other things, (a) increase the aggregate commitment amount from $450.0 million to $675.0 million, (b) increase the uncommitted maximum facility amount from $575.0 million to $800.0 million, (c) amend certain provisions related to the allocation of certain payments made to the lenders, (d) amend certain provisions related to excess concentration limits and eligibility criteria to permit us and our affiliates to provide warranties of, and replacements for, load controllers and generators in connection with the related solar loan contracts and (e) add provisions to allow EZOP to request an increase in the aggregate commitment amount (subject to certain conditions) by adding additional lenders to the EZOP revolving credit facility. In February 2023, Credit Suisse AG ("Credit Suisse") sold a significant part of its Securitized Products Group (the "Credit Suisse Securitized Products Sale") to Apollo Global Management ("Apollo"). Subsequently, Apollo publicly announced the majority of the assets and professionals associated with the sale are now part of or managed by ATLAS SP Partners, a new stand-alone credit firm focused on asset-backed financing and capital markets solutions ("Atlas"). In March 2023, in connection with the Credit Suisse Securitized Products Sale, certain of our subsidiaries consented to the assignment of the loans and commitments of the Credit Suisse lenders to the Atlas lenders (such assignment, the "EZOP Assignment") under the EZOP revolving credit facility. In connection with the EZOP Assignment, Credit Suisse AG, New York Branch ("CSNYB") resigned as the agent under the EZOP revolving credit facility, Atlas Securitized Products Holdings, L.P. (the "Successor Agent") was appointed as the successor agent thereunder and, in connection with such appointment, the Successor Agent assumed the agent roles under the EZOP revolving credit facility. In connection with the appointment of Atlas as Successor Agent, the borrowers and the lenders party to the applicable agency resignation and appointment agreements consented to, among other things, Atlas' ability to assign the agent role under the EZOP revolving credit facility to one of its affiliates subject to certain conditions set forth therein. In March 2023, after the EZOP Assignment, we amended the EZOP revolving credit facility to, among other things, (a) increase the aggregate commitment amount from $675.0 million to $775.0 million, (b) increase the uncommitted maximum facility amount from $800.0 million to $900.0 million, (c) amend and supplement certain defaulting lender provisions and (d) update the references from CSNYB, the predecessor agent, to Atlas, the successor agent, and remove or modify certain provisions related to the borrowing, funding and allocation of payments among the previous lender syndicate (that previously included lenders affiliated with Credit Suisse that, prior to the date of the amendment to the EZOP revolving credit facility and pursuant to the EZOP Assignment, had assigned their loans and commitments to lenders affiliated with Atlas). We currently do not have the resources to repay this facility when it becomes due in November 2024, however, we believe we will be able to satisfy this obligation through refinancing of the facility. Although we believe it is probable we will refinance this facility, there can be no assurance about our ability to do so.

TEPH Debt. In March 2023, in connection with the Credit Suisse Securitized Products Sale, certain of our subsidiaries consented to the assignment of the loans and commitments of the Credit Suisse lenders to the Atlas lenders (such assignment, the "TEPH Assignment") under the TEPH revolving credit facility. In connection with the TEPH Assignment, CSNYB resigned as the agent under the TEPH revolving credit facility, Atlas was appointed as the successor agent thereunder and, in connection with such appointment, the Successor Agent assumed the agent roles under the TEPH revolving credit facility. In connection with the appointment of Atlas as Successor Agent, the borrowers and the lenders party to the applicable agency resignation and appointment agreements consented to, among other things, Atlas' ability to assign the agent role under the TEPH revolving credit facility to one of its affiliates subject to certain conditions set forth therein. In March 2023, after the TEPH Assignment, we amended the TEPH revolving credit facility to, among other things, (a) increase the aggregate commitment amount from $600.0 million to $700.0 million, (b) increase the uncommitted maximum facility amount from $689.7 million to $789.7 million, (c) add provisions to allow TEPH to request an increase in the aggregate commitment amount (subject to certain conditions) by adding additional lenders to the TEPH revolving credit facility, (d) amend and supplement certain defaulting lender provisions, (e) modify the hedging provisions to give all hedge counterparties the benefit of certain payment priorities and certain other terms previously limited to qualifying hedge counterparties (as defined by the TEPH revolving credit facility), to extend the time period for the event of default resulting from hedge counterparties ceasing to be qualifying hedge counterparties and to make other hedge-related amendments, (f) update the references from CSNYB, the predecessor administrative agent, to Atlas, the successor administrative agent, and remove or modify certain provisions related to the borrowing, funding and allocation of payments among the previous lender syndicate (that previously included lenders affiliated with Credit Suisse that, prior to the date of the amendment to the TEPH revolving credit facility and pursuant to the TEPH Assignment, had assigned their loans and commitments to lenders affiliated with Atlas), (g) add European Union bail-in provisions and (h) add certain syndication-related provisions. We currently do not have the resources to repay this facility when it becomes due in November 2024, however, we believe we will be able to satisfy this obligation through refinancing of the facility. Although we believe it is probable we will refinance this facility, there can be no assurance about our ability to do so.

AP8 Debt. In March 2023, we amended the AP8 revolving credit facility to, among other things, increase the aggregate commitment amount from $75.0 million to $150.0 million. In June 2023, we amended the AP8 revolving credit facility to, among other things, increase the aggregate commitment amount from $150.0 million to $185.0 million. We believe we will be able to satisfy this obligation due in September 2024 through refinancing of the facility or alternatively through the use of our existing cash resources and liquidity.

IS Debt. In March 2023, IS entered into a secured revolving credit facility with Texas Capital Bank, as agent, and the lenders party thereto, for an aggregate commitment amount of $50.0 million with a maturity date of the earlier of (a) March 2026 and (b) six months from the latest maturity date of any material parent credit facility (defined as a parent credit facility with a commitment amount of $250.0 million or more that, if terminated could individually be expected to result in a liquidity event (as defined by the IS revolving credit facility)). The proceeds of the loans under the IS revolving credit facility are available to purchase or otherwise acquire certain accounts receivable and inventory, fund certain reserve accounts that are required to be maintained by IS in accordance with the revolving credit agreement and pay fees and expenses incurred in connection with the IS revolving credit facility. Interest on the borrowings under the IS revolving credit facility is due monthly. Borrowings under the IS revolving credit facility bear interest at an annual rate based on Term SOFR (as defined by the IS revolving credit facility).

SOLV Debt. In April 2023, we pooled and transferred eligible solar energy systems and the related asset receivables into wholly-owned subsidiaries of SOLV, a special purpose entity, that issued $300.0 million in aggregate principal amount of Series 2023-1 Class A solar asset-backed notes and $23.5 million in aggregate principal amount of Series 2023-1 Class B solar asset-backed notes (collectively, the "SOLV Notes") with a maturity date of April 2058. The SOLV Notes were issued at a discount of 5.01% and 11.63% for the Class A and Class B notes, respectively, and bear interest at an annual rate equal to 5.40% and 7.35% for the Class A and Class B notes, respectively. The cash flows generated by the solar energy systems of SOLV's subsidiaries are used to service the quarterly principal and interest payments on the SOLV Notes and satisfy SOLV's expenses, and any remaining cash can be distributed to Sunnova Sol V Depositor, LLC, SOLV's sole member. In connection with the SOLV Notes, certain of our affiliates receive a fee for managing and servicing the solar energy systems pursuant to a transaction management agreement and management and servicing agreements. In addition, Sunnova Energy Corporation has guaranteed (a) the obligations of certain of our subsidiaries to manage and service the solar energy systems pursuant to a transaction management agreement and management and servicing agreements, (b) the managing members' obligations, in such capacity, under the related financing fund's limited liability company agreement and (c) certain of our subsidiaries' obligations to repurchase or substitute certain ineligible solar energy systems eventually sold to SOLV pursuant to the sale and contribution agreement. SOLV is also required to maintain certain reserve accounts for the benefit of the holders of the SOLV Notes, each of which must remain funded at all times to the levels specified in the SOLV Notes. The indenture requires SOLV to track the debt service coverage ratio (such ratio, the "DSCR") of (a) the amount of certain payments received from customers, certain performance based incentives, certain energy credits and any applicable insurance proceeds as of a specific date to (b) interest and scheduled principal due on the SOLV Notes as of such date, with the potential to enter into an early amortization period if the DSCR drops below a certain threshold. The holders of the SOLV Notes have no recourse to our other assets except as expressly set forth in the SOLV Notes.

HELXI Debt. In May 2023, we pooled and transferred eligible solar loans and the related receivables into HELXI, a special purpose entity, that issued $174.9 million in aggregate principal amount of Series 2023-A Class A solar loan-backed notes, $80.1 million in aggregate principal amount of Series 2023-A Class B solar loan-backed notes and $31.7 million in aggregate principal amount of Series 2023-A Class C solar loan-backed notes (collectively, the "HELXI Notes") with a maturity date of May 2050. The HELXI Notes were issued at a discount of 2.57% for Class A, 5.31% for Class B and 13.56% for Class C and bear interest at an annual rate of 5.30%, 5.60% and 6.00%, respectively. The cash flows generated by these solar loans are used to service the monthly principal and interest payments on the HELXI Notes and satisfy HELXI's expenses, and any remaining cash can be distributed to Sunnova Helios XI Depositor, LLC, HELXI's sole member. In connection with the HELXI Notes, certain of our affiliates receive a fee for managing and servicing the solar energy systems pursuant to management and service agreements. In addition, Sunnova Energy Corporation has guaranteed, among other things, (a) the obligations of certain of our subsidiaries to manage and service the solar energy systems pursuant to management and servicing agreements and (b) certain of our subsidiaries' obligations to repurchase or substitute certain ineligible solar loans eventually sold to HELXI pursuant to the related sale and contribution agreement. HELXI is also required to maintain certain reserve accounts for the benefit of the holders of the HELXI Notes, each of which must be funded at all times to the levels specified in the HELXI Notes. The holders of the HELXI Notes have no recourse to our other assets except as expressly set forth in the HELXI Notes.

Sunnova Energy Corporation Debt. In June 2023, Sunnova Energy Corporation entered into an arrangement to finance $6.8 million of insurance premiums at an annual interest rate of 7.24% over ten months.

Fair Values of Long-Term Debt. The fair values of our long-term debt and the corresponding carrying amounts are as follows:

	As of June 30, 2023		As of December 31, 2022	
	Carrying Value	Estimated Fair Value	Carrying Value	Estimated Fair Value
	(in thousands)			
SEI 0.25% convertible senior notes	$ 575,000	$ 509,103	$ 575,000	$ 511,733
SEI 2.625% convertible senior notes	600,000	572,133	600,000	574,693
Sunnova Energy Corporation note payable	4,924	4,924	—	—
Sunnova Energy Corporation 5.875% senior notes	400,000	357,176	400,000	359,283
EZOP revolving credit facility	721,000	721,000	500,000	500,000
HELII solar asset-backed notes	208,324	200,362	212,648	206,045
RAYSI solar asset-backed notes	113,828	102,976	115,835	104,594
HELIII solar loan-backed notes	100,550	89,725	104,685	93,706
TEPH revolving credit facility	473,840	473,840	425,700	425,700
SOLI solar asset-backed notes	357,508	310,552	365,025	313,174
HELIV solar loan-backed notes	112,641	97,524	117,149	100,913
AP8 revolving credit facility	177,000	177,000	75,000	75,000
SOLII solar asset-backed notes	233,856	190,429	238,685	189,728
HELV solar loan-backed notes	153,144	133,109	158,307	135,408
SOLIII solar asset-backed notes	283,087	237,785	292,411	237,425
HELVI solar loan-backed notes	179,261	153,633	184,439	157,289
HELVII solar loan-backed notes	137,749	120,098	142,914	124,476
HELVIII solar loan-backed notes	271,378	243,427	281,113	252,483
SOLIV solar asset-backed notes	341,155	326,515	346,331	334,335
HELIX solar loan-backed notes	218,591	206,158	223,469	210,070
HELX solar loan-backed notes	225,900	222,457	180,636	183,165
IS revolving credit facility	37,100	37,100	—	—
SOLV solar asset-backed notes	323,500	314,433	—	—
HELXI solar loan-backed notes	285,471	277,951	—	—
Total (1)	$ 6,534,807	$ 6,079,410	$ 5,539,347	$ 5,089,220

(1) Amounts exclude the net deferred financing costs (classified as debt) and net debt discounts of $168.9 million and $130.2 million as of June 30, 2023 and December 31, 2022, respectively.

For the note payable, EZOP, TEPH, AP8 and IS debt, the estimated fair values approximate the carrying amounts primarily due to the variable nature of the interest rates of the underlying instruments. For the convertible senior notes, senior notes and the HELII, RAYSI, HELIII, SOLI, HELIV, SOLII, HELV, SOLIII, HELVI, HELVII, HELVIII, SOLIV, HELIX, HELX, SOLV and HELXI debt, we determined the estimated fair values based on an analysis of debt with similar book values, maturities and required market yields based on current interest rates.

(8) Derivative Instruments

Interest Rate Swaps and Caps on EZOP Debt. During the six months ended June 30, 2023 and 2022, EZOP entered into interest rate swaps and caps for an aggregate notional amount of $153.0 million and $340.6 million, respectively, to economically hedge its exposure to the variable interest rates on a portion of the outstanding EZOP debt. No collateral was posted for the interest rate swaps and caps as they are secured under the EZOP revolving credit facility. In August 2022, the notional amount of the interest rate swaps and caps began decreasing to match EZOP's estimated monthly principal payments on the debt. During the six months ended June 30, 2023 and 2022, EZOP unwound interest rate swaps and caps with an aggregate notional amount of $0 and $360.2 million, respectively, and recorded a realized gain of $11.1 million and $15.7 million, respectively.

Interest Rate Swaps and Caps on TEPH Debt. During the six months ended June 30, 2023 and 2022, TEPH entered into interest rate swaps and caps for an aggregate notional amount of $314.6 million and $421.1 million, respectively, to economically hedge its exposure to the variable interest rates on a portion of the outstanding TEPH debt. No collateral was posted for the interest rate swaps and caps as they are secured under the TEPH revolving credit facility. In October 2023, the notional amount of the interest rate swaps and caps will begin decreasing to match TEPH's estimated quarterly principal payments on the debt. During the six months ended June 30, 2023 and 2022, TEPH unwound interest rate swaps and caps with an aggregate notional amount of $241.1 million and $515.4 million, respectively, and recorded a realized gain of $4.5 million and $29.8 million, respectively.

Interest Rate Swaps and Caps on AP8 Debt. During the six months ended June 30, 2023 and 2022, AP8 entered into interest rate swaps and caps for an aggregate notional amount of $110.0 million and $0, respectively, to economically hedge its exposure to the variable interest rates on a portion of the outstanding AP8 debt. No collateral was posted for the interest rate swaps and caps as they are secured under the AP8 revolving credit facility. The notional amount of the interest rate swaps and caps is locked for the life of the contract. During the six months ended June 30, 2023 and 2022, AP8 unwound interest rate swaps and caps with an aggregate notional amount of $0 and recorded a realized gain of $116,000 and $0, respectively.

The following table presents a summary of the outstanding derivative instruments:

	As of June 30, 2023				As of December 31, 2022			
	Effective Date	Termination Date	Fixed Interest Rate	Aggregate Notional Amount	Effective Date	Termination Date	Fixed Interest Rate	Aggregate Notional Amount
	(in thousands, except interest rates)							
EZOP	June 2022 - February 2023	October 2031 - November 2035	0.890%	$ 609,294	June 2022 - July 2022	July 2034	0.890%	$ 489,477
TEPH	July 2022 - July 2023	October 2031 - October 2041	2.620% - 3.472%	312,200	July 2022 - December 2022	January 2035 - April 2041	1.520% - 2.630%	383,749
AP8	November 2022 - June 2023	September 2025	4.250%	185,000	November 2022	September 2025	4.250%	75,000
Total				$ 1,106,494				$ 948,226

The following table presents the fair value of the interest rate swaps and caps as recorded in the unaudited condensed consolidated balance sheets:

	As of June 30, 2023	As of December 31, 2022
	(in thousands)	
Other assets	$ 122,271	$ 112,712

We did not designate the interest rate swaps and caps as hedging instruments for accounting purposes. As a result, we recognize changes in fair value immediately in interest expense, net. The following table presents the impact of the interest rate swaps and caps as recorded in the unaudited condensed consolidated statements of operations:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
	(in thousands)			
Realized gain	$ (9,062)	$ (46,097)	$ (15,769)	$ (45,506)
Unrealized (gain) loss	(15,605)	32,857	8,011	(1,017)
Total	$ (24,667)	$ (13,240)	$ (7,758)	$ (46,523)

(9) Income Taxes

Our effective income tax rate is (8)% and 0% for the three months ended June 30, 2023 and 2022, respectively, and is (4)% and 0% for the six months ended June 30, 2023 and 2022, respectively. Total income tax differs from the amounts computed by applying the statutory income tax rate to loss before income tax primarily as a result of our valuation allowance.

We assessed whether we had any significant uncertain tax positions taken in a filed tax return, planned to be taken in a future tax return or claim, or otherwise subject to interpretation and determined there were none not more likely than not to be sustained upon examination, including resolution of any related appeals or litigation processes, based on the technical merits of the position, or prospectively approved when such approval may be sought in advance. Accordingly, we recorded no reserve for uncertain tax positions. Should a provision for any interest or penalties relative to unrecognized tax benefits be necessary, it is our policy to accrue for such in our income tax accounts. There were no such accruals as of June 30, 2023 and December 31, 2022 and we do not expect a significant change in gross unrecognized tax benefits in the next twelve months. Our tax years after 2011 remain subject to examination by the Internal Revenue Service and by the taxing authorities in the states and territories in which we operate.

(10) Redeemable Noncontrolling Interests and Noncontrolling Interests

Redeemable Noncontrolling Interests

In February 2023, the Class A member of Sunnova TEP 7-B, LLC increased its capital commitment from approximately $30.0 million to approximately $125.0 million. In March 2023, the Class A member of Sunnova TEP 7-C, LLC increased its capital commitment from approximately $41.0 million to approximately $51.3 million. In May 2023, we admitted a tax equity investor as the Class A member of Sunnova TEP 7-E, LLC ("TEP7E"), a subsidiary of Sunnova TEP 7-E Manager, LLC, which is the Class B member of TEP7E. The Class A member of TEP7E made a total capital commitment of approximately $51.0 million. In June 2023, we exercised our purchase option to purchase 100% of the Class A member's interest in Sunnova TEP I, LLC ("TEPI") for $5.9 million. This purchase resulted in an increase in our equity in TEPI of $67.0 million. The carrying values of the redeemable noncontrolling interests were equal to or greater than the redemption values as of June 30, 2023 and December 31, 2022.

Noncontrolling Interests

In April 2023, the Class A member of Sunnova TEP V-C, LLC increased its capital commitment from approximately $150.0 million to approximately $150.2 million. In April 2023, the Class A member of Sunnova TEP 6-A, LLC increased its capital commitment from approximately $50.0 million to approximately $57.7 million. In June 2023, the Class A member of Sunnova TEP 7-D, LLC increased its capital commitment from approximately $150.0 million to approximately $250.0 million.

(11) Stockholders' Equity

During the six months ended June 30, 2023 and 2022, we issued 693,443 and 694,446 shares of our common stock to Len^{x}, LLC pursuant to the terms of the earnout agreement, as amended, entered into in connection with the acquisition of SunStreet Energy Group, LLC.

(12) Equity-Based Compensation

In February 2023, the aggregate number of shares of common stock that may be issued pursuant to awards under the 2019 Long-Term Incentive Plan (the "LTIP") was increased by 1,525,652, an amount that, together with the shares remaining available for grant under the LTIP, is equal to 5,746,588 shares, or approximately 5% of the number of shares of common stock outstanding as of December 31, 2022.

Stock Options

The following table summarizes stock option activity:

	Number of Stock Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (Years)	Weighted Average Grant Date Fair Value	Aggregate Intrinsic Value
					(in thousands)
Outstanding, December 31, 2022	3,259,459	$ 18.48	4.75		$ 10,341
Granted	942,348	$ 15.13	9.74	$ 8.85	
Exercised	(31,360)	$ 13.22			$ 132
Forfeited	(138,941)	$ 22.02		$ 11.80	
Outstanding, June 30, 2023	4,031,506	$ 17.61	5.36		$ 13,561
Exercisable, June 30, 2023	2,663,597	$ 16.43	3.32		$ 10,734
Vested and expected to vest, June 30, 2023	4,031,506	$ 17.61	5.36		$ 13,561
Non-vested, June 30, 2023	1,367,909			$ 10.90	

The number of stock options that vested during the three months ended June 30, 2023 and 2022 was 0. The number of stock options that vested during the six months ended June 30, 2023 and 2022 was 16,816. The grant date fair value of stock options that vested during the three months ended June 30, 2023 and 2022 was $0. The grant date fair value of stock options that vested during the six months ended June 30, 2023 and 2022 was $309,000. As of June 30, 2023, there was $11.2 million of total unrecognized compensation expense related to stock options, which is expected to be recognized over the remaining weighted average period of 2.27 years.

Restricted Stock Units

The following table summarizes restricted stock unit activity:

	Number of Restricted Stock Units	Weighted Average Grant Date Fair Value
Outstanding, December 31, 2022	1,609,615	$ 20.62
Granted	1,810,918	$ 14.53
Vested	(816,567)	$ 18.34
Forfeited	(209,348)	$ 18.28
Outstanding, June 30, 2023	2,394,618	$ 17.00

The number of restricted stock units that vested during the three months ended June 30, 2023 and 2022 was 75,588 and 58,198, respectively. The number of restricted stock units that vested during the six months ended June 30, 2023 and 2022 was 816,567 and 702,664, respectively. The grant date fair value of restricted stock units that vested during the three months ended June 30, 2023 and 2022 was $1.5 million and $1.9 million, respectively. The grant date fair value of restricted stock units that vested during the six months ended June 30, 2023 and 2022 was $15.0 million and $15.1 million, respectively. As of June 30, 2023, there was $33.0 million of total unrecognized compensation expense related to restricted stock units, which is expected to be recognized over the remaining weighted average period of 1.63 years.

Employee Stock Purchase Plan ("ESPP")

As of June 30, 2023 and December 31, 2022, the number of shares of common stock issued under the ESPP was 20,966 and 7,106, respectively.

(13) Basic and Diluted Net Loss Per Share

The following table sets forth the computation of our basic and diluted net loss per share:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
	(in thousands, except share and per share amounts)			
Net loss attributable to stockholders—basic and diluted	$ (86,091)	$ (41,137)	$ (167,174)	$ (76,195)
Net loss per share attributable to stockholders—basic and diluted	$ (0.74)	$ (0.36)	$ (1.45)	$ (0.67)
Weighted average common shares outstanding—basic and diluted	116,236,741	114,548,970	115,658,570	114,027,097

The following table presents the weighted average shares of common stock equivalents that were excluded from the computation of diluted net loss per share for the periods presented because including them would have been anti-dilutive:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Equity-based compensation awards	6,460,556	5,192,317	5,753,120	4,841,388
Convertible senior notes	34,150,407	16,628,073	34,150,407	16,628,073

(14) Commitments and Contingencies

Legal. We are a party to a number of lawsuits, claims and governmental proceedings that are ordinary, routine matters incidental to our business. In addition, in the ordinary course of business, we periodically have disputes with dealers and customers. We do not expect the outcomes of these matters to have, either individually or in the aggregate, a material adverse effect on our financial position or results of operations.

Performance Guarantee Obligations. As of June 30, 2023, we recorded $4.5 million related to our guarantee of certain specified minimum solar energy production output under our leases and loans, of which $2.3 million is recorded in other current liabilities and $2.2 million is recorded in other long-term liabilities in the unaudited condensed consolidated balance sheet. As of December 31, 2022, we recorded $4.8 million related to these guarantees, of which $2.5 million is recorded in other current liabilities and $2.3 million is recorded in other long-term liabilities in the unaudited condensed consolidated balance sheet. The changes in our aggregate performance guarantee obligations are as follows:

	Six Months Ended June 30,	
	2023	2022
	(in thousands)	
Balance at beginning of period	$ 4,845	$ 5,293
Accruals	2,485	1,052
Settlements	(2,791)	(3,161)
Balance at end of period	$ 4,539	$ 3,184

NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

Operating and Finance Leases. We lease real estate and certain office equipment under operating leases and vehicles and certain other office equipment under finance leases. The following table presents the detail of lease expense as recorded in general and administrative expense in the unaudited condensed consolidated statements of operations:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
	(in thousands)			
Operating lease expense	$ 692	$ 693	$ 1,384	$ 1,385
Finance lease expense:				
Amortization expense	249	186	479	361
Interest on lease liabilities	20	13	38	27
Short-term lease expense	39	33	66	60
Variable lease expense	235	267	468	522
Total	$ 1,235	$ 1,192	$ 2,435	$ 2,355

The following table presents the detail of right-of-use assets and lease liabilities as recorded in other assets and other current liabilities/other long-term liabilities, respectively, in the unaudited condensed consolidated balance sheets:

	As of June 30, 2023	As of December 31, 2022
	(in thousands)	
Right-of-use assets:		
Operating leases	$ 13,677	$ 14,706
Finance leases	2,897	2,476
Total right-of-use assets	$ 16,574	$ 17,182
Current lease liabilities:		
Operating leases	$ 2,510	$ 2,451
Finance leases	945	796
Long-term leases liabilities:		
Operating leases	14,729	15,751
Finance leases	1,120	957
Total lease liabilities	$ 19,304	$ 19,955

Other information related to leases was as follows:

	Six Months Ended June 30,	
	2023	2022
	(in thousands)	
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows from operating leases (1)	$ 1,319	$ 809
Operating cash flows from finance leases	$ 38	$ 27
Financing cash flows from finance leases	$ 439	$ 406
Right-of-use assets obtained in exchange for lease obligations:		
Finance leases	$ 901	$ 570

(1) Includes reimbursements in 2023 and 2022 of approximately $225,000 and $45,000, respectively, for leasehold improvements.

	As of June 30, 2023	As of December 31, 2022
Weighted average remaining lease term (years):		
Operating leases	6.13	6.60
Finance leases	4.54	2.86
Weighted average discount rate:		
Operating leases	3.95 %	3.95 %
Finance leases	5.27 %	4.37 %

Future minimum lease payments under our non-cancelable leases as of June 30, 2023 were as follows:

	Operating Leases	Finance Leases
	(in thousands)	
Remaining 2023	$ 1,607	$ 560
2024	3,118	881
2025	3,168	504
2026	3,236	220
2027	3,304	56
2028 and thereafter	5,485	—
Total	19,918	2,221
Amount representing interest	(2,283)	(156)
Amount representing leasehold incentives	(396)	—
Present value of future payments	17,239	2,065
Current portion of lease liability	(2,510)	(945)
Long-term portion of lease liability	$ 14,729	$ 1,120

Guarantees or Indemnifications. We enter into contracts that include indemnifications and guarantee provisions. In general, we enter into contracts with indemnities for matters such as breaches of representations and warranties and covenants contained in the contract and/or against certain specified liabilities. Examples of these contracts include dealer agreements, debt agreements, asset purchases and sales agreements, service agreements and procurement agreements. We are unable to estimate our maximum potential exposure under these agreements until an event triggering payment occurs.

Dealer Commitments. As of June 30, 2023 and December 31, 2022, the net unamortized balance of payments to dealers for exclusivity and other similar arrangements was $173.8 million and $121.3 million, respectively. Under these agreements, we paid $31.1 million and $13.7 million during the three months ended June 30, 2023 and 2022, respectively, and we paid $55.7 million and $26.9 million during the six months ended June 30, 2023 and 2022, respectively. We could be obligated to make maximum payments, excluding additional amounts payable on a per watt basis if even higher thresholds are met, as follows:

	Dealer Commitments
	(in thousands)
Remaining 2023	$ 13,235
2024	75,691
2025	60,561
2026	36,904
2027	30,000
2028 and thereafter	—
Total	$ 216,391

NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

Purchase Commitments. In December 2021, we amended an agreement with a supplier in which we agreed to purchase at least 1,420 megawatt hours of solar energy systems, energy storage systems and accessories through December 2023. The amendment does not contain specific dollar amounts or thresholds; however, we estimate these remaining purchase commitments to be approximately $334.6 million. Under this agreement, we purchased $40.1 million and $43.9 million during the three months ended June 30, 2023 and 2022, respectively, and we purchased $118.5 million and $85.7 million during the six months ended June 30, 2023 and 2022, respectively.

Information Technology Commitments. We have certain long-term contractual commitments related to information technology software services and licenses. Future commitments as of June 30, 2023 were as follows:

	Information Technology Commitments
	(in thousands)
Remaining 2023	$ 24,111
2024	7,049
2025	1,682
2026	—
2027	—
2028 and thereafter	—
Total	$ 32,842

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations.

The following discussion and analysis contain forward-looking statements that are subject to risks, uncertainties and assumptions. Our actual results and timing of selected events may differ materially from those anticipated in these forward-looking statements as a result of many factors, including but not limited to those discussed under "Special Note Regarding Forward-Looking Statements" above and "Special Note Regarding Forward-Looking Statements", "Risk Factors" and elsewhere in our Annual Report on Form 10-K filed with the Securities and Exchange Commission ("SEC") on February 23, 2023, our Quarterly Report on Form 10-Q filed with the SEC on April 27, 2023 and elsewhere in this Quarterly Report on Form 10-Q. Moreover, we operate in a very competitive and rapidly changing environment and new risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed in this Quarterly Report on Form 10-Q may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements. Unless the context otherwise requires, the terms "Sunnova," "the Company," "we," "us" and "our" refer to SEI and its consolidated subsidiaries.

Company Overview

We are a leading Energy as a Service provider, serving over 348,000 customers in more than 45 United States ("U.S.") states and territories. Our goal is to be the source of clean, affordable and reliable energy with a simple mission: to power energy independence so home and business owners have the freedom to live life uninterrupted. We were founded to deliver customers a better energy service at a better price; and, through our energy service offerings, we are disrupting the traditional energy landscape and the way the 21st century customer generates and consumes electricity.

We have a differentiated dealer model in which we partner with local dealers who originate, design and install our customers' solar energy systems, energy storage systems and related products and services on our behalf. Our focus on our dealer model enables us to leverage our dealers' specialized knowledge, connections and experience in local markets to drive customer origination while providing our dealers with access to high quality products at competitive prices, as well as technical oversight and expertise. We believe this structure provides operational flexibility, reduces exposure to labor shortages and lowers fixed costs relative to our peers, furthering our competitive advantage.

We offer customers products to power their homes and businesses with affordable solar energy and related products and services. We are able to offer savings compared to utility-based retail rates with little to no up-front expense to the customer in conjunction with solar and solar plus energy storage, and, in the case of the latter, are able to also provide energy resiliency. Our solar service agreements typically take the form of a lease, power purchase agreement ("PPA"), loan or cash purchase; however, we also offer service plans for systems we did not originate. We make it possible in some states for a customer to obtain a new roof and/or other ancillary products. We also allow customers originated through our homebuilder channel the option of purchasing the system when the customer closes on the purchase of a new home. The initial term of our solar service agreements is typically between 10 and 25 years. Service is an integral part of our agreements and includes operations and maintenance, monitoring, repairs and replacements, equipment upgrades, on-site power optimization for the customer (for both supply and demand), the ability to efficiently switch power sources among the solar panel, grid and energy storage system, as appropriate, and diagnostics. During the life of the contract, we have the opportunity to integrate related and evolving servicing and monitoring technologies to upgrade the flexibility and reduce the cost of our customers' energy supply.

In the case of leases and PPAs, we also currently receive tax benefits and other incentives from federal, state and local governments, a portion of which we finance through tax equity, non-recourse debt structures and hedging arrangements in order to fund our upfront costs, overhead and growth investments. We have an established track record of attracting capital from diverse sources. From our inception through June 30, 2023, we have raised more than $13.3 billion in total capital commitments from equity, debt and tax equity investors.

In addition to providing ongoing service as a standard component of our solar service agreements, we also offer ongoing energy services to customers who purchased their solar energy system through third parties. Under these arrangements, we agree to provide monitoring, maintenance and repair services to these customers for the life of the service contract they sign with us. In addition, we offer one-time repair services to customers who purchased their solar energy systems through third parties. We also offer complementary products as well as non-solar financing. Specifically, our offerings include a non-solar loan program enabling customers to finance the purchase of products independent of a solar energy system or energy storage system. We believe the quality and scope of our comprehensive energy service offerings, whether to customers that obtained their solar energy system through us or through another party, is a key differentiator between us and our competitors.

In April 2021, we acquired SunStreet Energy Group, LLC, Lennar Corporation's ("Lennar") residential solar platform that focuses primarily on solar energy systems and energy storage systems for homebuilders. In connection with that acquisition, we entered into an agreement pursuant to which we would be the exclusive solar and storage provider for Lennar's new home communities with solar across the U.S. for a period of four years. We believe the acquisition provides a new strategic path to further scale our solar business, reduces customer acquisition costs, provides a multi-year supply of sites through the development of new solar communities and allows us to pursue the development of clean and resilient microgrids across the U.S.

We also enter into leases with third-party owners of pools of solar energy systems to receive such third party's interest in those systems. In connection therewith, we assume the related customer PPA and lease obligations, entitling us to future customer cash flows as well as certain credits, rebates and incentives (including SRECs) under those agreements, in exchange for a lease payment, whether upfront or over time, to the third-party owner, which may be made in the form of cash or shares of our common stock. We believe such arrangements enhance our long-term contracted cash flows and are complementary to our overall business model.

We commenced operations in January 2013 and began providing solar energy services under our first solar energy system in April 2013. Since then, our brand, innovation and focused execution have driven significant, rapid growth in our market share and in the number of customers on our platform. We operate one of the largest residential fleets of solar energy systems in the U.S., comprising more than 1,919 megawatts of generation capacity and serving over 348,000 customers.

Recent Developments

Financing Transactions

In April 2023, two tax equity investors increased their capital commitment from approximately $200.0 million to approximately $207.8 million. In May 2023, we admitted a tax equity investor with a total capital commitment of approximately $51.0 million. In June 2023, a tax equity investor increased its capital commitment from approximately $150.0 million to approximately $250.0 million. See "*—Liquidity and Capital Resources—Financing Arrangements—Tax Equity Fund Commitments*" below.

In April 2023, the U.S. Department of Energy (the "DOE") announced a conditional commitment to guarantee 90% of up to approximately $3.3 billion of certain of our future financing arrangements under its Innovative Clean Energy Loan Guarantee Program. The commitment is subject to various customary conditions. There is no assurance the DOE's conditional commitment will be fulfilled on the terms announced or at all or that the related guarantees will provide the anticipated benefits to us. In June 2023, the revolving credit facility by and among Sunnova Asset Portfolio 8, LLC ("AP8"), certain of our other subsidiaries party thereto, Banco Popular de Puerto Rico, as agent, and the lenders and other financial institutions party thereto was amended to, among other things, increase the aggregate commitment amount from $150.0 million to $185.0 million. See "*—Liquidity and Capital Resources—Financing Arrangements—Warehouse and Other Debt Financings*" below.

In April 2023, one of our subsidiaries issued $300.0 million in aggregate principal amount of Series 2023-1 Class A solar asset-backed notes and $23.5 million in aggregate principal amount of Series 2023-1 Class B solar asset-backed notes (collectively, the "SOLV Notes") with a maturity date of April 2058. The SOLV Notes were issued at a discount of 5.01% and 11.63% for the Class A and Class B notes, respectively, and bear interest at an annual rate of 5.40% and 7.35% for the Class A and Class B notes, respectively. In May 2023, one of our subsidiaries issued $174.9 million in aggregate principal amount of Series 2023-A Class A solar loan-backed notes, $80.1 million in aggregate principal amount of Series 2023-A Class B solar loan-backed notes and $31.7 million in aggregate principal amount of Series 2023-A Class C solar loan-backed notes (collectively, the "HELXI Notes") with a maturity date of May 2050. The HELXI Notes were issued at a discount of 2.57%, 5.31% and 13.56% for the Class A, Class B and Class C notes, respectively, and bear interest at an annual rate of 5.30%, 5.60% and 6.00% for the Class A, Class B and Class C notes, respectively. See "*—Liquidity and Capital Resources—Financing Arrangements—Securitizations*" below.

Securitizations

As a source of long-term financing, we securitize qualifying solar energy systems, energy storage systems and related solar service agreements into special purpose entities who issue solar asset-backed and solar loan-backed notes to institutional investors. We also securitize the cash flows generated by the membership interests in certain of our indirect, wholly-owned subsidiaries that are the managing member of a tax equity fund that owns a pool of solar energy systems, energy storage systems and related solar service agreements that were originated by one of our wholly-owned subsidiaries. The federal government currently provides business investment tax credits under Section 48(a) (the "Section 48(a) ITC") and residential energy credits under Section 25D (the "Section 25D Credit") of the U.S. Internal Revenue Code of 1986, as amended. For projects that begin construction after December 31, 2024, the Section 48(a) ITC will be replaced with investment tax credits under Section 48E(a) (the "Section 48E ITC"). We do not securitize the Section 48(a) ITC incentives, and currently do not plan to securitize any Section 48E ITC incentives, associated with the solar energy systems and energy storage systems as part of these arrangements. We use the cash flows these solar energy systems and energy storage systems generate to service the monthly, quarterly or semi-annual principal and interest payments on the notes and satisfy the expenses and reserve requirements of the special purpose entities, with any remaining cash distributed to their sole members, who are typically our indirect wholly-owned subsidiaries. In connection with these securitizations, certain of our affiliates receive a fee for managing and servicing the solar energy systems and energy storage systems pursuant to management, servicing, facility administration and asset management agreements. The special purpose entities are also typically required to maintain a liquidity reserve account and a reserve account for equipment replacements and, in certain cases, reserve accounts for financing fund purchase option/withdrawal right exercises or storage system replacement for the benefit of the holders under the applicable series of notes, each of which are funded from initial deposits or cash flows to the levels specified therein. The creditors of these special purpose entities have no recourse to our other assets except as expressly set forth in the terms of the notes. From our inception through June 30, 2023, we have issued $4.3 billion in solar asset-backed and solar loan-backed notes.

Tax Equity Funds

Our ability to offer long-term solar service agreements depends in part on our ability to finance the installation of the solar energy systems and energy storage systems by co-investing with tax equity investors, such as large banks who value the resulting customer receivables and Section 48(a) ITCs or, in the future, Section 48E ITCs, accelerated tax depreciation and other incentives related to the solar energy systems and energy storage systems, primarily through structured investments known as "tax equity". Tax equity investments are generally structured as non-recourse project financings known as "tax equity funds". In the context of distributed generation solar energy, tax equity investors make contributions upfront or in stages based on milestones in exchange for a share of the tax attributes and cash flows emanating from an underlying portfolio of solar energy systems and energy storage systems. In these tax equity funds, the U.S. federal income tax attributes offset taxes that otherwise would have been payable on the investors' other operations. The terms and conditions of each tax equity fund vary significantly by investor and by fund. We continue to negotiate with potential investors to create additional tax equity funds.

In general, our tax equity funds are structured using the "partnership flip" structure. Under partnership flip structures, we and our tax equity investors contribute cash into a partnership. The partnership uses this cash to acquire long-term solar service agreements, solar energy systems and energy storage systems developed by us and sells energy from such solar energy systems and energy storage systems, as applicable, to customers or directly leases the solar energy systems and energy storage systems, as applicable, to customers. We assign these solar service agreements, solar energy systems, energy storage systems and related incentives to our tax equity funds in accordance with the criteria of the specific funds. Upon such assignment and the satisfaction of certain conditions precedent, we are able to draw down on the tax equity fund commitments. The conditions precedent to funding vary across our tax equity funds but generally require that we have entered into a solar service agreement with the customer, the customer meets certain credit criteria, the solar energy system is expected to be eligible for the Section 48(a) ITC or the Section 48E ITC, as applicable, we have a recent appraisal from an independent appraiser establishing the fair market value of the solar energy system and the property is in an approved state or territory. Certain tax equity investors agree to receive a minimum target rate of return, typically on an after-tax basis, which varies by tax equity fund. Prior to receiving a contractual rate of return or a date specified in the contractual arrangements, the tax equity investor receives substantially all of the non-cash value attributable to the solar energy systems and energy storage systems, which includes accelerated depreciation and Section 48(a) ITCs or Section 48E ITCs, as applicable; however, we typically receive a majority of the cash distributions, which are typically paid quarterly. After the tax equity investor receives its contractual rate of return or after a specified date, we receive substantially all of the cash and tax allocations.

We have determined we are the primary beneficiary in these tax equity funds for accounting purposes. Accordingly, we consolidate the assets and liabilities and operating results of these partnerships in our consolidated financial statements. We recognize the tax equity investors' share of the net assets of the tax equity funds as redeemable noncontrolling interests and noncontrolling interests in our consolidated balance sheets. The income or loss allocations reflected in our consolidated statements of operations may create significant volatility in our reported results of operations, including potentially changing net loss attributable to stockholders to net income attributable to stockholders, or vice versa, from quarter to quarter.

We typically have an option to acquire, and our tax equity investors may have an option to withdraw and require us to purchase, all the equity interests our tax equity investor holds in the tax equity funds starting approximately five years after the last solar energy system in the applicable tax equity fund is operational. If we or our tax equity investors exercise this option, we are typically required to pay at least the fair market value of the tax equity investor's equity interest and, in certain cases, a contractual minimum amount. From our inception through June 30, 2023, we have received commitments of approximately

$2.0 billion through the use of tax equity funds, of which an aggregate of $1.7 billion has been funded and $158.8 million remains available for use.

Key Financial and Operational Metrics

We regularly review a number of metrics, including the following key operational and financial metrics, to evaluate our business, measure our performance, identify trends affecting our business, formulate our financial projections and make strategic decisions.

Number of Customers. We define number of customers to include every unique premises on which a Sunnova product is installed or on which Sunnova is obligated to perform services for a counterparty. We track the total number of customers as an indicator of our historical growth and our rate of growth from period to period.

	As of June 30, 2023	As of December 31, 2022	Change
Number of customers	348,600	279,400	69,200

Weighted Average Number of Systems. We calculate the weighted average number of systems based on the number of months a customer and any additional service obligation related to a solar energy system is in-service during a given measurement period. The weighted average number of systems reflects the number of systems at the beginning of a period, plus the total number of new systems added in the period adjusted by a factor that accounts for the partial period nature of those new systems. For purposes of this calculation, we assume all new systems added during a month were added in the middle of that month. The number of systems for any end of period will exceed the number of customers, as defined above, for that same end of period as we are also including any additional services and/or contracts a customer or third party executed for the additional work for the same residence or business. We track the weighted average system count in order to accurately reflect the contribution of the appropriate number of systems to key financial metrics over the measurement period.

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Weighted average number of systems (excluding loan agreements and cash sales)	210,100	163,700	203,800	159,800
Weighted average number of systems with loan agreements	109,500	50,300	99,100	46,000
Weighted average number of systems with cash sales	8,500	3,200	7,900	2,800
Weighted average number of systems	328,100	217,200	310,800	208,600

Adjusted EBITDA. We define Adjusted EBITDA as net income (loss) plus net interest expense, depreciation and amortization expense, income tax expense, financing deal costs, natural disaster losses and related charges, net, losses on extinguishment of long-term debt, realized and unrealized gains and losses on fair value instruments and equity securities, amortization of payments to dealers for exclusivity and other bonus arrangements, legal settlements and excluding the effect of certain non-recurring items we do not consider to be indicative of our ongoing operating performance such as, but not limited to, acquisition costs, losses on unenforceable contracts, indemnification payments to tax equity investors and other non-cash items such as non-cash compensation expense, asset retirement obligation ("ARO") accretion expense, provision for current expected credit losses and non-cash inventory and other impairments.

Adjusted EBITDA is a non-GAAP financial measure we use as a performance measure. We believe investors and securities analysts also use Adjusted EBITDA in evaluating our operating performance. This measurement is not recognized in accordance with accounting principles generally accepted in the United States of America ("GAAP") and should not be viewed as an alternative to GAAP measures of performance. The GAAP measure most directly comparable to Adjusted EBITDA is net income (loss). The presentation of Adjusted EBITDA should not be construed to suggest our future results will be unaffected by non-cash or non-recurring items. In addition, our calculation of Adjusted EBITDA is not necessarily comparable to Adjusted EBITDA as calculated by other companies.

We believe Adjusted EBITDA is useful to management, investors and analysts in providing a measure of core financial performance adjusted to allow for comparisons of results of operations across reporting periods on a consistent basis. These adjustments are intended to exclude items that are not indicative of the ongoing operating performance of the business. Adjusted EBITDA is also used by our management for internal planning purposes, including our consolidated operating budget, and by our board of directors in setting performance-based compensation targets. Adjusted EBITDA should not be considered an alternative to but viewed in conjunction with GAAP results, as we believe it provides a more complete understanding of ongoing business performance and trends than GAAP measures alone. Adjusted EBITDA has limitations as an analytical tool, and you should not consider it in isolation or as a substitute for analysis of our results as reported under GAAP.

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
	(in thousands)			
Reconciliation of Net Loss to Adjusted EBITDA:				
Net loss	$ (100,781)	$ (13,831)	$ (211,127)	$ (35,935)
Interest expense, net	56,947	24,571	142,554	23,556
Interest income	(26,292)	(13,311)	(51,080)	(24,243)
Income tax expense	7,183	—	7,693	—
Depreciation expense	35,204	26,067	67,875	50,807
Amortization expense	7,358	7,297	14,696	14,585
EBITDA	(20,381)	30,793	(29,389)	28,770
Non-cash compensation expense	4,803	4,732	14,318	15,596
ARO accretion expense	1,153	895	2,234	1,735
Financing deal costs	501	36	674	420
Natural disaster losses and related charges, net	809	—	946	—
Acquisition costs	244	1,358	987	2,617
Unrealized (gain) loss on fair value instruments and equity securities	9,815	(8,399)	9,328	(14,761)
Amortization of payments to dealers for exclusivity and other bonus arrangements	1,575	997	2,961	1,925
Legal settlements	—	—	750	—
Provision for current expected credit losses	10,848	9,257	21,107	15,914
Non-cash inventory and other impairments	15,663	—	15,663	—
Indemnification payments to tax equity investors	3,049	—	3,053	—
Adjusted EBITDA	$ 28,079	$ 39,669	$ 42,632	$ 52,216

Interest Income from Customer Notes Receivable; Principal Proceeds from Customer Notes Receivable, Net of Related Revenue; and Proceeds from Investments in Solar Receivables. Under our loan agreements, the customer obtains financing for the purchase of a solar energy system from us and we agree to operate and maintain the solar energy system throughout the duration of the agreement. Pursuant to the terms of the loan agreement, the customer makes scheduled principal and interest payments to us and has the option to prepay principal at any time in part or in full. Whereas we typically recognize payments from customers under our leases and PPAs as revenue, we recognize payments received from customers under our loan agreements (a) as interest income, to the extent attributable to earned interest on the contract that financed the customer's purchase of the solar energy system; (b) as a reduction of a note receivable on the balance sheet, to the extent attributable to a return of principal (whether scheduled or prepaid) on the contract that financed the customer's purchase of the solar energy system; and (c) as revenue, to the extent attributable to payments for operations and maintenance services provided by us. We also enter into leases with third-party owners of pools of solar energy systems to receive such third party's interest in those systems. In connection therewith, we assume the related customer PPA and lease obligations, entitling us to future customer cash flows as well as certain credits, rebates and incentives (including SRECs) under those agreements. We recognize payments received from such third parties as proceeds from investments in solar receivables.

While Adjusted EBITDA effectively captures the operating performance of our leases and PPAs, it only reflects the service portion of the operating performance under our loan agreements. We do not consider our types of solar service agreements differently when evaluating our operating performance. In order to present a measure of operating performance that provides comparability without regard to the different accounting treatment among our different types of solar service agreements, we consider interest income from customer notes receivable, principal proceeds from customer notes receivable, net of related revenue, and proceeds from investments in solar receivables as key performance metrics. We believe these metrics provide a more meaningful and uniform method of analyzing our operating performance when viewed in light of our other key performance metrics across the primary types of solar service agreements.

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
	(in thousands)			
Interest income from customer notes receivable	$ 23,101	$ 13,100	$ 43,189	$ 23,932
Principal proceeds from customer notes receivable, net of related revenue	$ 36,850	$ 24,781	$ 65,948	$ 45,194
Proceeds from investments in solar receivables	$ 2,797	$ 3,822	$ 4,929	$ 5,620

Adjusted Operating Expense. We define Adjusted Operating Expense as total operating expense less depreciation and amortization expense, financing deal costs, natural disaster losses and related charges, net, amortization of payments to dealers for exclusivity and other bonus arrangements, legal settlements, direct sales costs, cost of revenue related to cash sales, cost of revenue related to inventory sales, unrealized gains and losses on fair value instruments, gains and losses on held-for-sale loans and excluding the effect of certain non-recurring items we do not consider to be indicative of our ongoing operating performance such as, but not limited to, acquisition costs, losses on unenforceable contracts, indemnification payments to tax equity investors and other non-cash items such as non-cash compensation expense, ARO accretion expense, provision for current expected credit losses and non-cash inventory and other impairments. Adjusted Operating Expense is a non-GAAP financial measure we use as a performance measure. We believe investors and securities analysts will also use Adjusted Operating Expense in evaluating our performance. This measurement is not recognized in accordance with GAAP and should not be viewed as an alternative to GAAP measures of performance. The GAAP measure most directly comparable to Adjusted Operating Expense is total operating expense. We believe Adjusted Operating Expense is a supplemental financial measure useful to management, analysts, investors, lenders and rating agencies as an indicator of the efficiency of our operations between reporting periods. Adjusted Operating Expense should not be considered an alternative to but viewed in conjunction with GAAP total operating expense, as we believe it provides a more complete understanding of our performance than GAAP measures alone. Adjusted Operating Expense has limitations as an analytical tool and you should not consider it in isolation or as a substitute for analysis of our results as reported under GAAP, including total operating expense.

We use per system metrics, including Adjusted Operating Expense per weighted average system, as an additional way to evaluate our performance. Specifically, we consider the change in this metric from period to period as a way to evaluate our performance in the context of changes we experience in the overall customer base. While the Adjusted Operating Expense figure provides a valuable indicator of our overall performance, evaluating this metric on a per system basis allows for further nuanced understanding by management, investors and analysts of the financial impact of each additional system.

	Three Months Ended June 30, 2023	Three Months Ended June 30, 2022	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022
	(in thousands, except per system data)			
Reconciliation of Total Operating Expense, Net to Adjusted Operating Expense:				
Total operating expense, net	$ 226,148	$ 149,743	$ 436,625	$ 249,671
Depreciation expense	(35,204)	(26,067)	(67,875)	(50,807)
Amortization expense	(7,358)	(7,297)	(14,696)	(14,585)
Non-cash compensation expense	(4,803)	(4,732)	(14,318)	(15,596)
ARO accretion expense	(1,153)	(895)	(2,234)	(1,735)
Financing deal costs	(501)	(36)	(674)	(420)
Natural disaster losses and related charges, net	(809)	—	(946)	—
Acquisition costs	(244)	(1,358)	(987)	(2,617)
Amortization of payments to dealers for exclusivity and other bonus arrangements	(1,575)	(997)	(2,961)	(1,925)
Legal settlements	—	—	(750)	—
Provision for current expected credit losses	(10,848)	(9,257)	(21,107)	(15,914)
Non-cash inventory and other impairments	(15,663)	—	(15,663)	—
Direct sales costs	(12,967)	(493)	(20,564)	(873)
Cost of revenue related to cash sales	(11,958)	(7,906)	(21,303)	(13,721)
Cost of revenue related to inventory sales	(26,543)	(48,967)	(78,322)	(48,967)
Unrealized gain (loss) on fair value instruments	(6,643)	8,239	(5,920)	14,446
Indemnification payments to tax equity investors	(3,049)	—	(3,053)	—
Gain on held-for-sale loans	3	—	3	—
Adjusted Operating Expense	$ 86,833	$ 49,977	$ 165,255	$ 96,957
Adjusted Operating Expense per weighted average system	$ 265	$ 230	$ 532	$ 465

Estimated Gross Contracted Customer Value. We calculate estimated gross contracted customer value as defined below. We believe estimated gross contracted customer value can serve as a useful tool for investors and analysts in comparing the remaining value of our customer contracts to that of our peers.

Estimated gross contracted customer value as of a specific measurement date represents the sum of the present value of the remaining estimated future net cash flows we expect to receive from existing customers during the initial contract term of our customer agreements, which are typically 25 years in length, plus the present value of future net cash flows we expect to receive from the sale of related solar renewable energy certificates ("SRECs"), either under existing contracts or in future sales, plus the cash flows we expect to receive from energy services programs such as grid services, plus the carrying value of outstanding customer loans on our balance sheet. From these aggregate estimated initial cash flows, we subtract the present value of estimated net cash distributions to redeemable noncontrolling interests and noncontrolling interests and estimated operating, maintenance and administrative expenses associated with the solar service agreements. These estimated future cash flows reflect the projected monthly customer payments over the life of our solar service agreements and depend on various factors including but not limited to solar service agreement type, contracted rates, expected sun hours and the projected production capacity of the solar equipment installed. For the purpose of calculating this metric, we discount all future cash flows at 6%.

The anticipated operating, maintenance and administrative expenses included in the calculation of estimated gross contracted customer value include, among other things, expenses related to accounting, reporting, audit, insurance, maintenance and repairs. In the aggregate, we estimate these expenses are $20 per kilowatt per year initially, with 2% annual increases for inflation, and an additional $81 per year non-escalating expense included for energy storage systems. We do not include maintenance and repair costs for inverters and similar equipment as those are largely covered by the applicable product and dealer warranties for the life of the product, but we do include additional cost for energy storage systems, which are only covered by a 10-year warranty. Expected distributions to tax equity investors vary among the different tax equity funds and are based on individual tax equity fund contract provisions.

Estimated gross contracted customer value is forecasted as of a specific date. It is forward-looking and we use judgment in developing the assumptions used to calculate it. Factors that could impact estimated gross contracted customer value include, but are not limited to, customer payment defaults, or declines in utility rates or early termination of a contract in certain circumstances, including prior to installation. The following table presents the calculation of estimated gross contracted customer value as of June 30, 2023 and December 31, 2022, calculated using a 6% discount rate.

	As of June 30, 2023	As of December 31, 2022
	(in millions)	
Estimated gross contracted customer value	$ 7,330	$ 5,875

Sensitivity Analysis. The calculation of estimated gross contracted customer value and associated operational metrics requires us to make a number of assumptions regarding future revenues and costs that may not prove accurate. Accordingly, we present below a sensitivity analysis with a range of assumptions. We consider a discount rate of 6% to be appropriate based on recent transactions that demonstrate a portfolio of solar service agreements is an asset class that can be securitized successfully on a long-term basis with a weighted-average coupon of less than 6%. We also present these metrics with a discount rate of 6% based on industry practice. The appropriate discount rate for these estimates may change in the future due to the level of inflation, rising interest rates, our cost of capital and consumer demand for solar energy systems. In addition, the table below provides a range of estimated gross contracted customer value amounts if different cumulative customer loss rate assumptions were used. We are presenting this information for illustrative purposes only and as a comparison to information published by our peers.

Estimated Gross Contracted Customer Value

	As of June 30, 2023				
	Discount rate				
Cumulative customer loss rate	**4%**	**5%**	**6%**	**7%**	**8%**
	(in millions)				
5%	$ 7,757	$ 7,414	$ 7,114	$ 6,850	$ 6,617
0%	$ 8,043	$ 7,662	$ 7,330	$ 7,039	$ 6,783

Significant Factors and Trends Affecting Our Business

Our results of operations and our ability to grow our business over time could be impacted by a number of factors and trends that affect our industry generally, as well as new offerings of services and products we may acquire or seek to acquire in the future. Additionally, our business is concentrated in certain markets, putting us at risk of region-specific disruptions such as adverse economic, regulatory, political, weather and other conditions. See "*Risk Factors*" in our Annual Report on Form 10-K filed with the SEC on February 23, 2023, our Quarterly Report on Form 10-Q filed with the SEC on April 27, 2023 and in this Quarterly Report on Form 10-Q for further discussion of risks affecting our business.

Financing Availability. Our future growth depends, in significant part, on our ability to raise capital from third-party investors on competitive terms to help finance the origination of our solar energy systems under our solar service agreements. We have historically used debt, such as convertible senior notes, senior notes, asset-backed and loan-backed securitizations and warehouse facilities, tax equity, preferred equity, common equity and other financing strategies to help fund our operations. From our inception through June 30, 2023, we have raised more than $13.3 billion in total capital commitments from equity, debt and tax equity investors. With respect to tax equity, there are a limited number of potential tax equity investors, and the competition for this investment capital is intense. The principal tax credit on which tax equity investors in our industry rely is the Section 48(a) ITC. Prior to the Inflation Reduction Act of 2022 ("IRA"), which was enacted in August 2022, the amount for the Section 48(a) ITC was equal to (a) 30% of the basis of eligible solar property that began construction before 2020 or (b) 26% of the basis of eligible solar property that began construction during 2020, 2021 or 2022. Under the IRA, the Section 48(a) ITC is (a) 26% for eligible solar property that began construction after 2019 and was placed in service before 2022 and (b) 30% for eligible solar property or eligible energy storage property that begins construction before 2025 provided (i) the project satisfies certain labor and apprenticeship requirements, (ii) the project has a maximum net output of less than one megawatt (as measured in alternating current) or (iii) the project began construction prior to January 29, 2023. If no criterion is satisfied, the base amount of the Section 48(a) ITC will be equal to 6%. In addition, the Section 48(a) ITC will be replaced by the Section 48E ITC for eligible solar energy property or eligible energy storage property that begins construction after 2024, and the Section 48E ITC percentage will be the same as the percentage for the Section 48(a) ITC and subject to the same requirements in order to receive the full benefit. The Section 48E ITC percentage will begin to phase down for projects that begin construction after (a) 2033 or (b) if later, the first year after the year in which the U.S. Department of Treasury determines greenhouse gas emissions from the production of electricity in the United States are no more than 25% of 2022 levels. We believe our solar energy systems and energy storage systems generally will not be subject to the labor and apprenticeship requirements of the IRA due to the maximum net output of most of our solar energy systems and energy storage systems. In addition, the IRA added a new provision that allows taxpayers to transfer certain federal income tax credits that arise after 2022, such as the Section 48(a) ITC, to third parties for cash. It is unclear what effect the ability to transfer Section 48(a) ITCs will have on tax equity structures, although we expect the market for tax equity structures to continue for investors who will continue to value benefits that are not transferable, such as accelerated depreciation. We are continuing to evaluate the overall impact and applicability of the IRA to our ability to raise capital from third-party investors.

Our ability to raise capital from third-party investors is also affected by general economic conditions, the state of the capital markets, inflation levels and concerns about our industry or business. Specifically, interest rates have risen and remain subject to volatility that may result from action taken by the Federal Reserve. Recent data have suggested inflationary pressures may be more durable than anticipated, which could result in interest rate increases or continued higher interest rates and/or further tapering of quantitative easing policies enacted towards the outset of the COVID-19 pandemic sooner than previously expected.

Cost of Solar Energy Systems and Energy Storage Systems. Upward pressure on prices of solar energy systems and energy storage systems may occur due to growth in the solar industry, regulatory policy changes, tariffs and duties, inflationary cost pressures and an increase in demand. As a result of these developments, we may pay higher prices on solar modules, which may make it less economical for us to serve certain markets. Attachment rates for energy storage systems have trended higher while the price to acquire has trended lower making the addition of energy storage systems a potential area of growth for us. Downward pressure on prices of solar energy systems and energy storage systems may lead to impairment of our inventory.

Energy Storage Systems. Our energy storage systems increase our customers' independence from the centralized utility and provide on-site backup power when there is a grid outage due to storms, wildfires, other natural disasters and general power failures caused by supply or transmission issues. In addition, at times it can be more economic to consume less energy from the grid or, alternatively, to export solar energy back to the grid. Recent technological advancements for energy storage systems allow the energy storage system to adapt to pricing and utility rate shifts by controlling the inflows and outflows of power, allowing customers to increase the value of their solar energy system plus energy storage system. The energy storage system charges during the day, making the energy it stores available to the home or business when needed. It also features software that can customize power usage for the individual customer, providing backup power, optimizing solar energy consumption versus grid consumption or preventing export to the grid as appropriate. The software is tailored based on utility regulation, economic indicators and grid conditions. The combination of energy control, increased energy resilience and independence from the grid is strong incentive for customers to adopt solar and energy storage. As energy storage systems and their related software features become more advanced, we expect to see increased adoption of energy storage systems.

Climate Change Action. As a result of increasing global awareness of and aversion to climate change impacts, we believe the renewable energy market in which we operate, and investment in climate solutions more broadly, will continue to grow as the impact of climate change increases. This trend, along with increasing commitments to reduce carbon emissions, is expected to result in increased demand for our products and services. Under the current presidential administration, the focus on cleaner energy sources and technology to decarbonize the U.S. economy continues to accelerate. The federal government's administration under President Joe Biden ("Biden administration") has taken immediate steps that we believe signify support for cleaner energy sources, including, but not limited to, rejoining the Paris Climate Accord, re-establishing a social price on carbon used in cost/benefit analysis for policy making and announcing a commitment to transition the U.S. economy to a net-zero carbon economy by 2050. We expect the Biden administration, combined with a closely divided Congress, to continue to take actions that are supportive of the renewable energy industry, such as incentivizing clean energy sources and supporting new investment in areas like renewables.

Government Regulations, Policies and Incentives. Our growth strategy depends in significant part on government policies and incentives that promote and support solar energy and enhance the economic viability of distributed solar. These policies and incentives come in various forms, including net metering, eligibility for accelerated depreciation such as the modified accelerated cost recovery system, SRECs, tax abatements, rebates, renewable targets, incentive programs and tax credits, particularly the Section 48(a) ITC and the Section 25D Credit. The recently enacted IRA expanded and extended the tax credits available to solar energy projects in an effort to achieve the Biden administration's non-binding target of net-zero emissions by 2050, which we expect will increase demand for our services. The IRA allows qualifying homeowners to deduct up to 30% of the cost of installing residential solar energy systems from their U.S. federal income taxes, thereby returning a significant portion of the purchase price of the residential solar energy system to homeowners that may participate in our solar loan programs. Under the terms of the current extension, the residential tax credit will remain at 30% through the end of 2032, reduce to 26% for 2033, reduce to 22% for 2034, and further reduce to 0% after the end of 2034 for residential solar energy systems, unless it is extended before that time. The IRA also extended the investment tax credit for solar energy projects through at least 2033 and, depending on the location of a particular project, its size, its ability to satisfy certain labor and domestic content requirements and the category of consumers it serves, the investment tax credit percentage can range between 6% and 70%. Policies requiring solar on new roofs, such as those enacted in California and New York City, also support the growth of distributed solar. The sale of SRECs has constituted a significant portion of our revenue historically. A change in the value of net metering credits or SRECs or changes in other policies or a loss or reduction in such incentives could decrease the attractiveness of distributed solar to us, our dealers and our customers in applicable markets, which could reduce our customer acquisition opportunities. Such a loss or reduction could also reduce our willingness to pursue certain customer acquisitions due to decreased revenue or income under our solar service agreements. Additionally, such a loss or reduction may also impact the terms of and availability of third-party financing. If any of these government regulations, policies or incentives are adversely amended, delayed, eliminated, reduced, retroactively changed or not extended beyond their current expiration dates or there is a negative impact from the recent federal law changes or proposals, our operating results and the demand for, and the economics of, distributed solar energy may decline, which could harm our business.

Components of Results of Operations

Revenue. We recognize revenue from contracts with customers as we satisfy our performance obligations at a transaction price reflecting an amount of consideration based upon an estimated rate of return, net of cash incentives. We express this rate of return as the solar rate per kilowatt hour ("kWh") in the customer contract. The amount of revenue we recognize does not equal customer cash payments because we satisfy performance obligations ahead of cash receipt or evenly as we provide continuous access on a stand-ready basis to the solar energy system. We reflect the differences between revenue recognition and cash payments received in accounts receivable, other assets or deferred revenue, as appropriate.

PPAs. We have determined solar service agreements under which customers purchase electricity from us should be accounted for as revenue from contracts with customers. We recognize revenue based upon the amount of electricity delivered as determined by remote monitoring equipment at solar rates specified under the contracts. The PPAs generally have a term of 20 or 25 years with an opportunity for customers to renew for up to an additional 10 years, via two five-year or one 10-year renewal options.

Lease Agreements. We are the lessor under lease agreements for solar energy systems and energy storage systems, which we account for as revenue from contracts with customers. We recognize revenue on a straight-line basis over the contract term as we satisfy our obligation to provide continuous access to the solar energy system. The lease agreements generally have a term of 20 or 25 years with an opportunity for customers to renew for up to an additional 10 years, via two five-year or one 10-year renewal options.

We provide customers under our lease agreements a performance guarantee that each solar energy system will achieve a certain specified minimum solar energy production output. The specified minimum solar energy production output may not be achieved due to natural fluctuations in the weather or equipment failures from exposure and wear and tear outside of our control, among other factors. We determine the amount of guaranteed output based on a number of different factors, including (a) the specific site information related to the tilt of the panels, azimuth (a horizontal angle measured clockwise in degrees from a reference direction) of the panels, size of the solar energy system and shading on site; (b) the calculated amount of available irradiance (amount of energy for a given flat surface facing a specific direction) based on historical average weather data and (c) the calculated amount of energy output of the solar energy system.

If the solar energy system does not produce the guaranteed production amount, we are required to provide a bill credit or refund a portion of the previously remitted customer payments, where the bill credit or repayment is calculated as the product of (a) the shortfall production amount and (b) the dollar amount (guaranteed rate) per kWh that is fixed throughout the term of the contract. These bill credits or remittances of a customer's payments, if needed, are payable in January following the end of the first three years of the solar energy system's placed in service date and then every annual period thereafter. See Note 14, Commitments and Contingencies, to our interim unaudited condensed consolidated financial statements ("interim financial statements") included elsewhere in this Quarterly Report on Form 10-Q.

Inventory Sales. Inventory sales revenue represents revenue from the direct sale of inventory to our dealers or other parties. We recognize the related revenue under ASC 606 upon shipment.

Service Revenue. Service revenue includes revenue from the direct sale of solar energy systems and energy storage systems to customers with financing provided by us and sales of service plans and repair services. We recognize revenue from the direct sale of energy storage systems in the period in which the storage components are placed in service. Service plans are available to customers whose solar energy system was not originally sold by Sunnova. We recognize revenue from service plan contracts on a straight-line basis over the life of the contract, which is typically 10 years. We recognize revenue from repair services in the period in which the service was performed.

SRECs. Each SREC represents the environmental benefit of one megawatt hour (1,000 kWh) generated by a solar energy system. We sell SRECs to utilities and other third parties who use the SRECs to meet renewable portfolio standards and can do so separate from the actual electricity generated by the renewable-based generation source. We account for SRECs generated from solar energy systems owned by us, as opposed to those owned by our customers, as governmental incentives with no costs incurred to obtain them and do not consider those SRECs output of the underlying solar energy systems. We classify SRECs as inventory held until sold and delivered to third parties. We enter into economic hedges with major financial institutions related to expected production of SRECs through forward contracts to partially mitigate the risk of decreases in SREC market rates. While these fixed price forward contracts serve as an economic hedge against spot price fluctuations for the SRECs, the contracts do not qualify for hedge accounting and are not designated as cash flow hedges or fair value hedges. The contracts require us to physically deliver the SRECs upon settlement. We recognize the related revenue upon the transfer of the SRECs to the counterparty. The costs related to the sales of SRECs are generally limited to fees for brokered transactions. Accordingly, the sale of SRECs in a period generally has a favorable impact on our operating results for that period. In certain circumstances we are required to purchase SRECs on the open market to fulfill minimum delivery requirements under our forward contracts.

Cash Sales. Cash sales revenue represents revenue from a customer's purchase of a solar energy system from us typically when purchasing a new home. We recognize the related revenue upon verification of the home closing.

Loan Agreements. We recognize payments received from customers under loan agreements (a) as interest income, to the extent attributable to earned interest on the contract that financed the customer's purchase; (b) as a reduction of a note receivable on the balance sheet, to the extent attributable to a return of principal (whether scheduled or prepaid) on the contract that financed the customer's purchase; and (c) as revenue, to the extent attributable to payments for operations and maintenance services provided by us. Similar to our lease agreements, we provide customers under our loan agreements a performance guarantee that each solar energy system will achieve a certain specified minimum solar energy production output, which is a significant proportion of its expected output.

Other Revenue. Other revenue includes certain state and utility incentives. We recognize revenue from state and utility incentives in the periods in which they are earned.

Cost of Revenue—Depreciation. Cost of revenue—depreciation represents depreciation on solar energy systems under lease agreements and PPAs that have been placed in service.

Cost of Revenue—Inventory Sales. Cost of revenue—inventory sales represents costs related to the procurement and direct sale of inventory to our dealers or other parties, including shipping and handling costs.

Cost of Revenue—Other. Cost of revenue—other represents costs related to cash sales, costs to purchase SRECs on the open market, SREC broker fees, payroll and related costs for Sunnova personnel who install solar energy systems and energy storage systems and other items deemed to be a cost of providing the service of selling power to customers or potential customers, such as certain costs to service loan agreements, costs for filing under the Uniform Commercial Code to maintain title, title searches, credit checks on potential customers at the time of initial contract and other similar costs, typically directly related to the volume of customers and potential customers.

Operations and Maintenance Expense. Operations and maintenance expense represents costs from third parties for maintaining and servicing the solar energy systems, property insurance, property taxes and warranties. When services for maintaining and servicing solar energy systems are provided by Sunnova personnel rather than third parties, those amounts are included in payroll costs classified within general and administrative expense. During the six months ended June 30, 2023 and 2022, we incurred $21.7 million and $8.3 million, respectively, of Sunnova personnel costs related to maintaining and servicing solar energy systems, which are classified in general and administrative expense. In addition, operations and maintenance expense includes write downs and write-offs related to inventory adjustments, gains and losses on disposals and other impairments and impairments and costs due to natural disaster losses net of insurance proceeds recovered under our business interruption and property damage insurance coverage for natural disasters.

General and Administrative Expense. General and administrative expense represents costs for our employees, such as salaries, bonuses, benefits and all other employee-related costs, including stock-based compensation, professional fees related to legal, accounting, human resources, finance and training, information technology and software services, marketing and communications, acquisition costs, travel and rent and other office-related expenses. General and administrative expense also includes depreciation on assets not classified as solar energy systems, including information technology software and development projects, vehicles, furniture, fixtures, computer equipment and leasehold improvements and accretion expense on AROs. We capitalize a portion of general and administrative costs, such as payroll-related costs, that is related to employees who are directly involved in the design, construction, installation and testing of the solar energy systems but not directly associated with a particular asset. We also capitalize a portion of general and administrative costs, such as payroll-related costs, that is related to employees who are directly associated with and devote time to internal information technology software and development projects, to the extent of the time spent directly on the application and development stage of such software project.

Other Operating (Income) Expense. Other operating (income) expense primarily represents changes in the fair values of certain financial instruments related to our investments in solar receivables and contingent consideration related to the installation and microgrid earnouts.

Interest Expense, Net. Interest expense, net represents interest on our borrowings under our various debt facilities, amortization of debt discounts and deferred financing costs and realized and unrealized gains and losses on derivative instruments.

Interest Income. Interest income represents interest income from the notes receivable under our loan program and income on short term investments with financial institutions.

Other (Income) Expense. Other (income) expense primarily represents changes in the fair value of certain financial instruments related to non-operating assets.

Income Tax Expense. We account for income taxes under Accounting Standards Codification 740, *Income Taxes*. As such, we determine deferred tax assets and liabilities based on temporary differences resulting from the different treatment of items for tax and financial reporting purposes. We measure deferred tax assets and liabilities using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to reverse. Additionally, we must assess the likelihood that deferred tax assets will be recovered as deductions from future taxable income. We have a full valuation allowance on our deferred tax assets because we believe it is more likely than not that our deferred tax assets will not be realized. We evaluate the recoverability of our deferred tax assets on a quarterly basis. The income tax expense includes the effects of taxes incurred in U.S. territories where the tax code for the respective territory may have separate tax reporting requirements, as applicable.

Net Income (Loss) Attributable to Redeemable Noncontrolling Interests and Noncontrolling Interests. Net income (loss) attributable to redeemable noncontrolling interests and noncontrolling interests represents tax equity interests in the net income or loss of certain consolidated subsidiaries based on hypothetical liquidation at book value.

Results of Operations—Three Months Ended June 30, 2023 Compared to Three Months Ended June 30, 2022

The following table sets forth our unaudited condensed consolidated statements of operations data for the periods indicated.

	Three Months Ended June 30, 2023	Three Months Ended June 30, 2022	Change
	(in thousands)		
Revenue	$ 166,377	$ 147,012	$ 19,365
Operating expense:			
Cost of revenue—depreciation	30,322	23,314	7,008
Cost of revenue—inventory sales	26,543	48,967	(22,424)
Cost of revenue—other	31,394	9,838	21,556
Operations and maintenance	29,865	7,252	22,613
General and administrative	101,384	68,242	33,142
Other operating (income) expense	6,640	(7,870)	14,510
Total operating expense, net	226,148	149,743	76,405
Operating loss	(59,771)	(2,731)	(57,040)
Interest expense, net	56,947	24,571	32,376
Interest income	(26,292)	(13,311)	(12,981)
Other (income) expense	3,172	(160)	3,332
Loss before income tax	(93,598)	(13,831)	(79,767)
Income tax expense	7,183	—	7,183
Net loss	(100,781)	(13,831)	(86,950)
Net income (loss) attributable to redeemable noncontrolling interests and noncontrolling interests	(14,690)	27,306	(41,996)
Net loss attributable to stockholders	$ (86,091)	$ (41,137)	$ (44,954)

Revenue

	Three Months Ended June 30, 2023	Three Months Ended June 30, 2022	Change
	(in thousands)		
PPA revenue	$ 39,155	$ 31,159	$ 7,996
Lease revenue	34,159	24,025	10,134
Inventory sales revenue	26,492	54,245	(27,753)
Service revenue	19,981	1,726	18,255
SREC revenue	15,055	14,687	368
Cash sales revenue	21,724	15,414	6,310
Loan revenue	8,112	4,194	3,918
Other revenue	1,699	1,562	137
Total	$ 166,377	$ 147,012	$ 19,365

Revenue increased by $19.4 million in the three months ended June 30, 2023 compared to the three months ended June 30, 2022 primarily due to an increased number of solar energy systems in service. The weighted average number of systems (excluding systems with loan agreements, service-only agreements and cash sales) increased from approximately 124,200 for the three months ended June 30, 2022 to approximately 159,700 for the three months ended June 30, 2023. Excluding SREC revenue, revenue under our loan agreements, inventory sales revenue, cash sales revenue and service revenue, on a weighted average number of systems basis, revenue remained relatively flat at $457 per system for the three months ended June 30, 2022 compared to $470 per system for the same period in 2023 (3% increase). Inventory sales revenue decreased by $27.8 million in the three months ended June 30, 2023 compared to the three months ended June 30, 2022 primarily due to our dealers having sufficient inventory on hand from prior purchases. Service revenue increased by $18.3 million in the three months ended June 30, 2023 compared to the three months ended June 30, 2022 primarily due to an increased focus on direct sales of additional services to existing customers. SREC revenue increased by $368,000 in the three months ended June 30, 2023 compared to the three months ended June 30, 2022 primarily due to an increase in SREC prices in New Jersey. The amount of SREC revenue recognized in each period is also affected by the total number of solar energy systems, weather seasonality and hedge and spot prices associated with the timing of the sale of SRECs. On a weighted average number of systems basis, revenues under our loan agreements decreased from $83 per system for the three months ended June 30, 2022 to $74 per system for the same period in 2023 (11% decrease) primarily due to lower battery attachment rates.

Cost of Revenue—Depreciation

	Three Months Ended June 30,		
	2023	2022	Change
		(in thousands)	
Cost of revenue—depreciation	$ 30,322	$ 23,314	$ 7,008

Cost of revenue—depreciation increased by $7.0 million in the three months ended June 30, 2023 compared to the three months ended June 30, 2022. This increase was primarily due to an increase in the weighted average number of systems (excluding systems with loan agreements, service-only agreements and cash sales) from approximately 124,200 for the three months ended June 30, 2022 to approximately 159,700 for the three months ended June 30, 2023. On a weighted average number of systems basis, cost of revenue—depreciation remained relatively flat at $188 per system for the three months ended June 30, 2022 compared to $190 per system for the same period in 2023 (1% increase).

Cost of Revenue—Inventory Sales

	Three Months Ended June 30,		
	2023	2022	Change
		(in thousands)	
Cost of revenue—inventory sales	$ 26,543	$ 48,967	$ (22,424)

Cost of revenue—inventory sales decreased by $22.4 million in the three months ended June 30, 2023 compared to the three months ended June 30, 2022 due to lower inventory sales activity.

Cost of Revenue—Other

	Three Months Ended June 30,		
	2023	2022	Change
		(in thousands)	
Cost of revenue—other	$ 31,394	$ 9,838	$ 21,556

Cost of revenue—other increased by $21.6 million in the three months ended June 30, 2023 compared to the three months ended June 30, 2022. This increase was primarily due to costs related to services of $16.2 million and costs related to cash sales revenue of $4.1 million.

Operations and Maintenance Expense

	Three Months Ended June 30,		
	2023	2022	Change
		(in thousands)	
Operations and maintenance	$ 29,865	$ 7,252	$ 22,613

Operations and maintenance expense increased by $22.6 million in the three months ended June 30, 2023 compared to the three months ended June 30, 2022 primarily due to higher impairments and losses on disposals, truck roll costs and property insurance costs. Operations and maintenance expense per weighted average system, excluding net natural disaster losses and non-cash inventory and other impairments, increased from $43 per system for the three months ended June 30, 2022 to $64 per system for the three months ended June 30, 2023 primarily due to higher truck roll and property insurance costs.

General and Administrative Expense

	Three Months Ended June 30,		
	2023	2022	Change
		(in thousands)	
General and administrative	$ 101,384	$ 68,242	$ 33,142

General and administrative expense increased by $33.1 million in the three months ended June 30, 2023 compared to the three months ended June 30, 2022 primarily due to increases in (a) payroll and employee related expenses primarily due to the hiring of personnel to support growth of $14.6 million, (b) fees of $3.7 million, (c) consultants, contractors, and professional fees of $2.7 million, (d) information technology expense of $2.4 million, (e) legal expense of $2.3 million, (f) depreciation expense of $2.1 million and (g) provision for current expected credit losses due to the growth in loan customers of $1.6 million.

Other Operating (Income) Expense

	Three Months Ended June 30,		
	2023	2022	Change
		(in thousands)	
Other operating (income) expense	$ 6,640	$ (7,870)	$ 14,510

Other operating (income) expense changed by $14.5 million in the three months ended June 30, 2023 compared to the three months ended June 30, 2022 primarily due to changes in the fair value of certain financial instruments and contingent consideration.

Interest Expense, Net

	Three Months Ended June 30,		
	2023	2022	Change
		(in thousands)	
Interest expense, net	$ 56,947	$ 24,571	$ 32,376

Interest expense, net increased by $32.4 million in the three months ended June 30, 2023 compared to the three months ended June 30, 2022. This increase was primarily due to an increase in interest expense of $38.9 million due to higher levels of debt outstanding in 2023 compared to 2022 and a decrease in realized gains on derivatives of $37.0 million. This was partially offset by an increase in unrealized gains on derivatives of $48.5 million.

Interest Income

	Three Months Ended June 30, 2023	Three Months Ended June 30, 2022	Change
		(in thousands)	
Interest income	$ 26,292	$ 13,311	$ 12,981

Interest income increased by $13.0 million in the three months ended June 30, 2023 compared to the three months ended June 30, 2022. This increase was primarily due to an increase in the weighted average number of systems with loan agreements from approximately 50,300 for the three months ended June 30, 2022 to approximately 109,500 for the three months ended June 30, 2023. On a weighted average number of systems basis, loan interest income decreased from $260 per system for the three months ended June 30, 2022 to $211 per system for the three months ended June 30, 2023 primarily due to an increase in the volume of accessory loans, which have smaller principal balances.

Income Tax Expense

Income tax expense increased by $7.2 million in the three months ended June 30, 2023 compared to the three months ended June 30, 2022 primarily due to an increase in taxable income related to tax gains recognized on the sale of solar energy systems and energy storage systems located in separate tax-reporting jurisdictions.

Net Income (Loss) Attributable to Redeemable Noncontrolling Interests and Noncontrolling Interests

Net income (loss) attributable to redeemable noncontrolling interests and noncontrolling interests changed by $42.0 million in the three months ended June 30, 2023 compared to the three months ended June 30, 2022 primarily due to an increase in loss attributable to noncontrolling interests from tax equity funds added in 2021, 2022 and 2023.

Results of Operations—Six Months Ended June 30, 2023 Compared to Six Months Ended June 30, 2022

The following table sets forth our unaudited condensed consolidated statements of operations data for the periods indicated.

	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022	Change
	(in thousands)		
Revenue	$ 328,073	$ 212,734	$ 115,339
Operating expense:			
Cost of revenue—depreciation	58,519	45,272	13,247
Cost of revenue—inventory sales	78,322	48,967	29,355
Cost of revenue—other	50,618	17,407	33,211
Operations and maintenance	40,604	14,013	26,591
General and administrative	202,645	138,465	64,180
Other operating (income) expense	5,917	(14,453)	20,370
Total operating expense, net	436,625	249,671	186,954
Operating loss	(108,552)	(36,937)	(71,615)
Interest expense, net	142,554	23,556	118,998
Interest income	(51,080)	(24,243)	(26,837)
Other (income) expense	3,408	(315)	3,723
Loss before income tax	(203,434)	(35,935)	(167,499)
Income tax expense	7,693	—	7,693
Net loss	(211,127)	(35,935)	(175,192)
Net income (loss) attributable to redeemable noncontrolling interests and noncontrolling interests	(43,953)	40,260	(84,213)
Net loss attributable to stockholders	$ (167,174)	$ (76,195)	$ (90,979)

Revenue

	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022	Change
	(in thousands)		
PPA revenue	$ 60,901	$ 52,344	$ 8,557
Lease revenue	65,502	45,805	19,697
Inventory sales revenue	86,406	54,245	32,161
Service revenue	35,959	2,715	33,244
SREC revenue	22,846	20,931	1,915
Cash sales revenue	38,543	26,762	11,781
Loan revenue	15,255	7,570	7,685
Other revenue	2,661	2,362	299
Total	$ 328,073	$ 212,734	$ 115,339

Revenue increased by $115.3 million in the six months ended June 30, 2023 compared to the six months ended June 30, 2022 primarily due to inventory sales and an increased number of solar energy systems in service. The weighted average number of systems (excluding systems with loan agreements, service-only agreements and cash sales) increased from approximately 120,300 for the six months ended June 30, 2022 to approximately 154,800 for the six months ended June 30, 2023. Excluding SREC revenue, revenue under our loan agreements, inventory sales revenue, cash sales revenue and service revenue, on a weighted average number of systems basis, revenue remained relatively flat at $836 per system for the six months ended June 30, 2022 compared to $834 per system for the same period in 2023. Inventory sales revenue increased by $32.2 million in the six months ended June 30, 2023 compared to the six months ended June 30, 2022 due to the sale of inventory to our dealers or other parties, which began in April 2022. Service revenue increased by $33.2 million in the six months ended June 30, 2023 compared to the six months ended June 30, 2022 primarily due to an increased focus on direct sales of additional services to existing customers. SREC revenue increased by $1.9 million in the six months ended June 30, 2023 compared to the six months ended June 30, 2022 primarily due to an increase in SREC prices in New Jersey. The amount of SREC revenue recognized in each period is also affected by the total number of solar energy systems, weather seasonality and hedge and spot prices associated with the timing of the sale of SRECs. On a weighted average number of systems basis, revenues under our loan agreements decreased from $165 per system for the six months ended June 30, 2022 to $154 per system for the same period in 2023 (6% decrease) primarily due to lower battery attachment rates.

Cost of Revenue—Depreciation

	Six Months Ended June 30,		
	2023	2022	Change
		(in thousands)	
Cost of revenue—depreciation	$ 58,519	$ 45,272	$ 13,247

Cost of revenue—depreciation increased by $13.2 million in the six months ended June 30, 2023 compared to the six months ended June 30, 2022. This increase was primarily due to an increase in the weighted average number of systems (excluding systems with loan agreements, service-only agreements and cash sales) from approximately 120,300 for the six months ended June 30, 2022 to approximately 154,800 for the six months ended June 30, 2023. On a weighted average number of systems basis, cost of revenue—depreciation remained relatively flat at $376 per system for the six months ended June 30, 2022 compared to $378 per system for the same period in 2023.

Cost of Revenue—Inventory Sales

	Six Months Ended June 30,		
	2023	2022	Change
		(in thousands)	
Cost of revenue—inventory sales	$ 78,322	$ 48,967	$ 29,355

Cost of revenue—inventory sales increased by $29.4 million in the six months ended June 30, 2023 compared to the six months ended June 30, 2022. This increase was due to costs from the sale of inventory to our dealers or other parties, which began in April 2022.

Cost of Revenue—Other

	Six Months Ended June 30,		
	2023	2022	Change
		(in thousands)	
Cost of revenue—other	$ 50,618	$ 17,407	$ 33,211

Cost of revenue—other increased by $33.2 million in the six months ended June 30, 2023 compared to the six months ended June 30, 2022. This increase was primarily due to costs related to services of $23.4 million and costs related to cash sales revenue of $7.6 million.

Operations and Maintenance Expense

	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022	Change
	(in thousands)		
Operations and maintenance	$ 40,604	$ 14,013	$ 26,591

Operations and maintenance expense increased by $26.6 million in the six months ended June 30, 2023 compared to the six months ended June 30, 2022 primarily due to higher truck roll costs, impairments and losses on disposals and property insurance costs. Operations and maintenance expense per weighted average system, excluding net natural disaster losses and non-cash inventory and other impairments, increased from $86 per system for the six months ended June 30, 2022 to $116 per system for the six months ended June 30, 2023 primarily due to higher truck roll costs.

General and Administrative Expense

	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022	Change
	(in thousands)		
General and administrative	$ 202,645	$ 138,465	$ 64,180

General and administrative expense increased by $64.2 million in the six months ended June 30, 2023 compared to the six months ended June 30, 2022 primarily due to increases in (a) payroll and employee related expenses primarily due to the hiring of personnel to support growth of $30.5 million, (b) consultants, contractors and professional fees of $6.1 million, (c) provision for current expected credit losses primarily due to the growth in loan customers of $5.2 million, (d) legal expense of $4.7 million, (e) fees of $4.3 million, (f) information technology expense of $3.9 million and (g) depreciation expense of $3.8 million.

Other Operating (Income) Expense

	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022	Change
	(in thousands)		
Other operating (income) expense	$ 5,917	$ (14,453)	$ 20,370

Other operating (income) expense changed by $20.4 million in the six months ended June 30, 2023 compared to the six months ended June 30, 2022 primarily due to changes in the fair value of certain financial instruments and contingent consideration.

Interest Expense, Net

	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022	Change
	(in thousands)		
Interest expense, net	$ 142,554	$ 23,556	$ 118,998

Interest expense, net increased by $119.0 million in the six months ended June 30, 2023 compared to the six months ended June 30, 2022. This increase was primarily due to an increase in interest expense of $71.6 million primarily due to the issuance of additional debt in 2022 and 2023, an increase in unrealized losses on derivatives of $9.0 million and a decrease in realized gains on derivatives of $29.7 million.

Interest Income

	Six Months Ended June 30,		
	2023	2022	Change
	(in thousands)		
Interest income	$ 51,080	$ 24,243	$ 26,837

Interest income increased by $26.8 million in the six months ended June 30, 2023 compared to the six months ended June 30, 2022. This increase was primarily due to an increase in the weighted average number of systems with loan agreements from approximately 46,000 for the six months ended June 30, 2022 to approximately 99,100 for the six months ended June 30, 2023. On a weighted average number of systems basis, loan interest income decreased from $520 per system for the six months ended June 30, 2022 to $436 per system for the six months ended June 30, 2023 primarily due to an increase in the volume of accessory loans, which have smaller principal balances.

Income Tax Expense

Income tax expense increased by $7.7 million in the six months ended June 30, 2023 compared to the six months ended June 30, 2022 primarily due to an increase in taxable income related to tax gains recognized on the sale of solar energy systems and energy storage systems located in separate tax-reporting jurisdictions.

Net Income (Loss) Attributable to Redeemable Noncontrolling Interests and Noncontrolling Interests

Net income (loss) attributable to redeemable noncontrolling interests and noncontrolling interests changed by $84.2 million in the six months ended June 30, 2023 compared to the six months ended June 30, 2022 primarily due to an increase in loss attributable to noncontrolling interests from tax equity funds added in 2021, 2022 and 2023.

Liquidity and Capital Resources

As of June 30, 2023, we had total cash of $405.9 million, of which $187.3 million was unrestricted, and $301.1 million of available borrowing capacity under our various financing arrangements. We seek to maintain diversified and cost-effective funding sources to finance and maintain our operations, fund capital expenditures, including customer acquisitions, and satisfy obligations arising from our indebtedness, which may include reducing debt prior to scheduled maturities through debt repurchases, either in the open market or in privately negotiated transactions, through debt redemptions or tender offers, or through repayments of bank borrowings. For a discussion of cash requirements from contractual and other obligations, see Note 14, Commitments and Contingencies, to our interim financial statements included elsewhere in this Quarterly Report on Form 10-Q. Historically, our primary sources of liquidity have included non-recourse and recourse debt, investor asset-backed and loan-backed securitizations and cash generated from operations. Our business model requires substantial outside financing arrangements to grow the business and facilitate the deployment of additional solar energy systems. We will seek to raise additional required capital, including from new and existing tax equity investors, additional borrowings, securitizations and other potential debt and equity financing sources. We believe our cash and financing arrangements, as further described below, will be sufficient to meet our anticipated cash needs for at least the next twelve months. As of June 30, 2023, we were in compliance with all debt covenants under our financing arrangements.

As of June 30, 2023, our liquidity and financial condition had not been materially affected by the recent adverse developments affecting financial institutions and companies in the financial services industry, including Silicon Valley Bank and Credit Suisse. For a discussion of the potential impact of these adverse developments, see Item 1A. Risk Factors included elsewhere in this Quarterly Report on Form 10-Q.

Financing Arrangements

The following is an update to the description of our various financing arrangements. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Financing Arrangements*" in our Annual Report on Form 10-K filed with the SEC on February 23, 2023 for a full description of our various financing arrangements.

Tax Equity Fund Commitments

As of June 30, 2023, we had undrawn committed capital of approximately $158.8 million under our tax equity funds, which may only be used to purchase and install solar energy systems. In February 2023, a tax equity investor increased its capital commitment from approximately $30.0 million to approximately $125.0 million. In March 2023, a tax equity investor increased its capital commitment from approximately $41.0 million to approximately $51.3 million. In April 2023, two tax equity investors increased their capital commitment from approximately $200.0 million to approximately $207.8 million. In May 2023, we admitted a tax equity investor with a total capital commitment of approximately $51.0 million. In June 2023, a tax equity investor increased its capital commitment from approximately $150.0 million to approximately $250.0 million.

Warehouse and Other Debt Financings

In February 2023, we amended the revolving credit facility by and among Sunnova EZ-Own Portfolio, LLC ("EZOP"), certain of our other subsidiaries party thereto, Atlas Securitized Products Holdings, L.P. (as successor to Credit Suisse AG, New York Branch), as agent, and the lenders and other financial institutions party thereto, to, among other things, (a) increase the aggregate commitment amount from $450.0 million to $675.0 million, (b) increase the uncommitted maximum facility amount from $575.0 million to $800.0 million, (c) amend certain provisions related to the allocation of certain payments made to the lenders, (d) amend certain provisions related to excess concentration limits and eligibility criteria to permit us and our affiliates to provide warranties of, and replacements for, load controllers and generators in connection with the related solar loan contracts and (e) add provisions to allow EZOP to request an increase in the aggregate commitment amount (subject to certain conditions) by adding additional lenders to the EZOP revolving credit facility. In February 2023, Credit Suisse AG ("Credit Suisse") sold a significant part of its Securitized Products Group (the "Credit Suisse Securitized Products Sale") to Apollo Global Management ("Apollo"). Subsequently, Apollo publicly announced the majority of the assets and professionals associated with the sale are now part of or managed by ATLAS SP Partners, a new stand-alone credit firm focused on asset-backed financing and capital markets solutions ("Atlas"). In March 2023, in connection with the Credit Suisse Securitized Products Sale, certain of our subsidiaries consented to the assignment of the loans and commitments of the Credit Suisse lenders to the Atlas lenders (such assignment, the "EZOP Assignment") under the EZOP revolving credit facility. In connection with the EZOP Assignment, Credit Suisse AG, New York Branch ("CSNYB") resigned as the agent under the EZOP revolving credit facility, Atlas Securitized Products Holdings, L.P. (the "Successor Agent") was appointed as the successor agent thereunder and, in connection with such appointment, the Successor Agent assumed the agent roles under the EZOP revolving credit facility. In connection with the appointment of Atlas as Successor Agent, the borrowers and the lenders party to the applicable agency resignation and appointment agreements consented to, among other things, Atlas' ability to assign the agent role under the EZOP revolving credit facility to one of its affiliates subject to certain conditions set forth therein. In March 2023, after the EZOP Assignment, we amended the EZOP revolving credit facility to, among other things, (a) increase the aggregate commitment amount from $675.0 million to $775.0 million, (b) increase the uncommitted maximum facility amount from $800.0 million to $900.0 million, (c) amend and supplement certain defaulting lender provisions and (d) update the references from CSNYB, the predecessor agent, to Atlas, the successor agent, and remove or modify certain provisions related to the borrowing, funding and allocation of payments among the previous lender syndicate (that previously included lenders affiliated with Credit Suisse that, prior to the date of the amendment to the EZOP revolving credit facility and pursuant to the EZOP Assignment, had assigned their loans and commitments to lenders affiliated with Atlas). We believe we will be able to meet this obligation due in November 2024 through refinancing of the facility. We intend to complete this refinancing during the third quarter of 2023.

In March 2023, in connection with the Credit Suisse Securitized Products Sale, certain of our subsidiaries consented to the assignment of the loans and commitments of the Credit Suisse lenders to the Atlas lenders (such assignment, the "TEPH Assignment") under the revolving credit facility by and among Sunnova TEP Holdings, LLC ("TEPH"), certain of our other subsidiaries party thereto, Atlas Securitized Products Holdings, L.P. (as successor to CSNYB), as agent, and the lenders and other financial institutions party thereto. In connection with the TEPH Assignment, CSNYB resigned as the agent under the TEPH revolving credit facility, Atlas was appointed as the successor agent thereunder and, in connection with such appointment, the Successor Agent assumed the agent roles under the TEPH revolving credit facility. In connection with the appointment of Atlas as Successor Agent, the borrowers and the lenders party to the applicable agency resignation and appointment agreements consented to, among other things, Atlas' ability to assign the agent role under the TEPH revolving credit facility to one of its affiliates subject to certain conditions set forth therein. In March 2023, after the TEPH Assignment, we amended the TEPH revolving credit facility to, among other things, (a) increase the aggregate commitment amount from $600.0 million to $700.0 million, (b) increase the uncommitted maximum facility amount from $689.7 million to $789.7 million, (c) add provisions to allow TEPH to request an increase in the aggregate commitment amount (subject to certain conditions) by adding additional lenders to the TEPH revolving credit facility, (d) amend and supplement certain defaulting lender provisions, (e) modify the hedging provisions to give all hedge counterparties the benefit of certain payment priorities and certain other terms previously limited to qualifying hedge counterparties (as defined by the TEPH revolving credit facility), to extend the time period for the event of default resulting from hedge counterparties ceasing to be qualifying hedge counterparties and to make other hedge-related amendments, (f) update the references from CSNYB, the predecessor administrative agent, to Atlas, the successor administrative agent, and remove or modify certain provisions related to the borrowing, funding and allocation of payments among the previous lender syndicate (that previously included lenders affiliated with Credit Suisse that, prior to the date of the amendment to the TEPH revolving credit facility and pursuant to the TEPH Assignment, had assigned their loans and commitments to lenders affiliated with Atlas), (g) add European Union bail-in provisions and (h) add certain syndication-related provisions. We believe we will be able to meet this obligation due in November 2024 through refinancing of the facility. We intend to complete this refinancing during the third quarter of 2023.

In March 2023, the AP8 revolving credit facility was amended to, among other things, increase the aggregate commitment amount from $75.0 million to $150.0 million. In June 2023, the AP8 revolving credit facility was amended to, among other things, increase the aggregate commitment amount from $150.0 million to $185.0 million. We believe we will be able to meet this obligation due in September 2024 through refinancing of the facility or alternatively through the use of our existing cash resources and liquidity.

In March 2023, Sunnova Inventory Supply, LLC, ("IS") entered into a secured revolving credit facility with Texas Capital Bank, as agent, and the lenders party thereto, for an aggregate commitment amount of $50.0 million with a maturity date of the earlier of (a) March 2026 and (b) six months from the latest maturity date of any material parent credit facility (defined as a parent credit facility with a commitment of $250.0 million or more that, if terminated could individually be expected to result in a liquidity event (as defined by the IS revolving credit facility)). The proceeds of the loans under the IS revolving credit facility are available to purchase or otherwise acquire certain accounts receivable and inventory, fund certain reserve accounts that are required to be maintained by IS in accordance with the revolving credit agreement and pay fees and expenses incurred in connection with the IS revolving credit facility. Interest on the borrowings under the IS revolving credit facility is due monthly. Borrowings under the IS revolving credit facility bear interest at an annual rate based on Term SOFR (as defined by the IS revolving credit facility).

In April 2023, the DOE announced a conditional commitment to guarantee 90% of up to approximately $3.3 billion of certain of our future financing arrangements under its Innovative Clean Energy Loan Guarantee Program. The commitment is subject to various customary conditions. There is no assurance the DOE's conditional commitment will be fulfilled on the terms announced or at all or that the related guarantees will provide the anticipated benefits to us.

Securitizations

In April 2023, one of our subsidiaries issued $300.0 million in aggregate principal amount of Series 2023-1 Class A solar asset-backed notes and $23.5 million in aggregate principal amount of Series 2023-1 Class B solar asset-backed notes with a maturity date of April 2058. The SOLV Notes were issued at a discount of 5.01% and 11.63% for the Class A and Class B notes, respectively, and bear interest at an annual rate of 5.40% and 7.35% for the Class A and Class B notes, respectively.

In May 2023, one of our subsidiaries issued $174.9 million in aggregate principal amount of Series 2023-A Class A solar loan-backed notes, $80.1 million in aggregate principal amount of Series 2023-A Class B solar loan-backed notes and $31.7 million in aggregate principal amount of Series 2023-A Class C solar loan-backed notes with a maturity date of May 2050. The HELXI Notes were issued at a discount of 2.57%, 5.31% and 13.56% for the Class A, Class B and Class C notes, respectively, and bear interest at an annual rate of 5.30%, 5.60% and 6.00% for the Class A, Class B and Class C notes, respectively.

Historical Cash Flows—Six Months Ended June 30, 2023 Compared to Six Months Ended June 30, 2022

The following table summarizes our cash flows for the periods indicated:

	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022	Change
	(in thousands)		
Net cash used in operating activities	$ (182,542)	$ (162,343)	$ (20,199)
Net cash used in investing activities	(1,173,923)	(893,992)	(279,931)
Net cash provided by financing activities	1,216,765	1,028,328	188,437
Net decrease in cash, cash equivalents and restricted cash	$ (139,700)	$ (28,007)	$ (111,693)

Operating Activities

Net cash used in operating activities increased by $20.2 million in the six months ended June 30, 2023 compared to the six months ended June 30, 2022. This increase is primarily a result of an increase in payments to dealers for exclusivity and other bonus arrangements of $28.8 million, offset by a decrease in purchases of inventory and prepaid inventory of $56.7 million. This increase is also due to net outflows of $59.0 million in 2023 compared to net inflows of $13.9 million in 2022 based on: (a) our net loss of $211.1 million in 2023 excluding non-cash operating items of $152.2 million, primarily from depreciation, impairments and losses on disposals, amortization of intangible assets, amortization of deferred financing costs and debt discounts, unrealized net losses on derivatives, unrealized net losses on fair value instruments and equity securities and equity-based compensation charges, which results in net outflows of $59.0 million and (b) our net loss of $35.9 million in 2022 excluding non-cash operating items of $49.9 million, primarily from depreciation, impairments and losses on disposals, amortization of intangible assets, amortization of deferred financing costs and debt discounts, unrealized net gains on derivatives, unrealized net gains on fair value instruments and equity-based compensation charges, which results in net inflows of $13.9 million. These net differences between the two periods resulted in a net change in operating cash flows of $72.9 million in 2023 compared to 2022.

Investing Activities

Net cash used in investing activities increased by $279.9 million in the six months ended June 30, 2023 compared to the six months ended June 30, 2022. This increase is primarily a result of an increase in purchases of property and equipment, primarily solar energy systems, of $367.7 million. This increase is partially offset by a decrease in payments for investments and customer notes receivable of $56.1 million and an increase in proceeds from customer notes receivable of $28.3 million.

Financing Activities

Net cash provided by financing activities increased by $188.4 million in the six months ended June 30, 2023 compared to the six months ended June 30, 2022. This increase is primarily a result of increases in net contributions from our redeemable noncontrolling interests and noncontrolling interests of $136.0 million and net borrowings under our debt facilities of $59.0 million.

Seasonality

The amount of electricity our solar energy systems produce is dependent in part on the amount of sunlight, or irradiation, where the assets are located. Because shorter daylight hours in winter months and poor weather conditions due to cloud cover, rain or snow results in less irradiation, the output of solar energy systems will vary depending on the season or the year. While we expect seasonal variability to occur, the geographic diversity in our assets helps to mitigate our aggregate seasonal variability.

Our Easy Plan PPAs with variable billing, Solar 20/20 Plan Agreements and Fixed Rate Power Purchase Agreements are subject to seasonality because we sell all the solar energy system's energy output to the customer at either a fixed price per kWh or indexed, variable rate per kWh. Our Easy Plan PPAs with balanced billing are not subject to seasonality (from a cash flow perspective or the customer's perspective) within a given year because the customer's payments are levelized on an annualized basis so we insulate the customer from monthly fluctuations in production. In addition, energy production true-ups and production estimate adjustments for Easy Plan PPAs with balanced billing are calculated over an entire year. However, our Easy Plan PPAs with balanced billing are subject to seasonality from a revenue recognition perspective because, similar to the Easy Plan PPAs with variable billing, we sell all the solar energy system's energy output to the customer. Our lease agreements are not subject to seasonality within a given year because we lease the solar energy system to the customer at a fixed monthly rate and the reference period for any production guarantee payments is a full year. Finally, our loan agreements are not subject to seasonality within a given year because the monthly installment payments for the financing of the customers' purchase of the solar energy system are fixed and the reference period for any production guarantee is a full year.

In addition, weather may impact our dealers' ability to install solar energy systems and energy storage systems. For example, the ability to install solar energy systems and energy storage systems during the winter months in the Northeastern U.S. is limited. This can impact the timing of when solar energy systems and energy storage systems can be installed and when we can acquire and begin to generate revenue from solar energy systems and energy storage systems.

Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition and results of operations is based upon our interim financial statements, which have been prepared in accordance with GAAP, which requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue, expenses, cash flows and related disclosures. We base our estimates on historical experience and on various other assumptions we believe to be reasonable under the circumstances. In many instances, we could have reasonably used different accounting estimates, and in other instances, changes in the accounting estimates are reasonably likely to occur from period-to-period. Actual results may differ from these estimates. Our future financial statements will be affected to the extent our actual results materially differ from these estimates. For further information on our significant accounting policies, see Note 2, Significant Accounting Policies, in our Annual Report on Form 10-K filed with the SEC on February 23, 2023 and Note 2, Significant Accounting Policies, to our interim financial statements included elsewhere in this Quarterly Report on Form 10-Q.

We identify our most critical accounting policies as those that are the most pervasive and important to the portrayal of our financial position and results of operations, and that require the most difficult, subjective, and/or complex judgments by management regarding estimates about matters that are inherently uncertain. We believe the assumptions and estimates associated with our principles of consolidation, the valuation of assets acquired and liabilities assumed in acquisitions, the estimated useful life of our solar energy systems, the valuation of the removal assumptions, including costs, associated with AROs, the valuation of redeemable noncontrolling interests and noncontrolling interests and our allowance for current expected credit losses have the greatest subjectivity and impact on our interim financial statements. Therefore, we consider these to be our critical accounting policies and estimates. There have been no material changes to our critical accounting policies and estimates as described in our Annual Report on Form 10-K.

Recent Accounting Pronouncements

See Note 2, Significant Accounting Policies, to our interim financial statements included elsewhere in this Quarterly Report on Form 10-Q.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

We are exposed to various market risks in the ordinary course of our business. Market risk is the potential loss that may result from market changes associated with our business or with an existing or forecasted financial or commodity transaction. Our primary exposure includes changes in interest rates because certain borrowings bear interest at floating rates based on SOFR or a similar index plus a specified margin. We sometimes manage our interest rate exposure on floating-rate debt by entering into derivative instruments to hedge all or a portion of our interest rate exposure on certain debt facilities. We do not enter into any derivative instruments for trading or speculative purposes. Changes in economic conditions could result in higher interest rates, thereby increasing our interest expense and operating expenses and reducing funds available to capital investments, operations and other purposes. A hypothetical 10% increase in our interest rates on our variable-rate debt facilities would have increased our interest expense by $2.8 million and $5.0 million for the three and six months ended June 30, 2023, respectively.

Item 4. Controls and Procedures.

Internal Control Over Financial Reporting

Evaluation of Disclosure Controls and Procedures

We carried out an evaluation, under the supervision and with the participation of our management, including our Chief Executive Officer ("CEO") and our Chief Financial Officer ("CFO"), of the effectiveness of our disclosure controls and procedures as of the end of the period covered by this Quarterly Report on Form 10-Q, pursuant to Rules 13a-15(e) and 15d-15(e) under the Exchange Act. In connection with that evaluation, our CEO and our CFO concluded our disclosure controls and procedures were effective and designed to provide reasonable assurance the information required to be disclosed is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms as of June 30, 2023, and that such information is accumulated and communicated to our management, including our CEO and CFO, as appropriate to allow timely decisions regarding required disclosures. The term "disclosure controls and procedures", as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure information required to be disclosed by a company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure information required to be disclosed by a company in the reports it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure. Management recognizes any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting that occurred during the second quarter of 2023 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Limitations on Effectiveness of Controls and Procedures

Our disclosure controls and procedures are designed to provide reasonable assurance of achieving their objectives as specified above. However, our management, including our principal executive and principal financial officers, does not expect that our disclosure controls and procedures will prevent or detect all error and fraud. Any control system, no matter how well designed and operated, is based upon certain assumptions and can provide only reasonable, not absolute, assurance that its objectives will be met. Further, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within our company have been detected.

PART II - OTHER INFORMATION

Item 1. Legal Proceedings.

Although we may, from time to time, be involved in litigation, claims and government proceedings arising in the ordinary course of business, we are not a party to any litigation or governmental or other proceeding we believe will have a material adverse impact on our financial position, results of operations or liquidity. In the ordinary course of business, we have disputes with dealers and customers. In general, litigation claims or regulatory proceedings can be expensive and time consuming to bring or defend against, may result in the diversion of management attention and resources from our business and business goals and could result in settlement or damages that could significantly affect financial results and the conduct of our business.

Item 1A. Risk Factors.

There have been no material changes in the risks facing us as described in our Annual Report on Form 10-K filed with the SEC on February 23, 2023 except as described below.

Adverse developments affecting the financial services industry, such as actual events or concerns involving liquidity, defaults, or non-performance by financial institutions or transactional counterparties, could adversely impact our business, financial condition and results of operations.

Actual events involving limited liquidity, defaults, non-performance or other adverse developments that affect financial institutions or other companies in the financial services industry or the financial services industry generally, or concerns or rumors about any events of these kinds or other similar risks, have in the past and may in the future lead to market-wide liquidity problems. For example, in March 2023, Silicon Valley Bank ("SVB") was closed by the California Department of Financial Protection and Innovation, which appointed the Federal Deposit Insurance Corporation as receiver. Similarly, in March 2023, Signature Bank and Silvergate Capital Corp. were each swept into receivership. Further, uncertainty remains over liquidity concerns in the broader financial services industry, including for example in the case of First Republic Bank and Credit Suisse ("CS") during March 2023. In March 2023, CS agreed to be acquired by UBS following the intervention of the Swiss Federal Department of Finance, the Swiss National Bank and the Swiss Financial Market Supervisory Authority. While we have no deposits with CS or SVB, we continue to have ongoing relationships with both banks. CS was the primary lender and agent for our EZOP and TEPH revolving credit facilities until March 2023; and CS was and remains an interest rate counterparty. SVB and its successor, Silicon Valley Bridge Bank ("SVBB") were and are lenders of our TEPH revolving credit facility. To date, CS and SVBB have performed their obligations to us and have been responsive to our requests, although there can be no assurances such performance will continue in the future.

We maintain deposits at financial institutions as a part of doing business that could be at risk if another similar event were to occur. Our ongoing cash management strategy is to maintain the majority of our deposit accounts in large "money center" financial institutions, but there can be no assurance this strategy will be successful. Increasing concerns regarding the U.S. or international financial systems, including bank failures and bailouts, and their potential broader effects and potential systemic risk on the banking sector generally, may adversely affect our access to capital. Any decline in available funding or access to our cash and liquidity resources could, among other risks, limit our ability to meet our capital needs and fund future growth or fulfill our other obligations, or result in breaches of our financial and/or contractual obligations. Any of these impacts, or any other impacts resulting from the factors described above or other related or similar factors not described above, could have material adverse impacts on our business, financial condition and results of operations.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.

In February 2021, we entered into an Earnout Agreement (the "Earnout Agreement"), as amended, in connection with the April 2021 SunStreet acquisition. Pursuant to the terms of the Earnout Agreement, we are required to issue a number of earnout shares to Len^{x}, LLC, a subsidiary of Lennar Corporation, ("Len^{x}") if we meet certain commercial milestones, including if (a) we place a certain number of solar systems into service and enter into qualifying customer agreements related to such solar system for annual periods over four years commencing on the closing date of the acquisition and (b) prior to the fifth anniversary of the closing date of the acquisition, certain legally binding agreements relating to the development of microgrid communities are entered into. In April 2023, we issued 690,122 shares of common stock (the "April 2023 Earnout Shares") to Len^{x} pursuant to the terms of the Earnout Agreement. In June 2023, we issued 3,321 shares of common stock (the "June 2023 Earnout Shares" and together with the April 2023 Earnout Shares, the "Earnout Shares"). Neither issuance of the Earnout Shares involved a public offering and each issuance of the Earnout Shares was exempt from the registration requirements of the Securities Act pursuant to Section 4(a)(2) of the Securities Act, which exempts transactions by an issuer not involving any public offering. In June 2023, we amended the Earnout Agreement to extend the delivery period of the Installation Earnout Statement (as defined in the Earnout Agreement).

Item 3. Defaults Upon Senior Securities.

Not applicable.

Item 4. Mine Safety Disclosures.

Not applicable.

Item 5. Other Information.

On May 2, 2023, William J. Berger, President and Chief Executive Officer, adopted a trading plan intended to satisfy the affirmative defense conditions of Rule 10b5-1(c) under the Exchange Act (a "10b5-1 Plan"). The 10b5-1 Plan authorizes an agent to sell, from August 1, 2023 until September 1, 2023, such securities as are necessary to satisfy tax withholding obligations, commissions and any fees arising exclusively from the vesting on July 29, 2023, of the compensatory award of 119,047 restricted stock units granted July 29, 2019.

During the three months ended June 30, 2023, no other director or officer adopted or terminated a "Rule 10b5-1 trading arrangement" or "non-Rule 10b5-1 trading arrangement", as each term is defined in Item 408(a) of Regulation S-K. Prior to the three months ended June 30, 2023, Chris Hayden, Executive Vice President, Chief Technology Officer, adopted a Rule 10b5-1 trading arrangement that was intended to satisfy the affirmative defense of Rule 10b5-1(c) for the exercise of up to 5,715 stock options and sale of the underlying shares of our common stock until April 1, 2024.

PART IV

Item 6. Exhibits.

Exhibit No.	Description
2.1	Merger Agreement, dated as of July 29, 2019, by and among Sunnova Energy International Inc., Sunnova Energy Corporation and Sunnova Merger Sub Inc. (incorporated by reference to Exhibit 2.1 to Form 8-K filed on July 29, 2019).
2.2	Merger Agreement, by and among Sunnova Energy International Inc., Moonroad LLC, Sunnova Energy Corporation, SunStreet Energy Group, LLC and Len^{x}, LLC, dated as of February 17, 2021 (incorporated by reference to Exhibit 2.1 to Form 8-K filed on February 19, 2021).
3.1	Second Amended and Restated Certificate of Incorporation of Sunnova Energy International Inc. (incorporated by reference to Exhibit 3.3 to Form 8-K filed on July 29, 2019).
3.2	Second Amended and Restated Bylaws of Sunnova Energy International Inc. (incorporated by reference to Exhibit 3.5 to Form 8-K filed on July 29, 2019).
4.1∞	Indenture, by and between Sunnova Sol V Issuer, LLC and Wilmington Trust, National Association, as indenture trustee, dated as of April 26, 2023 (incorporated by reference to Exhibit 10.1 to Form 8-K filed on April 26, 2023).
4.2	Form of 5.40% Solar Asset Backed Notes, Series 2023-1 Class A Notes due 2058 (included in Exhibit 4.1).
4.3	Form of 7.35% Solar Asset Backed Notes, Series 2023-1 Class B Notes due 2058 (included in Exhibit 4.1).
4.4∞	Indenture, by and between Helios XI Issuer, LLC and Wilmington Trust, National Association, as indenture trustee, dated as of May 16, 2023 (incorporated by reference to Exhibit 10.1 to Form 8-K filed on May 16, 2023).
4.5	Form of 5.30% Solar Loan Backed Notes, Series 2023-A Class A Notes due 2050 (included in Exhibit 4.4).
4.6	Form of 5.60% Solar Loan Backed Notes, Series 2023-A Class B Notes due 2050 (included in Exhibit 4.4).
4.7	Form of 6.00% Solar Loan Backed Notes, Series 2023-A Class C Notes due 2050 (included in Exhibit 4.4).
10.1∞	Amendment No. 4 to Credit Agreement, by and among Sunnova Asset Portfolio 8, LLC, as Borrower, Sunnova SLA Management, LLC, as Manager and Servicer, Sunnova Asset Portfolio 8 Holdings, LLC, as Seller (Solar Loans) and Seller (Solar Assets), Banco Popular de Puerto Rico, as Agent, and the lenders party thereto, dated as of June 8, 2023 (incorporated by reference to Exhibit 10.1 to Form 8-K filed on June 12, 2023).
10.2	Amendment to Earnout Agreement, dated as of June 22, 2023, by and among Len^{x}, LLC, and Sunnova Energy International Inc.
31.1	Certification of Chief Executive Officer, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Chief Financial Officer, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification of Chief Executive Officer, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification of Chief Financial Officer, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document - the instance document does not appear in the Interactive Data File because its tags are embedded within the inline XBRL document.
101.SCH	XBRL Taxonomy Extension Schema Linkbase Document.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB	XBRL Taxonomy Extension Label Linkbase Document.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.
104	Cover Page Interactive Data File (embedded within the inline XBRL document).

∞ Portions of this exhibit have been omitted in accordance with Items 601(a)(5) and 601(b)(10) of Regulation S-K. We agree to furnish a copy of any omitted schedule or exhibit to the SEC upon request.

SIGNATURES

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

SUNNOVA ENERGY INTERNATIONAL INC.

Date: July 27, 2023	By:	/s/ William J. Berger
		William J. Berger Chief Executive Officer and Director *(Principal Executive Officer)*
Date: July 27, 2023	By:	/s/ Robert L. Lane
		Robert L. Lane Chief Financial Officer *(Principal Financial Officer)*

Exhibit 10.2

AMENDMENT TO EARNOUT AGREEMENT

This is an amendment agreement (this “Agreement”) dated June 22, 2023, amending the Earnout Agreement dated as of February 17, 2021 (the “Earnout Agreement”) by and between LEN X, LLC, a Florida limited liability company, and Sunnova Energy International Inc., a Delaware corporation, as follows:

1. Section 2.1(c) of the Earnout Agreement is amended to change the phrase “Within ten (10) days after the end of each Yearly Earnout Period, . . .” to “Within forty-five (45) days after the end of each Yearly Earnout Period, . . . ”

2. The amendment in Section 1 of this Agreement will apply to all Yearly Earnout Periods, including Yearly Earnout Periods that ended before the execution of this Agreement.

3. Except as set forth in this Agreement, the Earnout Agreement will remain in full force and effect as originally executed.

4. This Agreement, and all claims, disputes, controversies or causes of action that may be based upon, arise out of or relate to this Agreement or the negotiation, execution or performance of this Agreement shall be governed by and construed in all respects, including as to validity, interpretation and effect, by the laws of the State of Delaware, without giving effect to any choice or conflict of law provision that would permit or require the application of the laws of a jurisdiction other than the State of Delaware.

IN WITNESS WHEREOF, each of the undersigned has caused this Agreement to be signed as of the date first written above.

SUNNOVA ENERGY INTERNATIONAL, INC.

By: /s/ Robert Lane
Name: Robert Lane
Title: EVP, Chief Financial Officer

LEN X, LLC

By: /s/ Scott Rednor
Name: Scott Rednor
Title: Vice President

Exhibit 31.1

CHIEF EXECUTIVE OFFICER CERTIFICATION PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, William J. Berger, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Sunnova Energy International Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: July 27, 2023	/s/ William J. Berger
	William J. Berger Chief Executive Officer

Exhibit 31.2

CHIEF FINANCIAL OFFICER CERTIFICATION PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Robert L. Lane, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Sunnova Energy International Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date:	July 27, 2023	/s/ Robert L. Lane
		Robert L. Lane Chief Financial Officer

Exhibit 32.1

CHIEF EXECUTIVE OFFICER CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

Pursuant to 18 U.S.C. §1350, the undersigned officer of Sunnova Energy International Inc. (the "Registrant") hereby certifies that, to his knowledge, the Registrant's Quarterly Report on Form 10-Q for the three months ended June 30, 2023 (the "Quarterly Report") fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934 and that the information contained in the Quarterly Report fairly presents, in all material respects, the financial condition and results of operations of the Registrant.

Date:	July 27, 2023	/s/ William J. Berger
		William J. Berger Chief Executive Officer

Exhibit 32.2

CHIEF FINANCIAL OFFICER CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

Pursuant to 18 U.S.C. §1350, the undersigned officer of Sunnova Energy International Inc. (the "Registrant") hereby certifies that, to his knowledge, the Registrant's Quarterly Report on Form 10-Q for the three months ended June 30, 2023 (the "Quarterly Report") fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934 and that the information contained in the Quarterly Report fairly presents, in all material respects, the financial condition and results of operations of the Registrant.

Date:	July 27, 2023	/s/ Robert L. Lane
		Robert L. Lane Chief Financial Officer