Annual Report 2022

Clean Energy Fuels Corp.
2022 Summary Annual Report and Form 10-K

Turning sustainability goals into reality

Clean Energy

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(Mark One)

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

For the fiscal year ended: December 31, 2022

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: 001-33480

CLEAN ENERGY FUELS CORP.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of incorporation or organization)

33-0968580
(IRS Employer Identification No.)

4675 MacArthur Court, Suite 800, Newport Beach, CA 92660
(Address of principal executive offices, including zip code)

(949) 437-1000
(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	CLNE	The Nasdaq Stock Market LLC (Nasdaq Global Select Market)

Securities registered pursuant to section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

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

The aggregate market value of the voting stock held by non-affiliates of the registrant as of June 30, 2022, the last business day of the registrant's most recently completed second fiscal quarter, was approximately $786,672,145. The treatment of persons as affiliates of the registrant for purposes of this calculation is not, and shall not be considered, a determination as to whether any such person is an affiliate of the registrant for any other purpose.

As of February 22, 2023, there were 222,728,864 shares of the registrant's common stock, par value $0.0001 per share, issued and outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement for its 2023 annual meeting of stockholders are incorporated by reference in Part III of this report.

Clean Energy Fuels Corp.

Annual Report on Form 10-K

For the Fiscal Year Ended December 31, 2022

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This annual report on Form 10-K 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"). Forward-looking statements are statements other than historical facts. These statements relate to future events or circumstances or our future performance, and they are based on our current assumptions, expectations and beliefs concerning future developments and their potential effect on our business. In some cases, you can identify forward-looking statements by the following words: "if," "may," "might," "shall," "will," "can," "could," "would," "should," "expect," "intend," "plan," "goal," "objective," "initiative," "anticipate," "believe," "estimate," "predict," "project," "forecast," "potential," "continue," "ongoing" or the negative of these terms or other comparable terminology. The absence of these words, however, does not mean that a statement is not forward-looking. The forward-looking statements we make in this report include statements about, among other things, our future financial and operating performance, our growth strategies, including expectations regarding our delivery and sales of renewable natural gas and sale of U.S. federal, state and local government credits, and anticipated trends in our industry and our business.

The preceding list is not intended to be an exhaustive list of all of the topics addressed by our forward-looking statements. Although the forward-looking statements we make reflect our good faith judgment based on available information, they are only predictions of future events and conditions. Accordingly, our forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause our or our industry's actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by our forward-looking statements. Factors that might cause or contribute to such differences include, among others, those discussed in Item 1A. Risk Factors of this report, as such factors may be amended, supplemented or superseded from time to time by other reports we file with the Securities and Exchange Commission (the "SEC"). In addition, we operate in a competitive and rapidly evolving industry in which new risks emerge from time to time, and it is not possible for us to predict all of the risks we may face. Nor can we assess the impact of all factors on our business or the extent to which any factor or combination of factors could cause actual results to differ from our expectations. As a result of these and other potential risks and uncertainties, our forward-looking statements should not be relied on or viewed as guarantees of future events or conditions.

All of our forward-looking statements speak only as of the date they are made and, except as required by law, we undertake no obligation to update publicly any forward-looking statements for any reason, including to conform these statements to actual results or to changes in our expectations. You should, however, review the factors and risks we describe in the reports we will file from time to time with the SEC for the most recent information about our forward-looking statements and the risks and uncertainties related to these statements.

We qualify all of our forward-looking statements by this cautionary note.

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Unless the context indicates otherwise, all references to "Clean Energy," the "Company," "we," "us," or "our" in this report refer to Clean Energy Fuels Corp., together with its majority and wholly owned subsidiaries.

We own registered or unregistered trademark or service mark rights to Clean Energy™ and Clean Energy Renewables™. Although we do not use the "®" or "™" symbol in each instance in which one of our trademarks appears in this report, this should not be construed as any indication that we will not assert our rights thereto to the fullest extent under applicable law. Any other service marks, trademarks and trade names appearing in this report are the property of their respective owners.

Investors and others should note that we disseminate information to the public about our Company, our products, services and other matters through various channels, including our website (www.cleanenergyfuels.com), SEC filings, press releases, public conference calls and webcasts, in order to achieve broad, non-exclusionary distribution of information to the public. We encourage investors and others to review the information we make public through these channels, as such information could be deemed to be material information.

PART I

Item 1. Business.

Overview

Clean Energy Fuels Corp., a Delaware corporation, is a leading renewable energy company focused on the procurement and distribution of renewable natural gas ("RNG") and conventional natural gas, in the form of compressed natural gas ("CNG") and liquefied natural gas ("LNG"), for the United States and Canadian transportation markets. RNG, which is delivered as either CNG or LNG, is created by the recovery and processing of naturally occurring, environmentally detrimental waste methane ("biogas") from non-fossil fuel sources – such as dairy and other livestock waste and landfills – for beneficial use as a replacement for fossil-based transportation fuels. Methane is one of the most potent climate-harming greenhouse gases ("GHG") with a comparative impact on global warming that is about 25 times more powerful than that of carbon dioxide. We are focused on developing, owning, and operating dairy and other livestock waste RNG projects and supplying RNG (currently procured only from third party sources but once our RNG projects go online we expect to supply RNG from our own sources) to our customers in the heavy and medium-duty commercial transportation sector. We have participated in the alternative vehicle fuels industry for over 20 years. We believe we are in a unique position because the valuable Environmental Credits (as defined below) are generated by the party that dispenses RNG into vehicle fuel tanks, and we believe we have access to more dispensers than any other market participant.

We believe we were the first organization to supply RNG for vehicle fuel use in the U.S., and sales of our RNG for such purpose have increased from 13.0 million gasoline gallon equivalents ("GGEs") in 2013 to 198.2 million GGEs in 2022. We calculate one GGE to equal 125,000 British Thermal Units ("BTUs") and, as such, one million BTUs ("MMBTU") equals eight GGEs. We are North America's leading provider of the cleanest fuel for the commercial transportation market, based on both the number of stations we operate and the amount of GGEs serviced and GGEs sold of RNG and conventional natural gas, in the form of CNG and LNG, which amounted to a total of 428.4 million GGEs in 2022. With the Company's focus on RNG, our sales of RNG have grown from 12% of our vehicle fuel sales in 2013 to 84% of our vehicle fuel sales in 2022 (excluding GGEs from O&M (as defined below) services sales and non-vehicle sales). We believe that during 2022 we provided 54% and 48% of the RNG used for transportation fuel in California and the United States, respectively.

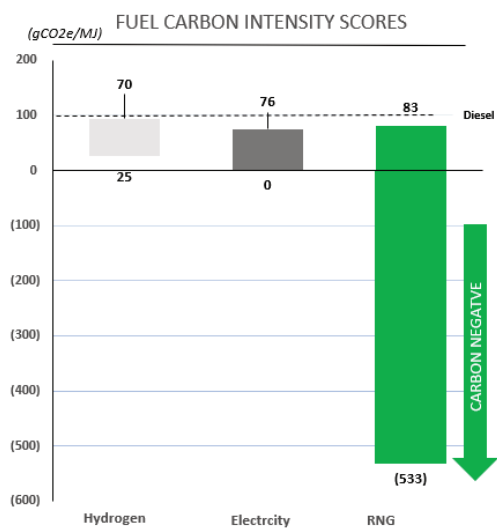
As a comprehensive clean energy solutions provider, we also design and build, as well as operate and maintain ("O&M"), public and private vehicle fueling stations in the United States and Canada; sell and service compressors and other equipment used in RNG production and at fueling stations; transport and sell RNG and conventional natural gas via "virtual" natural gas pipelines and interconnects; sell U.S. federal, state and local government credits (collectively, "Environmental Credits") we generate by selling RNG as a vehicle fuel, including Renewable Identification Numbers ("RIN Credits" or "RINs") under the federal Renewable Fuel Standard Phase 2 and credits under the California and the Oregon Low Carbon Fuel Standards (collectively, "LCFS Credits"); and obtain federal, state and local tax credits, grants and incentives. We serve fleet vehicle operators in a variety of markets, including heavy-duty trucking, airports, refuse, public transit, industrial and institutional energy users, and government fleets. We believe these fleet markets will continue to present a growth opportunity for our vehicle fuels for the foreseeable future.

Commercial transportation, including heavy-duty trucking, generates a significant portion of the emissions of overall carbon dioxide and other climate-harming GHGs, and transitioning this sector to low and negative carbon fuels is a critical step towards reducing overall global GHG emissions. According to the Global Carbon Project's Global Carbon Budget published in November 2022 and International Energy Agency's topic analysis on transport, 37.1 billion metric tons of carbon dioxide were emitted globally in 2021, of which 7.7 billion metric tons, or 21%, came from the transportation sector. There is a global demand for reducing GHG emissions, as evidenced by 96% of the world's countries having committed to the Paris Agreement according to The United Nations Framework Convention in Climate Change, and 96% of S&P 500 companies focusing on sustainability metrics, including GHG emissions, according to the Governance & Accountability Institute's Flash Report published in 2022.

Biogas, the primary source of RNG, is produced by microbes as they break down organic matter in the absence of oxygen. Our sources of commercial scale biogas are anaerobic digester gas ("ADG"), which is produced inside an airtight tank used to breakdown organic matter such as dairy and other livestock waste, and landfill gas ("LFG"), which is produced by the decomposition of organic waste at landfills.

Given the potential growth and positive environmental impact of RNG, our mission is to obtain as much RNG supply as possible. To that end we are pursuing development and ownership of dairy and other livestock waste ADG projects on our own and with partners including TotalEnergies S.E. ("TotalEnergies") and BP Products North America ("bp"). Further, we enter long-term RNG supply offtake agreements with well-known third parties that own RNG production facilities. Because our business transforms waste methane into a renewable source of energy, our RNG generates valuable Environmental Credits under federal and state initiatives.

Depending on the source, the California Air Resources Board ("CARB") has determined that RNG can have a significantly negative carbon intensity score, enabling our customers to achieve a net carbon negative emissions profile.



California Air Resources Board "Current Fuel Pathways" Q2 2021 to Q3 2022

At present, we see the best use of RNG as a replacement for fossil-based fuel in the transportation sector. We believe the most attractive market for RNG is U.S. heavy-duty Class 8 trucking and, based on information from the American Trucking Association and our own internal estimates, we believe there are approximately 4.1 million Class 8 heavy-duty trucks operating in the U.S. that use over 40 billion gallons of fuel per year. As of December 31, 2022, we deliver RNG to the transportation market through 569 fueling stations we own, operate or supply in 42 states and the District of Columbia in the U.S., including over 200 stations in California. We also own, operate, or supply 25 fueling stations in Canada as of December 31, 2022. Critically, to generate valuable Environmental Credits, the RNG must be placed in vehicle fuel tanks. We believe our stations and customer relationships allow us to sell substantially more RNG to vehicle operators than any other participant in the market – we calculate that we have access to more fueling stations and vehicle fleets than all our competitors combined. As of December 31, 2022, we served over 1,000 fleet customers operating over 50,000 vehicles on our fuels. We believe we are the only company in the U.S. that provides RNG vehicle fuel at scale in California and nationally.

Longer term, we plan to expand availability of hydrogen fuel for vehicle fleets. As operators deploy more hydrogen powered vehicles, we can modify our fueling stations to reform our RNG and deliver clean hydrogen to customers. We also believe our RNG can be used to generate clean electricity to power electric vehicles, and we have the capability to add electric vehicle charging at our station sites, although the cost of adding electric vehicle charging capacity may be significant.

Our Principal Products, Services and Other Business Activities

Our principal products, services and other business activities are described below. Information about the revenue we receive from these activities is discussed in this report in Item 7. "Management's Discussion and Analysis of Results of Operations and Financial Condition."

Fuel Sales

We sell RNG and conventional natural gas, in the form of CNG and LNG, as fuel for medium and heavy-duty vehicles.

- RNG is injected into natural gas pipelines, which allows RNG to be transported to vehicle fueling stations where it can be compressed and dispensed as CNG, and to liquefaction facilities where it is liquified and made into LNG. We purchase RNG from bp and other third-party producers, comprising over 100 supply sources, typically under long-term RNG supply offtake agreements. In exchange for the agreement to offtake RNG supply, we and the supplier negotiate to determine what percentage share of the value of the Environmental Credit each party will retain. The value of the Environmental Credit is based on the realized value after the credit is sold to (purchased by) an obligated party or as agreed by the supplier and us as part of the negotiation. Our supply offtake agreements are variable and are based on actual RNG produced by the third-party producers, up to various maximum volume levels as governed by the arrangement with no minimum purchase volume required. In 2022, our third-party sourced RNG consisted of 18.0% ADG and 82.0% landfill gas ("LFG").

  Conventional natural gas is typically sourced from local utilities or third-party conventional natural gas marketers. We purchase conventional natural gas under North American Energy Standards Board base contracts on a spot market or short-term forward index basis or forward purchase contracts under take-or-pay arrangements that require us to purchase minimum volumes of conventional natural gas. Conventional natural gas is purchased on a normal purchase normal sale basis, as the conventional natural gas we purchase is for physical delivery of the commodity to our fueling stations for sale to customers.

- CNG is RNG or conventional natural gas that is compressed and dispensed in gaseous form. CNG is typically sold by obtaining RNG from RNG suppliers or third-party RNG marketers or conventional natural gas from local utilities or third-party conventional natural gas marketers, compressing and storing it at a fueling station, and dispensing it directly into a vehicle. Our CNG vehicle fuel sales are primarily made through contracts with our customers or on a per fill-up basis at prices we set at public access fueling stations based on prevailing market conditions. Through our subsidiary NG Advantage, LLC ("NG Advantage"), we also transport and sell CNG for non-vehicle purposes via virtual natural gas pipelines and interconnects to industrial and institutional energy users that do not have direct access to natural gas pipelines. NG Advantage also has the capability to transport CNG from production facilities to pipeline injection sites using its fleet of 99 high-capacity trailers.

- LNG is RNG or conventional natural gas that is cooled at a liquefaction facility to approximately negative 260 degrees fahrenheit until it condenses into a liquid. We obtain LNG from our own liquefaction plants and from third-party suppliers. For LNG obtained from our own liquefaction plants, we supply the RNG, sourced from RNG suppliers or third-party RNG marketers, or conventional natural gas, sourced from local utilities or third-party conventional natural gas marketers, to our liquefaction plants. We own and operate LNG liquefaction plants near Boron, California and Houston, Texas, which we refer to as the "Boron Plant" and the "Pickens Plant," respectively. The Boron Plant can produce 56.0 million gallons of LNG per year and has a dual tanker trailer loading system and a 1.8 million gallon storage tank that can hold up to 1.5 million usable gallons. The Pickens Plant can produce 28.0 million gallons of LNG per year and includes a tanker trailer loading system and a 1.0 million gallon storage tank that can hold up to 840,000 usable gallons. In 2022, we produced 94.8% of our LNG at our plants and purchased the remainder of our LNG from third-party suppliers. We sell LNG for use as a vehicle fuel on a bulk basis to fleet customers and through our network of public access fueling stations. We deliver LNG with our fleet of 74 tanker trailers to fueling stations, where it is stored and then dispensed in liquid form into vehicles. The need to liquefy and transport

LNG generally causes LNG to cost more than CNG. We sell LNG through supply contracts and on a per fill-up basis at prices we set at public access fueling stations based on prevailing market conditions. Additionally, we sell LNG for non-vehicle purposes, including to customers who use LNG in rocket propulsion and oil fields, and for utility, industrial, marine and rail applications.

Sales of Environmental Credits. We generate Environmental Credits consisting of RINs and LCFS Credits when we sell RNG for use as a vehicle fuel in the United States. We sell these Environmental Credits to third parties who must comply with federal and state emissions requirements. Generally, the number of Environmental Credits we generate increases as we sell higher volumes of RNG as a vehicle fuel. The number of Environmental Credits we sell and our revenue from these sales can vary depending on a number of factors, including the market for these credits, which has been volatile and subject to significant price fluctuations in recent periods (for example, in 2022, market prices for RINs were as high as $3.56 and as low as $2.47), any changes to the federal and state programs under which the credits are generated and sold, and our ability to strictly comply with these programs.

O&M Services. We perform maintenance service on Clean Energy-owned and customer-owned fueling stations. Our maintenance program is backed by over 200 company employed service technicians and support personnel, an in-house 24/7 remote monitoring center, technician training center, computerized maintenance management system and inventory warehouses throughout the United States and Canada. For maintenance services, we generally charge a fixed fee or per gallon fee based on volume of fuel dispensed at the station.

Station Construction and Engineering. We design and construct fueling stations and sell or lease some of these stations to our customers. Since 2008, we have served as the general contractor or supervised qualified third-party contractors to build over 450 natural gas fueling stations.

Grant Programs. We apply for and help our fleet customers apply for federal, state and local grant programs in areas in which we operate. These programs can provide funding for vehicle purchases, fueling station construction and vehicle fuel sales.

Our Company's Sustainability Program

Our vision is to deliver renewable transportation fuel for a cleaner, safer, more equitable tomorrow. We have a bold program, supported by ambitious goals to drive progress across four key pillars: fueling the transition to renewable energy in transportation, building the workforce for the future of renewable energy, advancing smart policies that drive the transformation to zero carbon fuels, and earning stakeholder trust.

Fueling transportation's transition to renewable energy.

The fuel we provide enables our customers to transition from diesel to a solution with significantly lower GHG emissions and air quality impacts ***today***. We are committed to pushing ourselves and our partners further by helping to produce and distribute 100% RNG fuels, which can have a negative net carbon emissions profile. We are also committed to doing our part to reduce our own emissions across our operations and supply chain.

Building the workforce for the future of renewable energy.

At Clean Energy we have always had a strong focus on employee and contractor safety and strive to be a zero-incident workplace for our service technicians and staff, as well as our customers using our facilities. Looking towards the future, we will continue to focus on employee recruitment, retention, and engagement, with a specific emphasis on diversity, equity, and inclusion in all areas of our company. It is important that we build and maintain a diverse and inclusive workforce, leadership team and supplier base that are reflective of the communities in which we operate. We acknowledge the lack of diversity in the energy sector and strive to be part of the solution.

Advancing smart policies that drive the transformation to zero carbon fuels.

Widespread change will be necessary across all industries to achieve our collective climate goals. We recognize that some physical climate impacts are unavoidable in the near-term and that the transition to a low carbon economy may bring new risks to our business. We also recognize that natural gas extraction and processing causes environmental and social impacts that must be appropriately managed. By investing in the energy transition, our aim is to reduce our own risks and provide lasting benefits to society. To enable lasting change, we must ensure the adoption of performance-driven state and federal policies that accelerate the shift from diesel and other transportation fuels with high GHG emissions and negative air quality impacts to zero net carbon emission transportation fuels. We are also committed to contributing to quality of life improvement and economic development in the communities where we conduct business, many of which are disadvantaged communities that suffer from poor air quality due to the use of transportation fuels, including diesel, that have high GHG emissions and significantly negative air quality impacts.

Earn stakeholder trust.

To realize our ambitious goals we are building trusted partnerships with our stakeholders. We strive to act ethically and responsibly in all aspects of our business, seeking to meet expectations related to human rights, labor standards, air quality, water stewardship, operational energy efficiency, biodiversity and land use, disaster preparedness, business ethics, and other material topics.

Market Opportunity

Increasing demand for RNG

Demand for RNG produced from biogas is significant and growing in large part due to an increased focus by the U.S. public and investors, as well as federal, state, and local regulatory authorities, on reducing the emission of GHG, such as methane. According to the U.S. Environmental Protection Agency (“EPA”), methane is a significant GHG, which accounted for roughly 11% of all U.S. GHG emissions from human activities in 2020 and which has a comparative impact on global warming that is about 25 times more powerful than that of carbon dioxide over a 100-year period. Biogas processing facilities substantially reduce methane emissions at livestock farms and landfills, which together accounted for approximately 53% of U.S. methane emissions in 2020 according to the EPA.

Over the past decade we have seen the transportation sector be the fastest growing end market for RNG, where RNG is used as a replacement for fossil-based fuel. This growth has been principally driven by an increased focus on reducing GHGs, as well as Environmental Credits to support the production of renewable transportation fuels. According to NGV America, a national organization dedicated to the development of a growing, profitable, and sustainable market for vehicles powered by RNG, in 2021, “RNG use as a transportation fuel increased 234% from 2017 levels, and RNG use as a motor fuel displaced 3.8 million tons of carbon dioxide equivalent.” Further, RNG engines now commercially available for heavy-duty, regional-haul, refuse, transit, and vocational applications have been certified to satisfy CARB’s optional low nitrogen oxide (“NOx”) emission standard of 0.02 g/bhp-hr. This means that these engines emit 90% less smog-forming NOx than the existing regulatory standards, making them the lowest certified ultra-low NOx emission engines in the U.S.

Given public and investor calls for, and U.S. federal, state, and local regulatory trends and policies aimed at, reducing GHG emissions, we expect continued regulatory support for RNG as a replacement for fossil-based fuels and therefore continued and growing demand for RNG in the foreseeable future.

Increasing vehicle availability

RNG is a replacement for fossil-based fuel consumed by vehicles that use internal combustion engines like those used in gasoline- or diesel-powered vehicles. Virtually any car, truck, bus, or other vehicle is capable of being manufactured to run on RNG. Many types and models of heavy- and medium-duty RNG vehicles and engines are available in the U.S., including, among others, long-haul tractors, refuse trucks, regional tractors, transit buses, ready-mix trucks, delivery trucks, vocational work trucks, school buses, shuttles, pickup trucks and cargo and passenger vans.

More broadly, many companies are developing and commercializing hydrogen and electric commercial vehicles, particularly as the commercial transportation sector increasingly shifts toward low-emission, zero-emission, or carbon neutral vehicle solutions. Various manufacturers have announced their plans to bring long-haul Class 8 commercial hydrogen- and battery-powered vehicles to the market over the coming years.

Availability of long-term feedstock supply

Biogas is collected and processed to remove impurities for use as RNG and injected into existing natural gas pipelines. RNG is fully interchangeable with and chemically identical to conventional natural gas. Common sources of biogas include livestock farms, landfills, and wastewater resource recovery facilities.

Livestock- and landfill-sourced biogas represent a significant opportunity to produce RNG and reduce GHG emissions. Although LFG has accounted for most of the growth in biogas projects to date, biogas from dairy and other livestock farm waste represents significant opportunities for RNG production that remain largely untapped. According to ICF Consulting, Inc., the global consulting services company, by 2040, the U.S. has the technical potential to annually produce up to 34.4 billion GGEs of RNG, including up to 20.6 billion GGEs of ADG RNG.

All-in prices paid for RNG from livestock farms can be significantly higher than prices for RNG from landfills due to higher value available from state-level low-carbon fuel incentives for these projects. Given our market leadership in RNG, we believe we are well-positioned to take advantage of this market.

TotalEnergies Joint Venture

On March 3, 2021, we entered into an agreement (the "TotalEnergies JV Agreement") with TotalEnergies to create 50/50 joint ventures to develop ADG RNG production facilities in the United States. The TotalEnergies JV Agreement contemplates investing up to $400.0 million of equity in production projects, and TotalEnergies and the Company each committed to initially provide $50.0 million. Pursuant to the TotalEnergies JV Agreement, the Company and TotalEnergies have given each party a limited right of first opportunity to invest in ADG RNG projects they respectively originate. Currently, there is one ADG RNG joint venture project under construction pursuant to the TotalEnergies JV Agreement and is expected to be substantially complete in early 2023. This project is estimated to produce up to 1.1 million GGEs of RNG annually, all of which will be available to the Company for sale to the vehicle fuels market.

bp Joint Venture

On April 13, 2021, pursuant to a memorandum of understanding we entered into with bp in December 2020, we entered into an agreement ("bp JV Agreement") with bp that created a 50/50 joint venture (the "bpJV") to develop, own and operate new ADG RNG production facilities in the United States. From inception to December 31, 2022, we and bp have collectively contributed approximately $300 million of equity to the bpJV. Currently, there are six ADG RNG projects under construction in the bpJV, which are planned to be substantially complete between the first quarter of 2023 and the third quarter of 2024. These ADG RNG projects are estimated to collectively produce up to 11.2 million GGEs of RNG annually, and 100% of the RNG produced from these projects will be available to us for sale as vehicle fuel pursuant to our existing marketing agreement with bp.

The Company's RNG projects

As of December 31, 2022, we had two 100% owned ADG RNG projects under development, which are anticipated to be substantially complete between the second and third quarter of 2024. In accordance with the TotalEnergies JV Agreement, we will provide TotalEnergies with the right of first opportunity to invest in these ADG RNG projects alongside the Company. Collectively, our two 100% owned ADG RNG projects will have an estimated RNG production volume of 3.4 million GGEs per year, all of which will be available to us for sale to the vehicle fuels market.

Use of environmental credits to promote RNG growth

When used as a transportation fuel, RNG generates additional revenue streams through Environmental Credits. These Environmental Credits are provided under a variety of programs, including the national Renewable Fuel Standards ("RFS"), and state-level Low Carbon Fuel Standard ("LCFS") programs.

The RFS program requires transportation fuel to contain a minimum volume of renewable fuel. To fulfill this regulatory mandate, the EPA obligates refiners and importers ("Obligated Parties") to blend renewable fuel with standard fuel to meet renewable volume obligations ("RVOs"). Obligated Parties can comply with RVOs by either blending RNG into their existing fuel supply or purchasing Renewable Identification Numbers, or RINs. RINs are generated when eligible renewable fuels are produced or imported and blended with a petroleum product for use as a transportation fuel. The RFS program has been a key driver of growth in the RNG industry since 2014 when the EPA ruled that RNG, when used as a transportation fuel, would qualify for D3 RINs (for cellulosic biofuels), which are generally the most valuable among the four categories of RINs. In 2022, we estimate that we generated 48% of all D3 RINs in the U.S.

The monetization of RNG also benefits from low-carbon fuel initiatives at the state-level, specifically from established programs in California and Oregon. California's LCFS ("CA LCFS") program requires fuel producers and importers to reduce the carbon intensity ("CI") of their products, with goals of a 10% reduction in carbon emissions from 1990 levels by 2020 and a 20% reduction by 2030. CARB awards CA LCFS credits to RNG projects based on each project's CI score relative to the target CI score for gasoline and diesel fuels. The CI score represents the overall net impact of carbon emissions for each RNG pathway and is determined on a project-by-project basis. Because our business involves the capture and transformation of waste methane into a renewable source of energy, our customers are able to significantly reduce, if not eliminate, GHG emissions from their commercial transportation activities. Further, CARB calculates RNG produced by livestock farms as carbon negative, generating substantial incremental CA LCFS credits. Multiple other states, including New York, Washington, and New Mexico are considering LCFS initiatives like those implemented in California and Oregon. In 2022, we estimate that we generated 41% of all LCFS credits under Bio-CNG and Bio-LNG pathways in the CA LCFS.

Our Strategy

We aim to maintain and increase our position as the leading provider of RNG to the commercial vehicle market in North America, and our goal is to deliver 100% RNG to our entire fueling infrastructure by 2025. We support this objective through a multi-pronged strategy of:

- promoting the reduction of GHG emissions and expanding the use of renewable fuels to displace fossil-based fuels;
- increasing supply of RNG through the development of new project investment opportunities, expanding our existing supplier portfolio, and leveraging our existing fuel network and customer relationships;
- empowering our customers to achieve their sustainability and carbon reduction objectives;
- leveraging our management expertise; and
- utilizing our environmental, health and safety and compliance leadership.

Promoting the reduction of methane emissions and expanding the use of renewable fuels to displace fossil-based fuels.

We share the renewable fuel industry's commitment to provide sustainable renewable energy solutions and to offer products with high economic and ecological value. By simultaneously replacing fossil-based fuels and reducing overall methane emissions, our business has a substantial positive environmental impact. We are committed to the sustainable development, deployment, and utilization of RNG to reduce the country's dependence on fossil fuels. In addition to its methane emission benefits, the increased production and use of RNG have several other environmental benefits. Anaerobically digested livestock waste produces significantly less odor than conventional storage and land application systems. The odor of stored livestock waste mainly comes from volatile organic acids and hydrogen sulfide, which has a "rotten egg" smell. In an anaerobic digester, volatile organic compounds are reduced to methane and carbon dioxide, which are odorless gases. The volatized fraction of hydrogen sulfide is captured with the collected ADG and destroyed. Anaerobic digestion provides several water quality and land conservation benefits as well. Digesters, particularly heated digesters, can destroy more than 90% of disease-causing bacteria that might otherwise enter surface waters and pose a risk to human and animal health. Digesters also reduce biochemical oxygen demand ("BOD"). BOD is one measure of the potential for organic wastes to reduce dissolved oxygen in natural waters. Because fish and other aquatic organisms need minimum levels of dissolved oxygen for survival, farm practices that reduce BOD protect the health of aquatic ecosystems. In addition to protecting local water resources, implementing anaerobic digesters on livestock facilities improves soil health. Adding digestate to soil increases the organic matter content, reduces the need for chemical fertilizers, improves plant growth and alleviates soil compaction. Further, digestion converts nutrients in manure to a more accessible form for plants to use. The risks of water and soil contamination from flooding of open lagoons are also mitigated by digesters.

Increasing supply of RNG through the development of new project opportunities, expanding our existing supplier portfolio, and leveraging our extensive fueling station network and customer relationships.

In our view, the market has not yet unlocked the full potential of RNG. We believe we were the first company to deliver RNG to the commercial vehicle fuels market, have the most extensive RNG fueling infrastructure and customer relationships, and our stations and customer relationships allow us to obtain and deliver substantially more RNG to vehicle operators than any other participant in the market. This is important because RNG must be placed in vehicle fuel tanks to generate the valuable Environmental Credits.

Dependable and economic sources of RNG are critical to our success. We continue to leverage our relationships built over the past several decades to identify and execute new RNG project development and supply offtake opportunities. These come from our relationships with feedstock owners and project developers who value our long operating history, strong reputation in the industry and unmatched access to fueling infrastructure and vehicle operators for certainty of Environmental Credit generation. Based on the foregoing, we believe that we are presented with nearly every material development, supply and distribution opportunity in the market.

We exercise financial discipline in pursuing projects by targeting project returns that are in line with the relative risk of the specific projects and associated feedstock costs and any related attributes that can be monetized. We also support third parties that own RNG production facilities by entering into long-term RNG supply offtake agreements. As these facility owners expand their operations, we provide additional access to our fueling infrastructure and customer relationships.

As of December 31, 2022, we obtain RNG from over 100 supply sources. We believe that we have one of the largest and most diverse supply portfolios in the RNG industry, which allows us to provide certainty of RNG supply to our vehicle operator customers.

In our view, all the foregoing gives us a competitive advantage relative to existing and new market entrants.

Empowering our customers to achieve their sustainability and carbon reduction objectives.

In November 2022, global leaders met in Sharm El-Sheikh, Egypt for the United Nations Climate Change Conference ("COP27") to discuss implementation initiatives with a view of renewing and extending the agreements reached in the Paris Agreement. With evidence indicating that the world community may fall short of limiting the Paris Agreement's target of global warming to less than 1.5°C, governments and regulators globally face mounting public pressure to address the threat of climate change. There is pressure from politicians, regulators, non-governmental organizations and the investment community directed at corporations to sharpen focus on credible, net-zero aligned transition plans, and key investors have made climate change risk management a key priority. For example, BlackRock stated in its 2021 stewardship expectations guidelines that "[t]he events of [2020] have intensified our conviction that sustainability risk—and climate risk in particular—is investment risk" and plans to expand its engagement to the over 1,000 companies that are responsible for producing 90% of GHG emissions in its investment portfolio. Similarly, in his 2021 letter to boards, Cyrus Taraporevala, State Street's CEO and President, said the asset manager will be elevating its focus on climate risk, noting that ahead of COP26, "policymakers are assessing progress on climate change action . . . many jurisdictions are signaling their intentions to make climate risk disclosure mandatory." Vanguard has determined that "it is critical that public company boards fully understand and own climate-related risks."

We believe we are uniquely positioned to empower our customers to achieve their sustainability and carbon reduction goals. Because our business involves the capture and transformation of waste methane into a renewable source of energy, we believe our customers can significantly reduce, if not eliminate, GHG emissions from their commercial transportation activities. Further, our RNG is available today to reduce climate harming GHG and meet sustainability objectives and at a cost to customers that is very competitive to other fuels like diesel. We also assist our customers in their transition to cleaner transportation fuels by helping them obtain federal, state and local tax credits, grants and incentives, providing vehicle financing, including through our *Zero Now* and Chevron Adopt-A-Port programs, engineering and constructing fueling stations, and facilitating customer selection of vehicle specifications that best meet their needs.

Management expertise

Our management team has decades of combined experience in the alternative vehicle fueling industry. We believe our team's proven track record in alternative vehicle fuels and focus on RNG gives us a strategic advantage in continuing to grow our business profitably. Our diverse experience and integration of key technical, environmental, and administrative support functions, along with our first-to-market advantage, further our ability to successfully deliver RNG to the commercial vehicle fuels market.

Environmental, health and safety and compliance leadership

Our executive team places the highest priority on the health and safety of our staff and third parties, as well as the preservation of the environment. Our corporate culture is built around supporting these priorities, as reflected in our well-established practices and policies. By setting and maintaining high standards in the renewable energy field, we are often able to contribute positively to the safety practices and policies of our partners and customers. Our high safety standards include use of wireless gas monitoring safety devices, active monitoring of all field workers, performing environmental health and safety ("EHS") audits and using technology throughout our safety processes from employee training in compliance with operational processes and procedures to emergency preparedness. By extension, we incorporate our EHS standards into our subcontractor selection qualifications to ensure that our commitment to high EHS standards is shared by our subcontractors. For 2022, our Total Recordable Incident Rate ("TRIR") was 2.8, which is lower than the 2021 national average of 2.9 TRIR for all industries. As of December 31, 2022, we have not received any U.S. Occupational Health and Safety Administration ("OSHA") or state OSHA citations in the last five years.

How We Generate Revenue

We generate revenue from selling RNG and conventional natural gas as a vehicle fuel, as well as by selling the associated Environmental Credits. RNG made up 84% of our vehicle fuel sales in 2022, and we expect 100% of our vehicle fuel sales to be RNG by 2025. Although RNG has the same chemical composition as natural gas from fossil sources, it has unique Environmental Credits assigned to it due to its origin from low- and negative-carbon, renewable sources. The Environmental Credits that we sell are composed of RINs and state low-carbon fuel credits, including CA LCFS credits, which are generated from the conversion of biogas to RNG that is used as a transportation fuel.

In addition to revenues generated from sales of RNG and conventional natural gas as a vehicle fuel and Environmental Credits, we also generate revenues by providing O&M services for public and private RNG, natural gas and hydrogen vehicle fleet customer stations; selling and servicing compressors and other equipment used in RNG production and at RNG, natural gas and hydrogen stations; and obtaining federal, state and local tax credits, grants and incentives.

We are experts in the engineering, design and construction of fueling stations. When we build stations for customers, we charge construction, other fees, or lease rates based on the size and complexity of the project. Since 2008, we have served as the general contractor or supervised qualified third-party contractors to build over 450 fueling stations.

- Equipment for RNG stations consists of compressors, storage tanks, and dispensers.

- As operators deploy hydrogen-powered vehicles, we can modify our fueling stations and build additional stations to dispense clean hydrogen produced from our RNG. The equipment for hydrogen stations includes compressors, storage tanks, and dispensers, provided that the cost of adding hydrogen fueling may be significant.
- We also have the capability to add high speed level 3 electric vehicle charging at our station sites, and our RNG can be used as a clean resource to power electric vehicles via on-site generation and/or routing to the electric grid serving our stations, although the cost of adding electric vehicle charging capacity may be significant.

Key Customer Markets

We serve customers in a variety of markets, including trucking, airports, refuse and public transit. We believe these customer markets are well-suited for the adoption of RNG and other alternative vehicle fuels because they consume relatively high volumes of fuel, refuel at centralized locations or along well-defined routes and/or are facing increasingly stringent emissions or other environmental requirements. During the years ended December 31, 2020, 2021 and 2022, no single customer accounted for 10% or more of our total revenue.

Trucking

We believe heavy-duty trucking represents the greatest opportunity for RNG and other alternatives to be used as a vehicle fuel. We estimate there are approximately 4.1 million Class 8 heavy-duty trucks operating in the U.S. using over 40 billion gallons of fuel each year. Because these high-mileage vehicles consume substantial amounts of fuel, operators can derive significant benefits from the carbon and GHG reductions associated with our vehicle fuels. We are focused on fueling more heavy-duty trucks, and many well-known shippers, manufacturers, retailers and other truck fleet operators have started to use RNG fueled trucks to move their freight, including, among others, Amazon, Pepsi Frito-Lay, FedEx, Anheuser-Busch, USPS, UPS, Kroger, KeHe Distributors, Kenan Advantage Group, and Estes Express.

Zero Now

To help facilitate the transition of trucking fleets to our fuels, we have launched the *Zero Now* truck financing program, which is intended to increase the deployment of the commercially available RNG heavy-duty trucks in the U.S. The *Zero Now* program generally involves the following:

- One or more truck leasing or finance companies lease or sell RNG heavy-duty trucks to vehicle fleets pursuant to lease or sale agreements with the fleet operators and with us, providing for periodic payments by the fleet operators of amounts equal to the payments that will be made for the lease or purchase of an equivalent truck that operates on diesel fuel, and providing for payment by us of the incremental cost of the RNG truck over and above the diesel-equivalent truck; and
- The fleet operators participating in the program enter into fueling agreements with us, under which the operators agree to purchase from us, and we agree to supply, minimum monthly volumes of RNG at prices (which are lower than diesel prices per GGE) to operate the trucks leased or purchased in the program and allow us to recoup our payment of the incremental cost of the RNG trucks.

We previously entered into the following agreements to implement the *Zero Now* program:

- In January 2019, we entered into a term credit agreement with Société Générale (“SG”), as lender, under which we were permitted to draw, from time to time, through January 2, 2022, up to an aggregate of $100.0 million to satisfy our payment obligations for the incremental cost of RNG trucks under the truck lease or sale agreements described above; and
- In January 2019, we entered into a credit support agreement with TotalEnergies Holdings USA Inc. (“THUSA”), a wholly owned subsidiary of TotalEnergies (which indirectly through another of its subsidiaries, holds approximately 19% of our outstanding common stock), pursuant to which THUSA guaranteed our obligations under the term credit agreement with SG. In consideration for such guaranty, we agreed to pay to THUSA a

quarterly fee at a rate per annum equal to 10% of the average amount owed by us under the term credit agreement during the preceding quarter.

In addition, we are supporting the growth of the RNG heavy-duty truck market through commodity swap arrangements under which we have locked in a discount price to diesel for customers fueling with us; our negotiation of favorable fuel tank pricing from manufacturers, which we are passing along to our customers; and our network of truck-friendly fueling stations (we refer to this network as "America's Natural Gas Highway" or "ANGH"), which we have built in key locations nationwide. Many existing ANGH stations are located at Pilot Travel Centers, the largest truck fueling operator in the United States.

Chevron Adopt-A-Port Program

In 2020, we partnered with Chevron Products Company, a division of Chevron U.S.A. Inc ("Chevron") on Adopt-A-Port, an initiative that provides truck operators serving the ports of Los Angeles and Long Beach with RNG to reduce emissions. For its part, Chevron provides funding for Adopt-A-Port and supplies RNG to Clean Energy stations near the ports. Chevron's funding allows truck operators to subsidize the cost of buying new RNG-powered trucks. We manage the program, including offering fueling services for qualified truck operators. Truck operators participating in the program, which supports the ports' Clean Trucks Program and Clean Air Action Plan, fuel at our stations supplied with Chevron RNG. Importantly, Adopt-A-Port provides a meaningful air quality improvement for the adversely impacted communities around the port – such communities typically have the worst air quality in the nation. In 2022, customers contracted 207 trucks under Adopt-A-Port, and we expect 250 additional trucks to be ordered in 2023.

Airports

We estimate that vehicles serving airports in the United States, including airport delivery fleets, rental car and parking passenger shuttles and taxis, consume an aggregate of approximately two billion gallons of fuel per year. Additionally, many U.S. airports face emissions challenges and are under regulatory directives and political pressure to reduce pollution, particularly as part of any expansion plans. As a result, many of these airports have adopted various strategies to address tailpipe emissions, including rental car and hotel shuttle consolidation and requiring or encouraging service vehicle operators to switch their fleets to our vehicle fuels.

Refuse

We believe that there are nearly 200,000 refuse trucks in the United States that collect and haul refuse and recyclables, which aggregately consume approximately two billion gallons of fuel per year. We estimate that approximately 60% of new refuse trucks are capable of operating on RNG, up from approximately 3% of new refuse trucks in 2008. Refuse haulers are increasingly adopting trucks that run on our vehicle fuels to realize operational savings and to address demands for reduced emissions from the public, investors, and governmental agencies. As of December 31, 2022, we fuel approximately 15,000 refuse vehicles for customers including Waste Management, Republic Services, Waste Connections, GFL Environmental, Atlas Disposal, Burrtec, CR&R, Recology and Waste Pro, among others. We also provide vehicle fueling services to municipal refuse fleets.

Public Transit

We believe that there are over 72,000 municipal transit buses operating in the United States. In many areas, increasingly stringent emissions standards have limited the fueling options available to public transit operators. Also, transit agencies typically fuel at a central location and use high volumes of fuel. We estimate that transit agencies in the United States consume approximately one billion gallons of fuel per year. Many transit agencies have been early adopters of vehicles using our fuels, and over 25% of existing transit buses and approximately 35% of new transit buses operate on RNG. As of December 31, 2022, public transit customers for which we serve include the Los Angeles County Metropolitan Transit Authority, New York MTA, Foothill Transit (Los Angeles County, California), Orange County Transit Authority, Santa Monica Big Blue Bus, Dallas Area Rapid Transit, Phoenix Transit, New Jersey Transit, Jacksonville Transportation Authority, NICE Bus (Nassau County, New York) and Washington Metro Area Transportation Authority.

Competition

There are many other companies operating in the renewable energy and waste-to-energy space. Regarding RNG production and supply, our primary competition is from other companies or solutions for access to biogas from waste. Evolving consumer preferences, regulatory conditions, ongoing waste industry trends, and project economics have a strong effect on the competitive landscape. We have demonstrated a track record of strategic flexibility across our history which has allowed us to pivot towards projects and markets that we believe deliver optimal returns and stockholder value in response to changes in market, regulatory and competitive pressures. The biogas and RNG markets are heavily fragmented. We believe we are in a strong position to compete for new project development and supply opportunities. Competition for such opportunities, however, including the prices being offered for fuel supply, affect the profitability of the opportunities we pursue, and may make opportunities unsuitable to pursue.

The market for vehicle fuels is highly competitive. The biggest competition for RNG use as a vehicle fuel is gasoline and diesel because most vehicles in our key markets are powered by these fuels. Many established businesses are in the market for RNG and other alternatives for use as vehicle fuel, including alternative vehicle and alternative fuel companies, refuse collectors, industrial gas companies, truck stop and fuel station owners, fuel providers, utilities and their affiliates and other organizations. We also compete with suppliers of other alternative vehicle fuels, including renewable diesel, biodiesel and ethanol, as well as producers and fuelers of alternative vehicles, including hybrid, electric and hydrogen-powered vehicles. Additionally, our stations compete directly with other natural gas fueling stations and indirectly with electric vehicle charging stations and fueling stations for other vehicle fuels. In addition, we transport and sell CNG through NG Advantage's virtual natural gas pipelines and interconnects and compete with other participants in this market.

If the alternative vehicle fuel market grows then the number and type of participants in this market and their level of capital and commitments to alternative vehicle fuel programs will increase. We compete for vehicle fuel users based on demand for the type of fuel, which may be affected by a variety of factors, including, among others, cost, supply, availability, quality, cleanliness, and safety of the fuel; cost, availability and reputation of vehicles and engines; convenience and accessibility of fueling stations; regulatory mandates and other requirements; and recognition of the brand. We believe we compare favorably with our competitors based on these factors; however, some of our competitors have substantially greater financial, marketing, and other resources than we have. As a result, these competitors may be able to respond more quickly to changes in customer preferences, legal requirements or other industry or regulatory trends; devote greater resources to the development, promotion and sale of their products; adopt more aggressive pricing policies, dedicate more effort to infrastructure and systems development in support of their business or product development activities; implement more robust or creative initiatives to advance consumer acceptance of their products; or exert more influence on the regulatory landscape that impacts the vehicle fuels market.

Governmental Regulation

We are subject to a variety of federal, state and local laws and regulations relating to the environment, health and safety, labor and employment, building codes and construction, zoning and land use, the government procurement process, any political activities or lobbying in which we may engage, public reporting and taxation, among others. Many of these laws and regulations are complex, change frequently and have become more stringent over time. Any changes to existing regulations, adoption of new regulations or failure by us to comply with applicable regulations may result in significant additional expense to us or to our customers or a variety of administrative, civil, and criminal enforcement measures, any of which could have a material adverse effect on our business, reputation, financial condition and results of operations. Certain regulations that significantly affect our various operating activities are described below. Compliance with these regulations has not had a material effect on our capital expenditures, earnings, or competitive position to date, but new regulations or amendments to existing regulations to make them more stringent could have such an effect in the future. We cannot estimate the expenses we may incur to comply with potential new laws or changes to existing laws, or the other potential effects these laws may have on our business, and these unknown costs and effects are not specifically contemplated by our existing customer agreements or our budgets and cost estimates.

We are subject to federal, state, and local air quality, solid waste, and water quality regulations and permitting requirements. Specific construction and operating permit requirements may differ among states. Specific permits we frequently must obtain include air permits, nonhazardous waste management permits, pollutant discharge elimination permits, and beneficial use permits. We must also maintain compliance with relevant federal, state and local environmental, health and safety requirements.

RNG projects are subject to federal RFS program regulations. The EPA administers the RFS program with volume requirements for several categories of renewable fuels. The EPA's RFS regulations establish rules for fuel supplied and administer the RIN system for compliance, trading credits and rules for waivers. The EPA calculates a blending standard for each year based on estimates of gasoline usage from the Department of Energy's Energy Information Agency. Separate quotas and blending requirements are determined for cellulosic biofuels, biomass-based diesel, advanced biofuels, and total renewable fuel. Further, we are required to register each RNG project with the EPA and relevant state regulatory agencies. We qualify our RINs through a voluntary Quality Assurance Plan, which typically takes from three to five months from first injection of RNG into the commercial pipeline system. Further, we may make a large project investment prior to receiving the regulatory approval and RIN qualification. In addition to registering each RNG project, we are subject to quarterly audits under the Quality Assurance Plan of our projects to validate our qualification.

Our operations are also subject to state renewable fuel standard regulations. The CA LCFS program requires producers of petroleum-based fuels to reduce the CI of their products, which began with a quarter of a percent in 2011 to a 10% total reduction by 2020, and a 20% total reduction by 2030. Petroleum importers, refiners and wholesalers can either develop their own low-carbon fuel products or buy CA LCFS credits from other companies that develop and sell low-carbon alternative fuels, such as biofuels, electricity, natural gas, or hydrogen. We are subject to a qualification process like that for RINs, including verification of CI levels and other requirements existing for CA LCFS credits.

Before an RNG project can be developed, all Resource Conservation and Recovery Act ("RCRA") Subtitle D requirements (requirements for nonhazardous solid waste management) must be satisfied. In particular, because methane is explosive in certain concentrations and poses a hazard if it migrates, biogas collection systems must meet RCRA Subtitle D standards for gas control. RNG projects may be subject to other federal, state and local regulations that impose requirements for nonhazardous solid waste management.

Certain of our operations may be subject to federal requirements to prepare for and respond to spills or releases from tanks and other equipment and provide training on operation, maintenance and discharge prevention procedures and the applicable pollution control laws. We may be required to develop spill prevention, control and countermeasure plans to memorialize our preparation and response plans and to update them on a regular basis.

Our operations may result in liability for hazardous substances or other materials placed into soil or groundwater. Pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980 or other federal, state, or local laws governing the investigation and cleanup of sites contaminated with hazardous substances, we may be required to investigate and/or remediate soil and groundwater contamination at our projects, contiguous and adjacent properties and other properties owned and/or operated by third parties.

Additionally, biogas projects may need to obtain National Pollutant Discharge Elimination System permits if wastewater is discharged directly to a receiving water body. If wastewater is discharged to a local sewer system, biogas projects may need to obtain an industrial wastewater permit from a local regulatory authority for discharges to a Publicly Owned Treatment Works. The authority to issue these permits may be delegated to state or local governments by the EPA. The permits, which typically last five years, limit the quantity and concentration of pollutants that may be discharged. Permits may require wastewater treatment or impose other operating conditions to ensure compliance with the limits. In addition, the Clean Water Act and implementing state laws and regulations require individual permits or coverage under general permits for discharges of storm water runoff from certain types of facilities.

On September 23, 2020, the California Governor issued an Executive Order N-79-20 setting goals for expanding the sale and use of zero-emission vehicles within California, including 100% of in-state sales of new passenger cars and trucks to be zero-emission by 2035, and 100% of medium- and heavy-duty truck vehicles in California to be zero-emission by 2045 for all operations where feasible. The Governor also directed CARB to develop and propose regulations to achieve these goals consistent with state and federal law. This order is the latest in a series of targets set by California to transform the energy and transportation fuel sectors and reduce GHG emissions. Executive Order B55-18 sets a statewide target to achieve carbon neutrality no later than 2045. The transitioning of California's energy markets to increased reliance on renewable and carbon-free sources has the potential to create favorable market conditions for RNG but could also harm our vehicle fueling business. Future regulatory actions will be required to meet the state's zero-emission and carbon neutrality targets.

Employees and our Human Capital

As of December 31, 2022, we employed 496 people. We have not experienced any work stoppages, and none of our employees are subject to collective bargaining agreements.

The success and growth of our business is significantly correlated with our ability to recruit, train, promote and retain talented individuals at all levels of our organization. To succeed in a competitive labor market, we have developed and maintain key recruitment and retention strategies. These include competitive salary structures, including bonus compensation programs, and competitive benefits policies, including paid time off for vacations, sick leave and holidays, short-term disability coverage, group term life insurance, and various retirement savings and incentive plans.

Safety of our personnel is a core value of Clean Energy and maintaining a safe work environment is critical to an energy company's ability to attract and retain employees. To support the health and safety of our employees during the COVID-19 pandemic, we enhanced our safety protocols to promote the health of our employees.

Sales and Marketing

We market our brands, products and services primarily through our direct sales force, which includes sales representatives covering all of our major geographic and customer markets, as well as attendance at trade shows and participation in industry conferences and events. Our sales and marketing team also work closely with federal, state and local government agencies to provide education about the value of our vehicle fuels and to keep abreast of proposed and newly adopted regulations that affect our industry.

Seasonality

To some extent, our business may experience seasonality. For more information, see the discussion under "Seasonality and Inflation" in Item 7. "Management's Discussion and Analysis of Financial Condition and Results of Operations."

Intellectual Property

Our intellectual property rights primarily consist of trade secrets, patents, know-how and trademarks, and we rely on a combination of trademark laws, trade secret laws, confidentiality provisions and other contractual provisions to protect these rights and our proprietary information. These intellectual property rights help us to retain existing business and secure new relationships with customers.

More Information

Our website is located at www.cleanenergyfuels.com. We make available, free of charge on our website, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. The SEC maintains a website at www.sec.gov that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC, including us. All references to our website in this report are inactive textual references, and the contents of our website are not incorporated into this report.

Item 1A. Risk Factors

An investment in our Company involves a high degree of risk of loss. You should carefully consider the risk factors discussed below and all of the other information included in this report before you make any investment decision regarding our securities. We believe the risks and uncertainties described below are the most significant we face, but additional risks *and uncertainties not known to us or that we currently deem immaterial could also be or become significant. The occurrence of any of these risks could harm our business, financial condition, results of operations, prospects and reputation and could cause the trading price of our common stock to decline.*

Risks Related to Our Business

Our success is dependent on the willingness of fleets and other consumers to adopt our vehicle fuels, which may not occur in a timely manner, at expected levels or at all.

Our success is highly dependent on the adoption by fleets and other consumers of our RNG and conventional natural gas vehicle fuels. The market for our vehicle fuels has experienced slow, volatile and unpredictable growth in many sectors. For example, adoption and deployment of our vehicle fuels in heavy-duty trucking has been slower and more limited than we anticipated. Also, other important fleet markets, including airports and public transit, had slower volume and customer growth in recent years that may continue. If the market for our vehicle fuels does not develop at improved rates or levels, or if a market develops but we are not able to capture a significant share of the market or the market subsequently declines, our business, prospects, financial condition, and operating results would be harmed.

Factors that may influence the adoption of our vehicle fuels, many of which are beyond our control, include, among others:

- Lack of demand for trucks that use our vehicle fuels;

- Adoption or expansion of government policies, programs, funding or incentives, or increased publicity or popular sentiment in favor of vehicles or fuels other than RNG and natural gas, including long-standing support for gasoline and diesel-powered vehicles, changes to emissions requirements applicable to vehicles powered by gasoline, diesel, RNG, natural gas, or other vehicle fuels and/or growing support for electric and hydrogen-powered vehicles;

- Limitations on the capabilities of utilities to provide services to meet our requirements. For example, natural gas utilities may be unable to expand piping or provide services for new expansions, and electric utilities may lack the capacity to provide service for our projects;

- Perceptions about the benefits of our vehicle fuels relative to gasoline, diesel and other alternative vehicle fuels, including with respect to factors such as supply, cost savings, environmental benefits and safety;

- Increases, decreases or volatility in the supply, demand, use and prices of crude oil, gasoline, diesel, RNG, natural gas and other vehicle fuels, such as electricity, hydrogen, renewable diesel, biodiesel and ethanol;

- Inertia among fleets and fleet vehicle operators, who may be unable or unwilling to prioritize converting a fleet to our vehicle fuels over an operator's other general business concerns, particularly if the operator is not sufficiently incentivized by emissions regulations or other requirements or lacks demand for the conversion from its customers, drivers, or other stakeholders;

- Vehicle cost, fuel efficiency, availability, quality, safety, convenience (to fuel and service), design, performance and residual value, as well as operator perception with respect to these factors, generally and in our key customer markets and relative to comparable vehicles powered by other fuels;

- The development, production, cost, availability, performance, sales and marketing and reputation of engines that are well-suited for the vehicles used in our key customer markets, including heavy-duty trucks and other fleets;

- Increasing competition in the market for vehicle fuels generally, and the nature and effect of competitive developments in this market, including improvements in or perceived advantages of other vehicle fuels and engines powered by these fuels;

- The availability and effect of environmental, tax or other government regulations, programs or incentives that promote our products or other alternatives as a vehicle fuel, including certain programs under which we generate credits by selling RNG as a vehicle fuel, as well as the market prices for such credits; and

- Emissions and other environmental regulations and pressures on producing, transporting, and dispensing our fuels.

In June 2020, CARB adopted the Advanced Clean Trucks regulation, which requires manufacturers to sell a gradually increasing proportion of zero-emission electric trucks, vans and pickup trucks from 2024 onwards. By the year 2045, the Advanced Clean Trucks regulation seeks to have every new commercial vehicle sold in California be zero-emissions. Further, in September 2020, the Governor of the State of California issued an executive order (the "September 2020 Executive Order") providing that it shall be the goal of California that (i) 100% of in-state sales of new passenger cars and trucks will be zero-emission by 2035, (ii) 100% of medium- and heavy-duty vehicles in California will be zero-emission by 2045 for all operations, where feasible, and by 2035 for drayage trucks, and (iii) the state will transition to 100% zero-emission off-road vehicles and equipment by 2035 where feasible. The September 2020 Executive Order also directed CARB to develop and propose regulations and strategies aimed at achieving the foregoing goals. Resulting regulations mandate increasing adoption of zero-emission vehicles. Among other things, we believe the intent of the Advanced Clean Trucks regulation and the September 2020 Executive Order is to limit and ultimately discontinue the production and use of internal combustion engines because such engines have "tailpipe" emissions. Implementation of such regulations and executive actions may slow, delay or prevent the adoption by fleets and other commercial consumers of our vehicle fuels, particularly in California. Moreover, other states have taken steps to enact similar regulations, which may slow, delay, change, or prevent the adoption of our vehicle fuels in those states as well. These actions could result in state funding and incentive programs being directed only to the adoption of electric vehicles. In December 2021, President Biden signed an executive order (the "2021 Executive Order") that directs the federal government to achieve certain goals, including purchasing 100% zero-emission vehicles by 2035 for its fleet of over 600,000 cars and trucks.

Our RNG business may not be successful.

Our RNG business consists of procuring RNG from projects we plan to develop and own or from projects owned by third-party producers and reselling this RNG through our fueling infrastructure.

The success of our RNG business depends on our ability to secure, on acceptable terms, a sufficient supply of RNG; sell this RNG in adequate volumes and at prices that are attractive to customers and produce acceptable margins for us; and sell Environmental Credits we may generate under applicable federal or state programs from our sale of RNG as a vehicle fuel at favorable prices.

Our ability to maintain an adequate supply of RNG is subject to risks affecting RNG production. Projects that produce RNG often experience unpredictable production levels or other difficulties due to a variety of factors, including, among others, problems with equipment, severe weather, droughts, financial condition of the applicable ADG and LFG source owner, health crises and pandemics, construction delays, technical difficulties, high operating costs, limited availability, unfavorable composition of collected feedstock gas, and plant shutdowns caused by upgrades, expansion or required maintenance. In addition, increasing demand for RNG will result in more robust competition for supplies of RNG, including from other vehicle fuel providers, gas utilities (which may have distinct advantages in accessing RNG supply including potential use of ratepayer funds to fund RNG purchases if approved by a utility's regulatory commission) and other users and providers. If we or any of our RNG suppliers experience these or other difficulties in RNG production processes, or if competition for RNG development projects and supply increases, then our supply of RNG and our ability to resell it as a vehicle fuel could be jeopardized.

Our ability to generate revenue from our sale of RNG or our generation and sale of Environmental Credits depends on many factors, including the markets for RNG as a vehicle fuel and for Environmental Credits. The markets for

Environmental Credits have been volatile and unpredictable in recent periods, and the prices for these credits are subject to fluctuations. For example, during 2022, market prices for RINs were as high as $3.56 and as low as $2.47. Additionally, the value of Environmental Credits, and consequently the revenue levels we may receive from our sale of these credits, may be adversely affected by changes to the federal and state programs under which these credits are generated and sold, prices for and use of oil, diesel or gasoline, the inclusion of additional qualifying fuels in the programs, increased production and use of other fuels in the programs, or other conditions. Our ability to generate revenue from sales of Environmental Credits depends on our strict compliance with these federal and state programs, which are complex and can involve a significant degree of judgment. If the agencies that administer and enforce these programs disagree with our judgments, otherwise determine we are not in compliance, conduct reviews of our activities or make changes to the programs, then our ability to generate or sell these credits could be restricted, permanently limited, or lost entirely, and we could also be subject to fines or other sanctions. Any of these outcomes could force us to purchase credits in the open market to cover any credits we have contracted to sell, retire credits we may have generated but not yet sold, reduce or eliminate a significant revenue stream, or incur substantial additional and unplanned expenses. We experienced many of these effects in connection with the administrative review by CARB of our generation of LCFS Credits in the third and fourth quarters of 2017, during which we were restricted from selling and transferring accumulated LCFS Credits, we were required to make cash payments to third parties to settle preexisting commitments to transfer LCFS Credits, and certain of our LCFS Credits were invalidated. Any permanent or temporary discontinuation or suspension of federal and state programs that provide credits, grants and incentives, such as the alternative fuel excise tax credit ("AFTC"), would also adversely impact our revenue. Moreover, in the absence of programs that allow us to generate and sell Environmental Credits or other federal and state programs that support the RNG vehicle fuel market, or if our customers are not willing to pay a premium for RNG, we may be unable to operate our RNG business profitably or at all.

Our commercial success depends on our ability and the ability of our third-party supply sources to successfully develop and operate projects and produce expected volumes of RNG.

Our specific focus on RNG exposes us to risks related to the supply of and demand for RNG and Environmental Credits, the cost of capital expenditures, government regulation, and economic conditions, among other factors. As an RNG supplier we may also be negatively affected by lower RNG production resulting from lack of feedstock, mechanical breakdowns, faulty technology, competitive markets, or changes to the laws and regulations that mandate the use of renewable energy sources.

In addition, other factors related to the development and operation of renewable energy projects could adversely affect our business, including: (i) changes in pipeline gas quality standards or other regulatory changes that may limit our ability to transport RNG on pipelines for delivery to vehicles or increase the costs of processing RNG to allow for such deliveries; (ii) construction risks, including the risk of delay, that may arise because of inclement weather, labor disruptions, disputes, or increases in costs for equipment and construction materials; (iii) operating risks; (iv) weather conditions; (v) financial condition of the applicable source owner; (vi) health of the applicable dairy herd; (vii) consolidation in the dairy industry; (viii) budget overruns; (ix) possible liabilities because of unforeseen environmental, construction, technological or other complications; (x) failures or delays in obtaining desired or necessary rights, including leases and feedstock agreements; and (xi) failures or delays in obtaining and keeping in good standing permits, authorizations and consents from local city, county, state and U.S. federal governments as well as local and U.S. federal governmental organizations. Any of these factors could prevent completion or operation of projects, or otherwise adversely affect our business, financial condition, and results of operations.

Acquisition, financing, construction, and development of projects by us or our partners that own projects may not commence on anticipated timelines or at all.

Our strategy is to continue to expand, including through the acquisition of additional projects and by signing additional supply agreements with third-party project owners. From time to time we and our partners enter into nonbinding letters of intent for projects. Until the negotiations are final, however, and the parties have executed definitive documentation, we or our partners may not be able to consummate any development or acquisition transactions, or any other similar arrangements, on the terms set forth in the applicable letter of intent or at all.

The acquisition, financing, construction and development of projects involves numerous risks, including: the ability to obtain financing for a project on acceptable terms or at all; difficulties in identifying, obtaining, and permitting suitable sites for new projects; failure to obtain all necessary rights to land access and use; inaccuracy of assumptions with respect to the cost and schedule for completing construction; inaccuracy of assumptions with respect to the biogas potential, including quality, volume, and asset life; delays in deliveries or increases in the price of equipment; permitting and other regulatory issues, license revocation and changes in legal requirements; increases in the cost of labor, labor disputes and work stoppages; failure to receive quality and timely performance of third-party or utility services; unforeseen engineering and environmental problems; cost overruns; accidents involving personal injury or the loss of life; and weather conditions, catastrophic events, including fires, explosions, earthquakes, droughts and acts of terrorism, and other force majeure events.

We are dependent on the production of vehicles and engines in our key customer and geographic markets by vehicle and engine manufacturers, over which we have no control.

Vehicle and engine manufacturers control the development, production, quality assurance, cost and sales and marketing of their products, which shapes the performance, availability and reputation of these products in the marketplace. We are dependent on these manufacturers to succeed in our target markets, and we have no influence or control over their activities. For example, Cummins is the only engine manufacturer for the RNG and natural gas heavy-duty truck market in the United States, and Cummins and other original equipment manufacturers currently produce a relatively small number of engines and vehicles that use our vehicle fuels. These manufacturers may decide not to expand or maintain, or may decide to discontinue or curtail, their engine or vehicle product lines for a variety of reasons, including as a result of the adoption of government policies or programs such as the Advanced Clean Trucks regulation and the September 2020 Executive Order. Further, the supply of engines or vehicle product lines by these manufacturers has been and continues to be disrupted/delayed due to the lingering impacts of the COVID-19 pandemic and global supply chain issues. The limited production of engines and vehicles that use our fuels increases their cost and limits availability, which restricts large-scale adoption, and may reduce resale value, which may contribute to operator reluctance to convert their fleets to vehicles that use our fuels. In addition, some operators have communicated to us that the first-generation models of heavy-duty truck engines using our fuels have a reputation for unsatisfactory performance, and that this reputation or their first-hand experiences of such performance may be a factor in operator decisions regarding whether to convert their fleets to vehicles that use our fuels.

To secure ADG RNG from new projects we develop, we typically face a long and variable development cycle that requires significant resource commitments and a long lead time before we realize revenue.

The development, design and construction process for ADG RNG projects generally lasts between 12 to 24 months on average. Prior to entering into a letter of intent with respect to an ADG RNG project, we typically conduct a preliminary assessment of whether the site is commercially viable based on our expected return on investment, investment payback period, and other operating metrics, as well as whether the necessary permits to develop a project on that site are available. After entering into a project letter of intent, we perform a more detailed review of the site's facilities, including a life-cycle assessment, which serves as the basis for the final specifications of the project. Finally, we negotiate and execute contracts with the site owner and other parties. This extended development process requires the dedication of significant time and resources from our personnel, with no certainty of success or recovery of our expenses. Further, upon commencement of operations, it takes about 15-18 months for the project to ramp up to expected production level, receive necessary registrations and approvals from the Environmental Protection Agency (the "EPA") and CARB, and begin generating revenue. All these factors, and in particular, expenditures on development of projects that will not generate significant revenue in the near term, can contribute to fluctuations in our quarterly financial performance and increase the likelihood that our operating results in a particular period will fall below investor expectations.

Livestock waste and dairy farm projects are more dependent on LCFS credits and RINS, and therefore have different economic models and risk profiles than, landfill facilities, and we may not be able to achieve the operating results we expect from these projects.

Livestock waste and dairy farm projects produce less RNG and have higher capital and operating costs than landfill facilities. As a result, these projects are even more dependent on the LCFS credits and, to a lesser extent, RINs for commercial viability. If CARB reduces the CI score that it applies to waste conversion projects, such as dairy digesters, the number of LCFS credits for RNG generated at livestock waste and dairy farm projects will decline. Additionally, revenue from LCFS credits also depends on the price per LCFS credit, which is driven by various market forces, including the supply of and demand for LCFS credits, which in turn depends on the demand for traditional transportation fuel and the supply of renewable fuel from other renewable energy sources, and mandated CI targets, which determine the number of LCFS credits required to offset LCFS deficits. Fluctuations in the price of LCFS credits or the number of LCFS credits assigned will have a significantly greater effect on the success of livestock waste and dairy farm projects. RINs and LCFS Credit prices have fluctuated in recent years and will likely continue to be volatile. A significant decline in the value of LCFS credits could adversely affect our business, financial condition, and results of operations.

We have a history of losses and may incur additional losses in the future.

We incurred pre-tax losses in 2020, 2021 and 2022. During 2020, 2021 and 2022, our results were positively affected by \$19.8 million, \$20.7 million and \$21.8 million of AFTC revenue, respectively. We may incur losses in future periods, and we may never sustain profitability, either of which would adversely affect our business, prospects and financial condition and may cause the price of our common stock to fall. Furthermore, historical losses may not be indicative of future losses, and our future losses may be greater than our past losses. In addition, to try to achieve or sustain profitability, we may choose or be forced to take actions that result in material costs or material asset or goodwill impairments. For instance, in the third and fourth quarters of 2017, we recorded significant charges in connection with our former fueling compressor manufacturing business (which we combined with another company's fueling compressor manufacturing business in the CEC Combination (as defined in Note 3 to the Consolidated Financial Statements)), our closure of certain fueling stations, our determination that certain assets were impaired because of the foregoing, and other actions. We review our assets for impairment whenever events or changes in circumstances indicate that the carrying value of an asset or asset group may not be recoverable, and we perform a goodwill impairment test on an annual basis and between annual tests in certain circumstances, in each case in accordance with applicable accounting guidance and as described in the financial statements and related notes included in this report. Changes to the use of our assets, divestitures, changes to the structure of our business, significant negative industry or economic trends, disruptions to our operations, inability to effectively integrate any acquired businesses, further market capitalization declines, or other similar actions or conditions could result in additional asset impairment or goodwill impairment charges or other adverse consequences, any of which could have material negative effects on our financial condition, our results of operations and the trading price of our common stock.

Our plans for hydrogen and electric vehicle stations will require significant cash investments and management resources and may not meet our expectations.

As operators deploy hydrogen powered vehicles, we plan to modify our fueling stations to reform our RNG, build additional hydrogen stations, and deliver clean hydrogen. Further, we have the capability to add electric charging at our sites, and we believe our RNG can be used to generate clean electricity to power vehicles.

Our plans will require significant cash investments and management resources and may not meet our expectations with respect to additional sales of our vehicle fuels. We have experience constructing hydrogen fueling stations, but such facilities cost significantly more than traditional RNG vehicle fueling stations. In addition, we have not yet added electric charging capability to any of our stations, and the cost of such capability may be significant. We will need to ensure compliance with all applicable regulatory requirements, including obtaining any required permits and land use rights, which could take considerable time and expense and is subject to the risk that government support in certain areas may be discontinued. If we are unable to modify our stations to provide hydrogen or add electric charging to our stations, or if we experience delays in doing so, our stations may be unable to meet our customer demand, which may negatively impact our business, prospects, financial condition, and operating results.

Various manufacturers have announced their plans to bring long-haul Class 8 commercial hydrogen- and battery-powered vehicles to the market over the coming years. We will, however, be dependent on these manufacturers to succeed in our target markets, and we will have no influence over their activities. See the risks discussed under "*We are dependent on the production of vehicles and engines in our key customer and geographic markets by vehicle and engine manufacturers, over which we have no control*," above and elsewhere in these risk factors.

Increases, decreases and general volatility in oil, gasoline, diesel, natural gas and RNG prices could adversely affect our business.

The prices of RNG, natural gas, crude oil, gasoline and diesel can be volatile and this volatility may continue to increase. Factors that may cause volatility in the prices of RNG, natural gas, crude oil, gasoline and diesel include, among others, changes in supply and availability of crude oil, RNG, and natural gas, government regulations, inventory levels, consumer demand, price and availability of alternatives, weather conditions, negative publicity about crude oil or natural gas drilling, production or transportation techniques and methods, worldwide economic, military, health and political conditions, transportation costs and the price of foreign imports. If the prices of crude oil, gasoline and diesel are low or decline, or if the price of RNG or natural gas increases without corresponding increases in the prices of crude oil, gasoline and diesel or Environmental Credits, we may not be able to offer our customers an attractive price for our vehicle fuels, market adoption of our vehicle fuels could be slowed or limited and/or we may be forced to reduce the prices at which we sell our vehicle fuels in order to try to attract new customers or prevent the loss of demand from existing customers. Natural gas and crude oil prices are expected to remain volatile for the near future because of market uncertainties over supply and demand, including due to the state of the world economy, geopolitical conditions, military conflicts such as the war in Ukraine, energy infrastructure and other factors. Fluctuations in natural gas prices affect the cost to us of the natural gas commodity. High natural gas prices adversely affect our operating margins when we cannot pass the increased costs through to our customers. Conversely, lower natural gas prices reduce our revenue when the commodity cost is passed through to our customers.

Pricing conditions may also exacerbate the cost differential between vehicles that use our fuels and gasoline or diesel-powered vehicles, which may lead operators to delay or refrain from purchasing or converting to our vehicle fuels. Generally, vehicles that use our fuels cost more initially than gasoline or diesel-powered vehicles because the components needed for a vehicle to use our fuels add to the vehicle’s base cost. Operators then seek to recover the additional base cost over time through a lower cost to use our fuels. Operators may, however, perceive an inability to timely recover these additional initial costs if our vehicle fuels are not available at prices sufficiently lower than gasoline and diesel. Such an outcome could decrease our potential customer base and harm our business prospects.

We face increasing competition from competitors, many of which have far greater resources, experience, customer bases and brand awareness than we have, and we may not be able to compete effectively with these businesses.

The market for vehicle fuels is highly competitive. The biggest competition for our products is gasoline and diesel because most vehicles in our key markets are powered by these fuels. We also compete with suppliers of other alternative vehicle fuels, including renewable diesel, biodiesel, and ethanol, as well as producers and fuelers of alternative vehicles, including hybrid, electric and hydrogen-powered vehicles. Additionally, our stations compete directly with other natural gas fueling stations and indirectly with electric vehicle charging stations and fueling stations for other vehicle fuels.

Many businesses are in the market for RNG and other alternatives for use as vehicle fuel, including alternative vehicle and alternative fuel companies, refuse collectors, industrial gas companies, private equity groups, commodity traders, truck stop and fuel station owners, fuel providers, gas marketers, utilities and their affiliates and other organizations. If the alternative vehicle fuel market grows, the number and type of participants in this market and their level of capital and other commitments to alternative vehicle fuel programs could increase. Many of our competitors have substantially greater experience, customer bases, brand awareness and financial, marketing and other resources than we have. As a result, these competitors may be able to respond more quickly to changes in customer preferences, legal requirements or other industry or regulatory trends; devote greater resources to the development, promotion and sale of their products; adopt more aggressive pricing policies; dedicate more effort to infrastructure and systems development in support of their business or product development activities; implement more robust or creative initiatives to advance consumer acceptance of their products; or exert more influence on the regulatory landscape that affects the vehicle fuels market.

We expect competition to increase in the vehicle fuels market generally. In addition, if the demand for alternative vehicle fuels, including RNG, increases, then we expect competition to also increase. Any such increased competition may reduce our customer base and revenue and may lead to increased pricing pressure, reduced operating margins and fewer expansion opportunities.

NG Advantage may not be successful.

NG Advantage provides "virtual pipelines" to transport CNG by truck from compression facilities to pipeline interconnects and to industrial and commercial customer users that do not have direct access to natural gas pipelines. NG Advantage faces unique risks, including among others: (i) it has a history of net losses and has incurred substantial indebtedness; (ii) NG Advantage will need to raise additional capital, which may not be available, may only be available on onerous terms, or may only be available from the Company; (iii) the labor market for truck drivers is very competitive, which increases NG Advantage's difficulty in meeting its delivery obligations; (iv) NG Advantage often transports CNG in trailers over long distances and these trailers may be involved in accidents; and (v) NG Advantage's CNG trailers may become subject to new or changed regulations that could adversely affect its business. If NG Advantage fails to manage any of these risks, our business, financial condition, liquidity, results of operations, prospects and reputation may be harmed. In addition, we have been a significant source of financing for NG Advantage. If NG Advantage is not able to obtain financing from external sources, we may need to provide additional debt or equity capital to allow NG Advantage to satisfy its commitments and maintain operations.

Our station construction activities subject us to business and operational risks.

As part of our business activities, we design and construct vehicle fueling stations that we either own and operate ourselves or sell to our customers. These activities require a significant amount of judgment in determining where to build and open fueling stations, including predictions about fuel demand that may not be accurate for any of the locations we target. As a result, we have built stations that we may not open for fueling operations, and we may open stations that fail to generate the volume or profitability levels we anticipate, either or both of which could occur due to a lack of sufficient customer demand at the station locations or for other reasons. For any stations that are completed but unopened, we would have substantial investments in assets that do not produce revenue, and for any stations that are open and underperforming, we may decide to close the stations. We determined to close a number of underperforming stations in the third and fourth quarters of 2017 and recorded impairment charges in connection with these closures and other related actions. As of December 31, 2022, we had 26 nearly completed stations with a carrying amount of $47.5 million that were not open for fueling operations. We do not know when or if these stations will open, and some of these stations are subject to agreements that may expire prior to us being able to open such stations. Closure of these and/or any other stations could result in substantial additional costs and non-cash asset impairments or other charges and could cause the price of our common stock to decline.

We also face many operational challenges in connection with our station design and construction activities. For example, we may not be able to identify suitable locations for the stations we or our customers seek to build. Additionally, even if preferred sites can be located, we may encounter land use or zoning difficulties, problems with utility services, challenges obtaining and retaining required permits and approvals or local resistance, including due to reduced operations of permitting agencies because of health crises, any of which could prevent us or our customers from building new stations on these sites or limit or restrict the use of new or existing stations. Any such difficulties, resistance or limitations or any failure to comply with local permit, land use or zoning requirements could restrict our activities or expose us to fines, reputational damage or other liabilities, which would harm our business and results of operations. In addition, we act as the general contractor and construction manager for new station construction and facility modification projects, and we typically rely on licensed subcontractors to perform the construction work. We may be liable for any damage we or our subcontractors cause or for injuries suffered by our employees or our subcontractors' employees during the course of work on our projects. Additionally, shortages of skilled subcontractor labor could significantly delay a project or otherwise increase our costs. Further, our expected profit from a project is based in part on assumptions about the cost of the project, and cost overruns, delays or other execution issues may, in the case of projects we complete and sell to customers, result in our failure to achieve our expected margins or cover our costs, and in the case of projects we build and own, result in our failure to achieve an acceptable rate of return. If any of these events occur, our business, operating results and liquidity could be negatively affected.

We have significant contracts with government entities, which are subject to unique risks.

We have, and expect to continue to seek, long-term fueling station construction, maintenance and fuel sale contracts with various government bodies, which accounted for 22%, 31% and 27% of our revenue in 2020, 2021 and 2022, respectively. In addition to normal business risks, including the other risks discussed in these risk factors, our contracts with government entities are often subject to unique risks, some of which are beyond our control. For example, long-term government contracts and related orders are subject to cancellation if adequate appropriations for subsequent performance periods are not made. Further, the termination of funding for a government program supporting any of our government contracts or any other governmental action that results in reduced support for our government contracts could result in the loss of anticipated future revenue attributable to the contract. Moreover, government entities with which we contract are often able to modify, curtail or terminate contracts with us at their convenience and without prior notice, and would only be required to pay for work completed and commitments made at or prior to the time of termination.

In addition, government contracts are frequently awarded only after competitive bidding processes, which are often protracted. In many cases, unsuccessful bidders for government contracts are provided the opportunity to formally protest the contract awards through various agencies or other administrative and judicial channels. The protest process may substantially delay a successful bidder's contract performance, result in cancellation of the contract award entirely and distract management. As a result, we may not be awarded contracts for which we bid, and substantial delays or cancellation of contracts may follow any successful bids as a result of any protests by other bidders. The occurrence of any of these risks would have a material adverse effect on our results of operations and financial condition.

We may from time to time pursue acquisitions, divestitures, investments or other strategic relationships or transactions, which could fail to meet expectations or otherwise harm our business.

We may acquire or invest in other companies or businesses or pursue other strategic transactions or relationships, such as joint ventures, collaborations, divestitures, or other similar arrangements. For example, in 2021 we created joint ventures with each of TotalEnergies and bp to develop and own dairy RNG production projects. These strategic transactions and relationships and any others we may pursue in the future involve numerous risks, any of which could harm our business, performance and liquidity, including, among others, the following: (i) difficulties integrating the operations, personnel, contracts, service providers and technologies of an acquired company or partner; (ii) diversion of financial and management resources from existing operations or alternative acquisition, investment, strategic or other opportunities; (iii) failure to realize the anticipated synergies or other benefits of a transaction or relationship; (iv) risks of entering new customer or geographic markets in which we may have limited or no experience; (v) potential loss of an acquired company's or partner's key employees, customers or vendors in the event of an acquisition or investment, or potential loss of our assets (and their associated revenue streams), employees or customers in the event of a divestiture or other strategic transaction; and (vi) incurrence of substantial costs or debt or equity dilution to fund an acquisition, investment or other transaction or relationship, as well as possible write-offs or impairment charges relating to any businesses we partner with, invest in or acquire.

Our partners may choose to invest in renewable or low carbon vehicle fuels other than RNG.

Our partners, including TotalEnergies, bp and Chevron, may reallocate their resources from RNG to other renewable or low carbon vehicle fuels. Any such action would have a material adverse effect on our plans, results of operations and financial condition.

Our results of operations fluctuate significantly and are difficult to predict.

Our results of operations have historically experienced, and may continue to experience, significant fluctuations as a result of a variety of factors, including, among others, the amount and timing of our vehicle fuel sales, Environmental Credit sales and recognition of government credits, station construction sales, grants and incentives, such as AFTC (for example, we recorded all of the AFTC revenue associated with our vehicle fuel sales made in 2017 during the first quarter of 2018, and we recorded all of the AFTC revenue associated with our vehicles fuel sales made in 2018 and 2019 in the fourth quarter of 2019); fluctuations in commodity, station construction and labor costs; variations in the fair value of certain of our derivative instruments that are recorded in revenue; sales of compressors and other equipment used in RNG production and at fueling stations; the amount and timing of our billing, collections and liability payments; and the other factors described in these risk factors.

Our performance in certain periods has also been affected by transactions or events that have resulted in significant cash or non-cash gains or losses. For example, our results for 2017 were positively affected by gains related to repurchases or retirements of our outstanding convertible debt at a discount and by a gain related to bp, but were also negatively affected by significant charges in connection with our closure of certain fueling stations, the decreased operating performance of our former fueling compressor manufacturing business, our determination of an impairment of assets as a result of the foregoing, and certain other actions. These or other similar gains or losses may not recur, in the same amounts or at all in future periods.

These significant fluctuations in our operating results may render period-to-period comparisons less meaningful, especially given uncertainties related to the impacts of the COVID-19 pandemic, and investors in our securities should not rely on the results of one period as an indicator of performance in any other period. Additionally, these fluctuations in our operating results could cause our performance in any period to fall below the financial guidance we may have provided to the public or the estimates and projections of the investment community, which could negatively affect the price of our common stock.

Our warranty reserves may not adequately cover our warranty obligations, which could result in unexpected costs.

We provide product warranties with varying terms and durations for the stations we build and sell, and we establish reserves for the estimated liability associated with these warranties. Our warranty reserves are based on historical trends and any specifically identified warranty issues known to us, and the amounts estimated for these reserves could differ materially from the warranty costs we may actually incur. We would be adversely affected by an increase in the rate or volume of warranty claims or the amounts involved in warranty claims, any of which could increase our costs beyond our established reserves and cause our cash position and financial condition to suffer.

The COVID-19 pandemic and measures intended to reduce its spread have adversely affected, and may continue to adversely affect, our business, results of operations and financial condition.

We may be subject to various risks and uncertainties because of the COVID-19 pandemic or other pandemics, epidemics, or infectious disease outbreaks, including a delay in the adoption of our RNG and natural gas vehicle fuels by heavy-duty trucks and/or a delay in increasing the use of our vehicle fuels; a decrease in the volume of truck and fleet operations, including shuttle buses at airports, and lower-than-normal levels of public transportation generally, which have resulted and may in the future result in decreased demand for our vehicle fuels; and the effect of business disruptions on the production of vehicles and engines that use our fuels, which has resulted in, and may in the future result in, plant closures, decreased manufacturing capacity, and delays in deliveries.

Risks Related to Our Indebtedness and Other Capital Resources.

We may need to raise additional capital to continue to fund our business, which could have negative effects and may not be available when needed, on acceptable terms or at all.

We require capital to pay for capital expenditures, operating expenses, any mergers, acquisitions or strategic investments, capital calls related to our joint ventures, transactions or relationships we may pursue, and to make principal and interest payments on our indebtedness. If we cannot fund any of these activities with capital on-hand or cash provided by our operations, we may seek to obtain additional capital from other sources, such as by selling assets or pursuing debt or equity financing.

Asset sales and equity or debt financing may not be available when needed, on terms favorable to us or at all. Any sale of our assets to generate cash proceeds may limit our operational capacity and could limit or eliminate any revenue streams or business plans that are dependent on the sold assets. Any issuances of our common stock or securities convertible into our common stock to raise capital would dilute the ownership interest of our existing stockholders. Any debt financing we may pursue could require us to make significant interest or other payments and to pledge some or all of our assets as security. In addition, higher levels of indebtedness could increase our risk of non-repayment, adversely affect our creditworthiness, and amplify the other risks associated with our existing debt, which are discussed elsewhere in these risk factors. Further, we may incur substantial costs in pursuing any capital-raising transactions, including investment banking, legal and accounting fees. On the other hand, if we are unable to obtain capital in amounts sufficient to fund our obligations, expenses, and strategic initiatives, we could be forced to suspend, delay or curtail our business plans or operating activities or could default on our contractual commitments. Any such outcome could negatively affect our business, performance, liquidity, and prospects.

Our indebtedness could adversely affect our financial condition or operating flexibility and prevent us from fulfilling our obligations under our credit agreement and other indebtedness we may incur, and we may not generate sufficient cash flow from our business to pay our debt.

On December 22, 2022, we and our wholly-owned direct subsidiary Clean Energy entered into a senior secured first lien term loan agreement (the "Credit Agreement") with the lenders from time to time party thereto ("Lenders") and Riverstone Credit Management, LLC, as the administrative agent for the Lenders and collateral agent for the secured parties, pursuant to which the Lenders funded a $150,000,000 senior secured term loan. As of December 31, 2022, we have consolidated indebtedness of $148.6 million, net of debt discount, and we may incur additional debt in the future. Our outstanding and any future indebtedness could make us more vulnerable to adverse changes in general U.S. and worldwide economic, regulatory, and competitive conditions, limit our flexibility to plan for or react to changes in our business or industry, place us at a disadvantage compared to our competitors that have less debt, or limit our ability to borrow or otherwise raise additional capital as needed.

Our payments of amounts owed under our various debt instruments will reduce our cash resources available for other purposes, including pursuing strategic initiatives, transactions or other opportunities, satisfying our other commitments, and generally supporting our operations. Moreover, our ability to make these payments depends on our future performance, which is subject to economic, financial, competitive and other factors, including those described in these risk factors, and many of which are beyond our control. Our business may not generate sufficient cash from operations to service our debt.

If we cannot meet our debt obligations from our operating cash flows, we may pursue one or more alternative measures. Any repayment of our debt with equity, however, would dilute the ownership interests of our existing stockholders. We are permitted under the Credit Agreement to incur additional debt under certain conditions. If new debt were to be incurred in the future, the related risks that we now face could intensify. The Credit Agreement requires us and our subsidiaries, on a consolidated basis, to comply with a maximum total leverage ratio, a minimum interest coverage ratio, and a minimum liquidity test. In addition, the Credit Agreement contains certain covenants that limit or restrict our and our subsidiaries' ability to incur liens, incur indebtedness, dispose of assets, make investments, make certain restricted payments, merge or consolidate, amend our charter documents and certain other agreements, and enter into speculative hedging arrangements.

In the event of any default on our debt obligations, the holders of the indebtedness could, among other things, declare all amounts owed immediately due and payable and foreclose on our assets that serve as collateral. Any such declaration could deplete all or a large portion of our available cash flow, and thereby reduce the amount of cash available to pursue our business plans or force us into bankruptcy or liquidation.

<u>Risks Related to Environmental Health and Safety and Governmental and Environmental Regulations</u>

Our business is influenced by environmental, tax and other government regulations, programs and incentives that promote our vehicle fuels, and their modification or repeal could negatively affect our business.

Our business is influenced by federal, state, and local tax credits, rebates, grants and other government programs and incentives that promote the use of our vehicle fuels. These include various government programs that make grant funds available from the purchase of vehicles and construction of fueling stations, as well as the AFTC under which we generate revenue for our vehicle fuel sales. Additionally, our business is influenced by laws, rules and regulations that require reductions in carbon emissions and/or the use of renewable fuels, such as the programs under which we generate Environmental Credits.

These programs and regulations, which have the effect of encouraging the use of RNG as a vehicle fuel, could expire or be repealed or amended for a variety of reasons. For example, parties with an interest in gasoline and diesel, electric or other alternative vehicles or vehicle fuels, including lawmakers, regulators, policymakers, environmental or advocacy organizations, producers of alternative vehicles or vehicle fuels, or other powerful groups, may invest significant time and money in efforts to delay, repeal or otherwise negatively influence regulations and programs that promote RNG. Many of these parties have substantially greater resources and influence than we have. Further, changes in federal, state or local political, social or economic conditions, including a lack of legislative focus on these programs and regulations, could result in their modification, delayed adoption or repeal. Any failure to adopt, delay in implementing, expiration, repeal or modification of these programs and regulations, or the adoption of any programs or regulations that encourage the use of other alternative fuels or alternative vehicles over RNG (such as the September 2020 Executive Order or the 2021 Executive Order), would reduce the market for RNG as a vehicle fuel and harm our operating results, liquidity, and financial condition.

For instance, California lawmakers and regulators have implemented various measures designed to increase the use of electric, hydrogen and other zero-emission vehicles, including establishing firm goals for the number of these vehicles operating on state roads by specified dates and enacting various laws and other programs in support of these goals. Although the influence and applicability of these or similar measures on our business remains uncertain, a focus on “zero tailpipe emission” vehicles over vehicles with an overall net carbon negative emissions profile, but with some tailpipe emissions operating on RNG, would adversely affect the market for our fuels.

To benefit from Environmental Credits, RNG projects are required to be registered and are subject to audit.

RNG projects are required to register with the EPA and relevant state regulatory agencies. Further, we qualify our RINs through a voluntary Quality Assurance Plan, which typically takes from three to five months from first injection of RNG into the commercial pipeline system. We also must certify RNG pathways with CARB, which typically takes from 15-18 months from first injection of RNG into the commercial pipeline system. Delays in obtaining registration, RIN qualification, and any LCFS credit qualification of a new project could delay future revenues from a project and could adversely affect our cash flow. Further, we may make large investments in projects prior to receiving the regulatory approval and RIN qualification. By registering RNG projects with the EPA’s voluntary Quality Assurance Plan and by establishing RNG pathways under CARB’s LCFS program, we are subject to third-party audits and on-site visits of projects to validate generated RINs and overall compliance with the federal renewable fuel standard and the LCFS. We are also subject to a separate third party’s annual attestation review. The Quality Assurance Plan provides a process for RIN owners to follow, for an affirmative defense to civil liability, if used or transferred Quality Assurance Plan verified RINs were invalidly generated. A project’s failure to comply could result in remedial action, including penalties, fines, retirement of RINs, or termination of the project’s registration, any of which could adversely affect our business, financial condition and results of operations.

Our business could be negatively affected by federal or state laws, orders or regulations mandating new or additional limits on GHG emissions, “tailpipe” emissions or internal combustion engines.

Federal or state laws, orders or regulations have been adopted, such as California’s AB 32 cap and trade law and the 2021 Executive Order, and may in the future be adopted that impose limits on GHG emissions or otherwise require the adoption of zero-emission electric vehicles. The effects of GHG emission limits on our business are subject to significant uncertainties based on, among other things, the timing of any requirements, the required levels of emission reductions, the nature of any market-based or tax-based mechanisms adopted to facilitate reductions, the relative availability of GHG emission reduction offsets, the development of cost-effective, commercial-scale carbon capture and storage technology and supporting regulations and liability mitigation measures, the range of available compliance alternatives, and our ability to demonstrate that our vehicle fuels qualify as a compliance alternative under any statutory or regulatory programs to limit GHG emissions. If our vehicle fuels are not able to meet GHG emission limits or perform as well as other alternative fuels and vehicles, our solutions could be less competitive. Furthermore, additional federal or state taxes could be implemented on “tailpipe” emissions, which would have a negative impact on the cost of our vehicle fuels, as compared to vehicle fuels that do not generate tailpipe emissions. See also the discussion above regarding the Advanced Clean Trucks regulation, the September 2020 Executive Order and the 2021 Executive Order under “*Our success is dependent on the* *willingness of fleets and other consumers to adopt our vehicle fuels, which may not occur in a timely manner, at expected levels or at all.*"

Our business is subject to a variety of government regulations, which may restrict our operations and result in costs and penalties or otherwise adversely affect our business and ability to compete.

We are subject to a variety of federal, state and local laws and regulations relating to the environment, health and safety, labor and employment, building codes and construction, zoning and land use, the government procurement process, any political activities or lobbying in which we may engage, public reporting and taxation, among others. It is difficult and costly to manage the requirements of every authority having jurisdiction over our various activities and to comply with their varying standards. Many of these laws and regulations are complex, change frequently, may be unclear and difficult to interpret and have become more stringent over time. Any changes to existing regulations, adoption of new regulations, or judicial rulings regarding such regulations, may result in significant additional expense to us or our customers. For example, in June 2020, CARB adopted the Advanced Clean Trucks regulation, which seeks to have all new commercial vehicles sold in California have zero-emissions by 2045, in September 2020, California's Governor issued the September 2020 Executive Order, which seeks to have 100% of medium- and heavy-duty vehicles in California be zero emission by 2045, and in December 2021, President Biden signed the 2021 Executive Order, which seeks to achieve 100% zero-emission vehicle acquisitions by the federal government by 2035. Further, from time to time, as part of the regular evaluation of our operations, including newly acquired or developing operations, we may be subject to compliance audits by regulatory authorities, which may distract management from our revenue-generating activities and involve significant costs and use of other resources. Also, we often need to obtain facility permits or licenses to address, among other things, storm water or wastewater discharges, waste handling and air emissions in connection with our operations, which may subject us to onerous or costly permitting conditions or delays if permits cannot be timely obtained. Our failure to comply with any applicable laws and regulations could result in a variety of administrative, civil and criminal enforcement measures, including, among others, assessment of monetary penalties, imposition of corrective requirements or prohibition from providing services to government entities. If any of these enforcement measures were imposed on us, our business, financial condition, and performance could be negatively affected.

We are subject to various environmental laws and regulations that could impose substantial costs upon us.

Our operations are and will be subject to federal, state and local environmental laws and regulations, including laws relating to the use, handling, storage, disposal of and human exposure to hazardous materials. Moreover, we expect that we will be affected by future amendments to such laws or other new environmental and health and safety laws and regulations which may require us to change our operations, potentially resulting in a material adverse effect on our business, prospects, financial condition, and operating results. These laws can give rise to liability for administrative oversight costs, cleanup costs, property damage, bodily injury, fines, and penalties. Capital and operating expenses needed to comply with environmental laws and regulations can be significant, and violations may result in substantial fines and penalties, third-party damages, suspension of production or a cessation of our operations.

Contamination at properties we own or operate, will own or operate, or formerly owned or operated or to which hazardous substances were sent by us, may result in liability for us under environmental laws and regulations, including, but not limited to, the Comprehensive Environmental Response, Compensation and Liability Act, which can impose liability for the full amount of remediation-related costs without regard to fault, for the investigation and cleanup of contaminated soil and ground water, for impacts to human health and for damages to natural resources. The costs of complying with environmental laws and regulations and any claims concerning noncompliance, or liability with respect to contamination in the future, could have a material adverse effect on our financial condition or operating results. We may face unexpected delays in obtaining the required permits and approvals in connection with our planned RNG production facilities that could require significant time and financial resources and delay our ability to operate these facilities, which would adversely impact our business, prospects, financial condition and operating results.

Our operations entail inherent safety and environmental risks, which may result in substantial liability to us.

Our operations entail inherent safety risks, including risks associated with equipment defects, malfunctions, failures, and misuses. For example, operation of LNG pumps requires special training because of the extremely low temperatures of LNG. Also, LNG tanker trailers and CNG fuel tanks and trailers could rupture if involved in accidents or improper maintenance or installation. Further, improper refueling of vehicles that use our fuels or operation of vehicle fueling stations could result in sudden releases of pressure that could cause explosions. In addition, our operations may result in the venting of methane, a potent GHG. These safety and environmental risks could result in uncontrollable flows of our fuels, fires, explosions, death, or serious injury, any of which may expose us to liability for personal injury, wrongful death, property damage, pollution and other environmental damage. We may incur substantial liability and costs if any such damages are not covered by insurance or are more than policy limits, or if environmental damage causes us to violate applicable GHG emissions or other environmental laws. Additionally, the occurrence of any of these events with respect to our fueling stations or our other operations could materially harm our business and reputation. Moreover, the occurrence of any of these events to any other organization in our vehicle fuel business could harm our industry generally by negatively affecting perceptions about, and adoption levels of, our vehicle fuels.

Risks Related to Our Common Stock

A significant portion of our outstanding common stock is owned or otherwise subject to acquisition by two equityholders, each of which may have interests that differ from the Company's other stockholders and which now or in the future may be able to influence the Company's corporate decisions, including a change of control.

After giving effect to the issuance of the Amazon Warrant, TotalEnergies Marketing Services, SAS ("TMS"), a wholly owned subsidiary of TotalEnergies, owns 42,581,801 shares of our common stock, or 19.1% of our outstanding shares of common stock as of December 31, 2022 (excluding 7,518,910 shares of our common stock that are the subject of a voting agreement, dated May 9, 2018, among TMS, the Company and all of the Company's directors and officers then in office); the Amazon Warrant is immediately exercisable by Amazon Holdings for shares of our common stock representing 4.999% of our outstanding common stock. Subject to vesting of the Amazon Warrant, the Amazon Warrant will be exercisable for up to 19.999% of our outstanding common stock on a fully diluted basis (determined at the time of issuance of the Amazon Warrant), subject to certain anti-dilution provisions, and Amazon Holding's beneficial ownership will initially be contractually limited to the beneficial ownership limitation unless Amazon Holdings gives the Company sixty one (61) days' notice that it is waiving such limitation. In addition, TotalEnergies was granted certain special rights that our other stockholders do not have in connection with its acquisition of this ownership position, including the right to designate two individuals to serve as directors of our Company and a third individual to serve as an observer on certain of our board committees.

TotalEnergies or other large stockholders may be able to influence or control matters requiring approval by our stockholders, including the election of directors, mergers and acquisitions, or other extraordinary transactions. Amazon, through ownership by Amazon Holdings, could become a large stockholder if the Amazon Warrant were to vest further through additional fuel purchases from the Company pursuant to the Fuel Agreement, and Amazon Holdings were to exercise the Amazon Warrant to purchase vested Warrant Shares or Additional Warrant Shares and waive the Beneficial Ownership Limitation. Large stockholders may have interests that differ from other stockholders and may vote or otherwise act in ways with which the Company or other stockholders disagree or that may be adverse to your interests. A concentration of stock ownership may also have the effect of delaying, preventing or deterring a change of control of our Company, which could deprive our stockholders of an opportunity to receive a premium for their shares of our common stock as part of a sale of our Company and could affect the market price of our common stock. Conversely, such a concentration of stock ownership may facilitate a change of control under terms other stockholders may not find favorable or at a time when other stockholders may prefer not to sell.

Sales of our common stock, or the perception that such sales may occur, could cause the market price of our stock to drop significantly, regardless of the state of our business.

All outstanding shares of our common stock are eligible for sale in the public market, subject in certain cases to the requirements of Rule 144 under the Securities Act. Also, shares of our common stock that may be issued upon the exercise, vesting or conversion of our outstanding stock options and restricted stock units may be eligible for sale in the public market, to the extent permitted by Rule 144 and the provisions of the applicable stock option and restricted stock unit agreements or if such shares have been registered under the Securities Act.

Sales of large amounts of our common stock by large stockholders, or the perception that such sales may occur, could cause the market price of our common stock to decline, regardless of the state of the Company's business. Our common stock held by TMS and our common stock underlying the Amazon Warrant may be sold in the public market under Rule 144 or in registered sales or offerings pursuant to registration rights held by each stockholder. For instance, we filed a registration statement with the SEC to cover the resale of the shares of our common stock issued and sold to TMS, which registration statement was declared effective in August 2018. If these shares are sold, or if it is perceived that they may be sold, in the public market, the trading price of our common stock could decline. For instance, in the year ended December 31, 2021, TMS sold 8,274,495 shares of our common stock, which we believe caused downward pressure on the trading price of our common stock.

General Risk Factors

We rely on information technology in our operations, and any material failure, inadequacy, interruption, or security failure of that technology could harm our business.

Increased global IT security threats and more sophisticated and targeted computer crime pose a risk to the security of our systems and networks and the confidentiality, availability and integrity of our data. There have been several recent, highly publicized cases in which organizations of various types and sizes have reported the unauthorized disclosure of customer or other confidential information, as well as cyber incidents involving the dissemination, theft and destruction of corporate information, intellectual property, cash or other valuable assets. There have also been several highly publicized cases in which hackers have requested "ransom" payments in exchange for not disclosing customer or other confidential information or for not disabling the target company's computer or other systems. Implementing security measures designed to prevent, detect, mitigate or correct these or other IT security threats involves significant costs. Although we have taken steps to protect the security of our information systems and the data maintained in those systems, we have, from time to time, experienced cyberattacks or other cyber incidents that have threatened our data and systems, including malware and computer virus attacks and it is possible that future cyber incidents we may experience may materially and adversely affect our business. We cannot provide assurance that our safety and security measures will prevent our information systems from improper functioning or damage, or the improper access or disclosure of personally identifiable information such as in the event of cyber incidents. Any IT security threats that are successful against our security measures could, depending on their nature and scope, lead to the compromise of confidential information, improper use of our systems and networks, manipulation and destruction of data, operational disruptions, and substantial financial outlays. Further, a cyber incident could occur and persist for an extended period of time without detection, and an investigation of any successful cyber incident would likely require significant time, costs and other resources to complete. We may be required to expend significant financial resources to protect against or to remediate such cyber incidents. In addition, our technology infrastructure and information systems are vulnerable to damage or interruption from natural disasters, power loss and telecommunications failures. Any failure to maintain proper function, security and availability of our information systems and the data maintained in those systems could interrupt our operations, damage our reputation, subject us to liability claims or regulatory penalties, harm our business relationships or increase our security and insurance costs, which could have a material adverse effect on our business, financial condition and results of operations.

The price of our common stock may continue to fluctuate significantly, and you could lose all or part of your investment.

The market price of our common stock has experienced, and may continue to experience, significant volatility. Factors that may cause volatility in the price of our common stock, many of which are beyond our control, include, among others, the following: (i) the factors that may influence the adoption of our vehicle fuels, as discussed elsewhere in these risk factors; (ii) our ability to implement our business plans and initiatives and their anticipated, perceived or actual level of success; (iii) failure to meet or exceed any financial guidance we have provided to the public or the estimates and projections of the investment community; (iv) the market's perception of the success and importance of any of our acquisitions, divestitures, investments or other strategic relationships or transactions; (v) the amount of and timing of sales of, and prices for, Environmental Credits; (vi) actions taken by state or federal governments to mandate or otherwise promote or incentivize alternative vehicles or vehicle fuels over, or to the exclusion of, RNG; (vii) technical factors in the public trading market for our common stock that may produce price movements that may or may not comport with macro, industry or company-specific fundamentals, including, without limitation, the sentiment of retail investors (including as may be expressed on financial trading and other social media sites), the amount and status of short interest in our common stock, access to margin debt, and trading in options and other derivatives on our common stock; (viii) changes in political, regulatory, health, economic and market conditions; and (ix) a change in the trading volume of our common stock.

In addition, the securities markets have from time-to-time experienced significant price and volume fluctuations that are unrelated to the operating performance of particular companies, but which have affected the market prices of these companies' securities. These market fluctuations may also materially and adversely affect the market price of our common stock.

Volatility or declines in the market price of our common stock could have other negative consequences, including, among others, further impairments to our assets (following the asset impairment charges we recorded in the third and fourth quarters of 2017 related to our former fueling compressor manufacturing business and our closure of certain fueling stations), potential impairments to our goodwill and a reduced ability to use our common stock for capital-raising, acquisitions or other purposes. The occurrence of any of these risks could materially and adversely affect our financial condition, results of operations and liquidity and could cause further declines in the market price of our common stock.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

Our corporate headquarters are located at 4675 MacArthur Court, Suite 800, Newport Beach, California 92660, where we occupy approximately 48,000 square feet of office space. Our lease for this facility expires in June 2028.

We own and operate the Boron Plant in Boron, California, approximately 125 miles from Los Angeles. In November 2006, we entered into a 30-year ground lease for the 36 acres on which this plant is situated. The Boron Plant can produce 56.0 million gallons of LNG per year and has a dual tanker trailer loading system and a 1.8 million gallon storage tank that can hold up to 1.5 million usable gallons. The plant had a production utilization rate of 79% for the year ended December 31, 2022.

We own and operate the Pickens Plant located in Willis, Texas, approximately 50 miles north of Houston. We own approximately 24 acres of land on which this plant is situated, along with approximately 34 acres surrounding the plant. The Pickens Plant can produce 28.0 million gallons of LNG per year and includes a tanker trailer loading system and a 1.0 million gallon storage tank that can hold up to 840,000 usable gallons. The plant had a production utilization rate of 62% for the year ended December 31, 2022.

We own, operate or supply 569 fueling stations in the United States and 25 in Canada. Fueling stations are facilities where RNG or conventional natural gas is dispensed in the form of CNG or LNG into the fuel tanks of vehicles for use as transportation fuel. We own station equipment throughout the United States (See Note 10) that is used for dispensing CNG or LNG at properties we lease under long-term lease arrangements (See Note 16). Additionally, we operate fueling stations or supply CNG or LNG to fueling stations where our customer owns the fueling station equipment. At these stations, we operate under the following arrangements: (i) provide O&M services on a per gallon or fixed fee basis and do not directly sell CNG or LNG, or (ii) provide O&M services and also have a fuel supply sales agreement for CNG or LNG with our customer.

Item 3. Legal Proceedings.

From time to time, we may become involved in various legal proceedings that arise in the ordinary course of our business, including lawsuits, claims, audits, government enforcement actions and related matters. It is not possible to predict when or if these proceedings may arise, nor is it possible to predict the outcome of any proceedings that do arise, including, among other things, the amount or timing of any liabilities we may incur, and any such proceedings could have a material effect on us regardless of outcome. In the opinion of management, however, we are not a party, and our properties are not subject, to any pending legal proceedings that are material to us.

Item 4. Mine Safety Disclosures.

None.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

Market Information

Our common stock trades on The Nasdaq Global Select Market under the symbol "CLNE."

Holders

There were approximately 50 holders of record of our common stock as of February 22, 2023. The actual number of holders of our common stock is greater than this number of record holders and includes stockholders who are beneficial owners, but whose shares are held in street name by brokers or held by other nominees.

Issuer Purchases of Equity Securities

On March 12, 2020, our Board of Directors approved a share repurchase program of up to $30.0 million (exclusive of fees and commissions) of our outstanding common stock (the "Repurchase Program"). On December 7, 2021, our Board of Directors approved an increase in the aggregate amount of our common stock to be repurchased under the Repurchase Program from $30.0 million to $50.0 million (exclusive of fees and commissions). The Repurchase Program does not have an expiration date, and may be suspended or discontinued at any time. As of December 31, 2022, approximately $26.5 million remained available under the Repurchase Program.

The Repurchase Program does not obligate us to acquire any specific number of shares. Repurchases under the Repurchase Program may be effected from time to time through open market purchases, privately negotiated transactions, structured or derivative transactions, including accelerated share repurchase transactions, or other methods of acquiring shares, in each case subject to market conditions, applicable securities laws and other relevant factors. Repurchases may also be made under plans set up pursuant to Rule 10b5-1 promulgated under the Exchange Act.

The following table summarizes the Company's share repurchase activity during the three months ended December 31, 2022 (in thousands, except share and per share amounts):

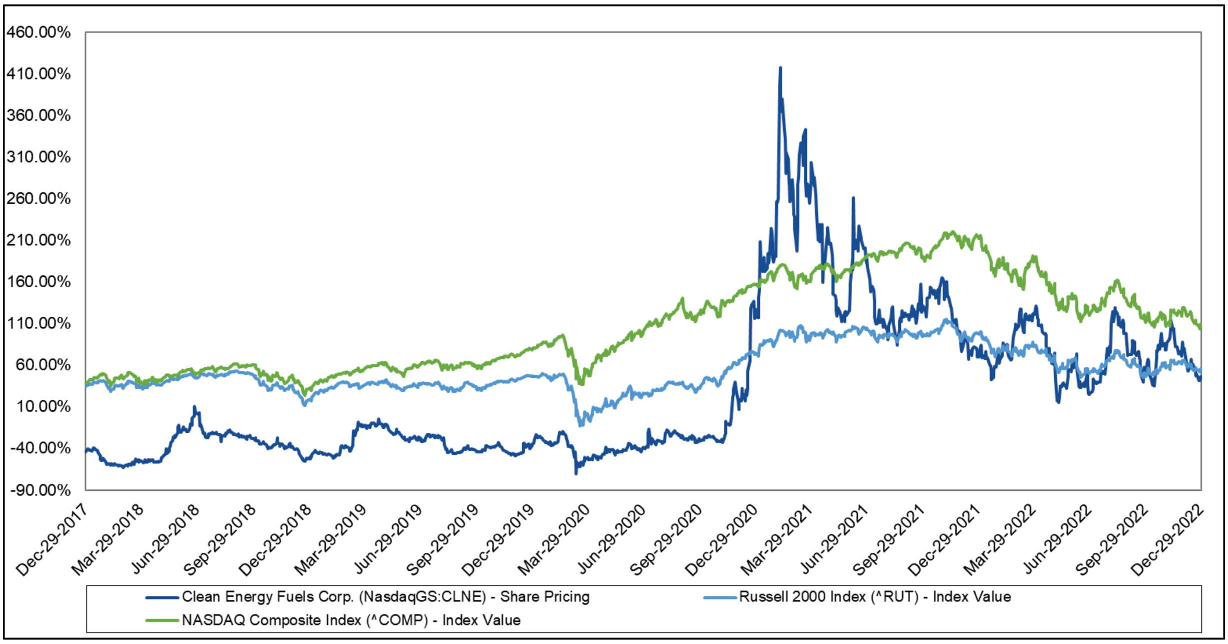
Period	Total Number of Shares Purchased	Average Price Paid per Share (a)	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Number (or Approximate Dollar Value) of Shares That May Yet Be Purchased Under the Plans or Program
October 1, 2022 through October 31, 2022	—	$ —	—	$ 26,502
November 1, 2022 through November 30, 2022	—	—	—	26,502
December 1, 2022 through December 31, 2022	—	—	—	26,502
Total	—	$ —	—	$ 26,502

(a) Exclusive of fees and commissions.

Performance Graph

This performance graph shall not be deemed "soliciting material" or "filed" with the SEC or subject to Regulation 14A or 14C or to the liabilities of Section 18 of the Exchange Act, or incorporated by reference into any filing under the Securities Act or the Exchange Act, except to the extent that we specifically request that such information be treated as *soliciting material or specifically incorporate it by reference into such a filing. The graph is required by applicable rules of the SEC and is not intended to forecast, predict or be indicative of the possible future performance of our common stock.*

The following graph compares the five-year total return to holders of our common stock relative to the cumulative total returns of the Nasdaq Global Market Index and the Russell 2000 Index. The graph assumes that $100 was invested in our common stock and in each of these indices at the close of market on December 29, 2017 (the last trading day before the beginning of our fifth preceding fiscal year). We chose to include the Russell 2000 Index because it includes issuers with similar market capitalizations and due to the lack of a comparable industry or line-of-business index or peer group, as we are the only actively traded public company whose only line of business is to sell natural gas for use as a vehicle fuel and the associated equipment and services necessary to use natural gas as a vehicle fuel.



Item 6. [Reserved].

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

The following Management's Discussion and Analysis of Financial Condition and Results of Operations (this discussion, as well as discussions under the same heading in our other periodic reports, are referred to as the "MD&A") should be read together with our audited consolidated financial statements and the related notes included in this report, and all cross references to notes included in this MD&A refer to the identified note in such consolidated financial statements. This section of the Form 10-K generally discusses 2022 and 2021 items and year-to-year comparisons of 2022 to 2021. Discussions of 2020 items and year-to-year comparisons of 2021 and 2020 that are not included in this Form 10-K can be found in "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7 of our Annual Report on Form 10-K for the year ended December 31, 2021, filed with the SEC on February 24, 2022.

Cautionary Note Regarding Forward-Looking Statements

This MD&A contains forward-looking statements. See the discussion about these statements under "Cautionary Note Regarding Forward-Looking Statements" at the beginning of this report.

Overview

We are North America's leading provider of the cleanest fuel for the transportation market, based on the number of stations operated and the amount of gasoline gallon equivalents ("GGEs") of renewable natural gas ("RNG") and conventional natural gas sold. We calculate one GGE to equal 125,000 British Thermal Units ("BTUs") and, as such, one million BTUs ("MMBTU") equals eight GGEs. Through our sales of RNG, which is derived from biogenic methane produced by the breakdown of organic waste, we help thousands of vehicles, from airport shuttles to city buses to waste and heavy-duty trucks, reduce their amount of climate-harming greenhouse gases ("GHG") from 60% to over 400% based on determinations by the California Air Resources Board ("CARB"), depending on the source of the RNG, while also reducing criteria pollutants such as Nitrogen Oxides, or NOx. RNG is either delivered as compressed natural gas ("CNG") or liquefied natural gas ("LNG").

As a clean energy solutions provider, we supply RNG and conventional natural gas, both sourced from third party suppliers, in the form of CNG and LNG, for medium and heavy-duty vehicles; design and build, as well as operate and maintain ("O&M"), public and private vehicle fueling stations in the United States and Canada; develop and own dairy anaerobic digester gas ("ADG") RNG production facilities; sell and service compressors and other equipment used in RNG production and at fueling stations; transport and sell RNG and conventional natural gas via "virtual" natural gas pipelines and interconnects; sell U.S. federal, state and local government credits (collectively, "Environmental Credits") we generate by selling RNG as a vehicle fuel, including Renewable Identification Numbers ("RIN Credits" or "RINs") under the federal Renewable Fuel Standard Phase 2 and credits under the California and the Oregon Low Carbon Fuel Standards (collectively, "LCFS Credits"); and obtain federal, state and local tax credits, grants and incentives.

At present, we see the best use of RNG as a replacement for fossil-based fuel in the transportation sector. We believe the most attractive market for RNG is U.S. heavy-duty Class 8 trucking and, based on information from the American Trucking Association and our own internal estimates, we believe there are approximately 4.1 million Class 8 heavy-duty trucks operating in the U.S. that use over 40 billion gallons of fuel per year. As of December 31, 2022, we deliver RNG to the transportation market through 569 fueling stations we own, operate or supply in 42 states and the District of Columbia in the U.S., including over 200 stations in California. We also own, operate, or supply 25 fueling stations in Canada as of December 31, 2022.

Critically, to generate the valuable Environmental Credits, RNG must be placed in vehicle fuel tanks. We believe our stations and customer relationships allow us to deliver substantially more RNG to vehicle operators than any other participant in the market – we calculate that we have access to more fueling stations and vehicle fleets than all our competitors combined. As of December 31, 2022, we served over 1,000 fleet customers operating over 50,000 vehicles on our fuels.

Longer term, we plan to expand availability of hydrogen fuel for vehicle fleets. As operators deploy more hydrogen powered vehicles, we can modify our fueling stations to reform our RNG and deliver clean hydrogen to customers. We also believe our RNG can be used to generate clean electricity to power electric vehicles, and we have the capability to add electric vehicle charging at our station sites, although the cost of adding electric vehicle charging capacity may be significant.

Impact of COVID-19, Inflation, Labor Shortage, Material Availability and Interest Rate

The COVID-19 pandemic had an adverse effect on the volume of our sales, which we saw bottom in the second quarter of 2020. We have since seen improvement in volumes in all customer markets with notable increases in the trucking customer market led by Amazon and the airports (fleet services) customer market, which increased by 28% and 10%, respectively, during the three months ended December 31, 2022, compared to the prior year period. Our total volume of GGEs sold and serviced for the year ended December 31, 2022 increased 7% compared to that in the prior year. The increase in fuel and O&M services volumes in the fourth quarter of 2022 and in fiscal year 2022 compared to that in the respective prior year periods was primarily due to COVID-19 restrictions being lifted and an increase in economic activities and travel generally.

During the year ended December 31, 2022, we have experienced increases in commodity and supply chain costs due to inflationary pressures. Additionally, effects stemming from the COVID-19 pandemic have caused disruptions in labor supply and in supply chains, leading to shortages of certain materials and equipment and higher labor costs. The future duration and extent of these pressures and effects are difficult to predict. Although we have partially offset these increased costs through price increases for our products and services, our efforts to manage the current inflationary pressure and to recover inflation-based cost increases from our customers may be hampered by the structure of our contracts as well as the competitive and economic conditions of the markets in which we serve. For more information, see “Risk Factors” in Part I, Item 1A of this report.

As of December 31, 2022, the majority of our debt outstanding represents a long-term loan bearing variable rates of interest. Changes in market interest rates will affect the interest expense incurred from this outstanding long-term debt instrument, increasing or decreasing our interest expense in future periods. Furthermore, changes in market interest rates may affect the interest rate and corresponding interest expense on any new issuance of short-term and long-term debt securities. See “Quantitative and Qualitative Disclosures about Market Risk” in Part II, Item 7A of this report for more information.

We believe we have sufficient liquidity to support business operations through this volatile period, including total cash and cash equivalents and short-term investments of $263.5 million, excluding current portion of restricted cash, as of December 31, 2022 and $1.0 million of current debt. We have collected nearly all receivables relating to alternative fuel excise tax credits (“AFTC”) generated from 2021 fuel sales in 2022. In addition, as a result of the Inflation Reduction Act of 2022 being enacted on August 16, 2022, AFTC was reinstated and extended for an additional three years, beginning retroactively to January 1, 2022. For the year ended December 31, 2022, we recognized $21.8 million in AFTC revenue.

Performance Overview

This performance overview discusses matters on which our management focuses in evaluating our financial condition and our operating results.

Sources of Revenue

The following tables represent our sources of revenue:

	Year Ended December 31,		
Revenue (in millions)	**2020**	**2021**	**2022**
Product revenue[1]:			
Volume-related[2]			
Fuel sales[3]	$ 169.4	$ 131.0	$ 281.1
Change in fair value of derivative instruments[4]	2.1	(3.5)	0.5
RIN Credits	15.3	31.7	34.7
LCFS Credits	18.7	16.8	12.6
AFTC[5]	19.8	20.7	21.8
Total volume-related product revenue	225.3	196.7	350.7
Station construction sales	26.6	16.4	22.3
Total product revenue	251.9	213.1	373.0
Service revenue[6]:			
Volume-related, O&M services	39.6	41.9	45.9
Other services	0.2	0.6	1.3
Total service revenue	39.8	42.5	47.2
Total revenue	$ 291.7	$ 255.6	$ 420.2

(1) A discussion of product revenue is included below under “Results of Operations.”

(2) Our volume-related product revenue primarily consists of sales of RNG and conventional natural gas, in the form of CNG and LNG, and sales of RINs and LCFS Credits in addition to changes in fair value of our derivative instruments. More information about our GGEs of fuel sold in the periods is included below under "Key Operating Data," and more information about our derivative instruments, which consist of commodity swap and customer fueling contracts, is included in Note 7.

(3) Includes $83.6 million and $24.3 million of non-cash stock-based sales incentive contra-revenue charges related to the Amazon Warrant (as defined in Note 13) for the years ended December 31, 2021 and 2022, respectively.

(4) The change in fair value of derivative instruments is related to the Company's commodity swap and customer fueling contracts. The amounts are classified as revenue because the Company's commodity swap contracts are used to economically offset the risk associated with the diesel-to-natural gas price spread resulting from customer fueling contracts under the Company's *Zero Now* truck financing program.

(5) Represents AFTC. AFTC was available for vehicle fuel sales made through December 31, 2021. In August 2022, AFTC was reinstated for vehicle fuel sales and extended for three years, beginning retroactively to January 1, 2022.

(6) Our O&M services revenue represents sales from performance of O&M services. More information about our GGEs serviced in the periods relating to O&M services is included below under "Key Operating Data." Additionally, a discussion of service revenue is included below under "Results of Operations."

Key Operating Data

In evaluating our operating performance, we focus primarily on: (1) the amount of total fuel volume we sell to our customers with particular focus on RNG volume as a subset of total fuel volume, (2) O&M services volume dispensed at facilities we do not own but where we provide O&M services on a per-gallon or fixed fee basis, (3) our station construction cost of sales, and (4) net income (loss) attributable to us. All RNG and conventional natural gas sold are currently sourced from third-party suppliers. The following tables present our key operating data for the years ended December 31, 2020, 2021 and 2022. Certain gallons are included in both fuel and service volumes when the Company sells fuel (product revenue) to a customer and provides maintenance services (service revenue) to the same customer.

Fuel volume, GGEs[(2)] sold (in millions), correlating to total volume-related product revenue	**Year Ended December 31,**		
	2020	**2021**	**2022**
RNG[(1)]	153.3	167.0	198.2
Conventional natural gas[(1)]	82.1	78.8	69.6
Total fuel volume	235.4	245.8	267.8

O&M services volume, GGEs[(2)] serviced (in millions), correlating to volume-related O&M services revenue	**Year Ended December 31,**		
	2020	**2021**	**2022**
O&M services volume	218.4	229.8	240.4

	Year Ended December 31,		
Other operating data (in millions)	**2020**	**2021**	**2022**
Station construction cost of sales	$ 24.0	$ 15.0	$ 19.4
Net loss attributable to Clean Energy Fuels Corp. [(3) (4) (5)]	$ (9.9)	$ (93.1)	$ (58.7)

(1) All RNG and conventional natural gas sold were sourced from third-party suppliers.

(2) GGEs are calculated based on the conversion rate of one MMBTU equaling eight GGEs.

(3) Includes $19.8 million, $20.7 million, and $21.8 million of AFTC revenue for the years ended December 31, 2020, 2021 and 2022, respectively.

(4) Includes $83.6 million and $24.3 million of non-cash stock-based sales incentive contra-revenue charges relating to the Amazon Warrant (as defined in Note 13) for the years ended December 31, 2021 and 2022, respectively. No amounts of non-cash stock-based sales incentive contra-revenue charges relating to the Amazon Warrant were recorded for the year ended December 31, 2020.

(5) Includes an unrealized gain (loss) from the change in fair value of commodity swap and customer fueling contracts of $2.1 million, $(3.5) million and $0.5 million for the years ended December 31, 2020, 2021 and 2022, respectively. See Note 7 for more information regarding the commodity swap and customer contracts.

2021 – 2022 Developments

TotalEnergies Joint Venture. On March 3, 2021, we entered into an agreement (the "TotalEnergies JV Agreement") with TotalEnergies to create 50/50 joint ventures to develop ADG RNG production facilities in the United States. The TotalEnergies JV Agreement contemplates investing up to $400.0 million of equity in production projects, and TotalEnergies and the Company each committed to initially provide $50.0 million (the "TotalEnergies JV Equity Obligations"). Pursuant to the TotalEnergies JV Agreement, each ADG RNG production facility project will be formed as a separate limited liability company ("LLC") that is owned 50/50 by us and TotalEnergies, and contributions to such LLCs count toward the TotalEnergies JV Equity Obligations. On October 12, 2021, we entered into an LLC agreement (the "DR Development Agreement") with TotalEnergies to develop a dairy ADG RNG production facility project (the "DR JV"). Under the DR Development Agreement, we and TotalEnergies each committed to contribute $7.0 million to the DR JV and on November 1, 2021, we and TotalEnergies each made an initial $4.8 million capital contribution to the DR JV.

SG Credit Agreement. On March 12, 2021, we amended the credit agreement (as amended, the "SG Credit Agreement") with SG to permit us to use up to $45.0 million of loan proceeds to fund certain station build costs and up to $20.0 million to fund the TotalEnergies JV Equity Obligations. Our ability to draw under the SG Credit Agreement ended on January 2, 2022. As of December 31, 2022, we repaid the remaining $2.0 million outstanding balance under the SG Facility and the related accrued and unpaid interest. Upon such payment, the SG Facility was paid in full and no amounts remained outstanding thereon. See Note 12 for more information about our outstanding debt.

bp Joint Venture. On April 13, 2021, we entered into an agreement ("bp JV Agreement") with bp that created a 50/50 joint venture ("bpJV") to develop, own and operate new ADG RNG production facilities in the United States. 100% of the RNG produced from the projects developed and owned by the bpJV will be provided to the vehicle fuels market pursuant to our existing marketing agreement with bp. Pursuant to the bp JV Agreement, we and bp committed to provide $30.0 million and $50.0 million, respectively, with bp and us each receiving 30.0 million of Class A Units in the bpJV and bp also receiving 20.0 million of Class B Units in the bpJV. bp's initial $50.0 million contribution was made on April 13, 2021. Pursuant to the bp JV Agreement, we had the option, exercisable prior to August 31, 2021 (the "bp Option"), to commit an additional $20.0 million to the bpJV upon which bp's Class B Units would convert into Class A Units. On June 21, 2021, we contributed $50.2 million consisting of our initial contribution commitment of $30.0 million, the $20.0 million additional contribution to exercise our bp Option, plus $0.2 million of interest in accordance with the bp JV Agreement to effect the conversion of bp's Class B Units into Class A Units.

In December 2021, the bpJV issued a capital call (the "bpJV Capital Call") for additional funding of $143.2 million to construct ADG RNG projects under the bpJV. Pursuant to the bpJV Capital Call, we and bp were each required to contribute $71.6 million to the bpJV. On December 31, 2021, we and bp each contributed $20.0 million and $71.6 million, respectively, to the bpJV in connection with the bpJV Capital Call. On June 30, 2022, we paid the remaining outstanding contribution balance of $51.6 million to the bpJV and satisfied our capital contribution commitment under the bpJV Capital Call.

On March 30, 2022, the bpJV issued a second capital call (the "bpJV Capital Call 2") in the amount of $76.2 million to provide capital for ADG RNG projects under the bpJV and to fund bpJV's working capital needs. On September 30, 2022, we and bp each contributed $38.1 million to the bpJV in connection with the bpJV Capital Call 2.

Amazon. On April 16, 2021, we entered into a Project Addendum to Fuel Pricing Agreement ("Fuel Agreement") with Amazon Logistics, Inc., a subsidiary of Amazon.com, Inc. ("Amazon"), and a Transaction Agreement with Amazon (the "Transaction Agreement"), pursuant to which, among other things, we issued to Amazon.com NV Investment Holdings LLC, a subsidiary of Amazon ("Amazon Holdings"), a warrant to purchase up to an aggregate of 53,141,755 shares (the "Warrant Shares") of our common stock at an exercise price of $13.49 per share, which was a 21.3% premium to the $11.12 closing price of our common stock on April 15, 2021.

The Warrant Shares vest in multiple tranches, the first of which for 13,283,445 Warrant Shares vested upon execution of the Fuel Agreement. Subsequent tranches will vest over time based on fuel purchases by Amazon and its affiliates, up to a total of $500 million in fuel purchases, excluding any payments attributable to "Pass Through Costs," which consist of all costs associated with the delivered cost of gas and applicable taxes determined by reference to the selling price, gallons or gas sold. Importantly, in order for all the vesting conditions of the warrant to be satisfied, Amazon would have to purchase hundreds of millions of GGEs of RNG from us.

Under the Transaction Agreement, we were required to use commercially reasonable efforts to obtain the approval of our stockholders with respect to the issuance of Warrant Shares in excess of 50,595,531 shares of our common stock, pursuant to The Nasdaq Stock Market LLC's Listing Rule 5635(b) (the "Stockholder Approval"). On June 14, 2021, we obtained the Stockholder Approval at our 2021 annual meeting of stockholders.

In accordance with the terms of the warrant, as a result of the issuance of shares of our common stock pursuant to the ATM Programs (as defined below), on June 14, 2021, the number of shares of our common stock that may be purchased pursuant to the warrant, at an exercise price of $13.49 per share, increased by an aggregate of 5,625,959 shares (the "Additional Warrant Shares"). The Additional Warrant Shares vest in multiple tranches, the first of which for 1,406,490 Additional Warrant Shares vested on June 14, 2021. Subsequent tranches of the Additional Warrant Shares will vest over time based on fuel purchases by Amazon and its affiliates, consistent with the vesting schedule for the Warrant Shares as described above. The right to exercise the warrants and receive the Warrant Shares and Additional Warrant Shares (the "Amazon Warrant") that have vested expires April 16, 2031.

We believe our commercial partnership with Amazon will enhance our strategies, initiatives and efforts to achieve our goals to grow fleet and other consumer support for the use of RNG as a vehicle fuel for our target customers and geographies. We also believe the proceeds from the issuance of our common stock to Amazon in the event Amazon were to vest and then exercise the Amazon Warrant in part or as a whole for cash would enhance our liquidity in support of our operations, as well as our ability to execute our business plans and pursue opportunities for further growth. Accordingly, we believe securing this commercial partnership and incentiving Amazon to purchase the maximum amount of fuel under the Fuel Agreement is important for our business strategy. As a result of the immediate vesting of a portion of the Amazon Warrant, we recognized non-cash stock-based sales incentive contra-revenue charges ("Amazon Warrant Charges") in the second quarter of 2021 of $76.6 million and a customer incentive asset of $38.4 million representing Amazon Warrant Charges associated with future contractually required minimum fuel purchases which will be recognized as the fuel is purchased.

For the year ended December 31, 2022, Amazon Warrant Charges were $24.3 million all of which were associated with fuel purchases. As of December 31, 2022, we had a customer incentive asset of $22.2 million, classified in "Prepaid expenses and other current assets," in the accompanying consolidated balance sheets.

AFTC. Under separate pieces of U.S. federal legislation, we were eligible to receive AFTC for the natural gas vehicle fuel sales made between October 1, 2006 and December 31, 2021. The AFTC credit was equal to $0.50 per GGE of CNG that we sold as vehicle fuel, and $0.50 per diesel gallon of LNG that we sold as vehicle fuel in 2020 and 2021. The Inflation Reduction Act of 2022, enacted in August 2022, reinstated and extended the AFTC incentive for three years through December 31, 2024, beginning retroactively to January 1, 2022. Under the extension period, AFTC incentive remains at $0.50 per GGE of CNG and $0.50 per diesel gallon of LNG that we sell as vehicle fuel through 2024.

Riverstone Credit Partners. On December 22, 2022, we entered into a four-year $150.0 million sustainability-linked senior secured first lien term loan with certain affiliates of, or funds managed by, Riverstone Credit Partners L.P. ("Riverstone Credit Partners"), a dedicated credit investment platform managed by Riverstone Holdings LLC ("Riverstone") that focuses on energy, power, decarbonization, and infrastructure. This financing provided us with additional capital to execute our RNG growth strategy, which includes the development of negative carbon intensity RNG projects and construction of new RNG fueling stations for transportation sector customers. Proceeds from the term loan will be used, in part, to accelerate our expansion and development of ADG RNG production projects. See Note 12 for more information about our outstanding debt.

NG Advantage Debt Refinancing and Extinguishment. On January 31, 2022, NG Advantage entered into a second amendment to the Amended and Restated Loan and Security Agreement with Berkshire Bank (the "Berkshire ALA") (See Note 12) pursuant to which Berkshire Bank agreed to extend new term loans in an aggregate principal amount of $14.0 million (collectively, the "Berkshire Term Loan 2") to NG Advantage. The Berkshire Term Loan 2 bore interest at an annual interest rate of 5% and had a maturity date of January 31, 2027. Payments for interest and principal were due monthly beginning March 1, 2022, with a final payment of remaining principal and interest due on the maturity date. Borrowings under the Berkshire Term Loan 2 were collateralized by NG Advantage's trailers and station assets, and prepayment of the outstanding principal was permitted and subject to prepayment premiums. NG Advantage used the proceeds from the Berkshire Term Loan 2 to extinguish $11.1 million of existing financing obligations, consisting of $10.4 million in cash payoffs and an application of $0.8 million in deposits held with the former lenders. As a result of the extinguishment, we recognized a $2.3 million loss on extinguishment of debt, which is included in "interest expense" in the accompanying consolidated statements of operations for the year ended December 31, 2022. In connection with the second amendment to the Berkshire ALA, Berkshire Bank released $7.0 million, classified in "Long-term portion of restricted cash" in the accompanying consolidated balance sheets as of December 31, 2021, to the Company related to the Company's limited guaranty under the Berkshire ALA.

On December 22, 2022, pursuant to the term loan credit agreement with Riverstone Credit Partners, NG Advantage fully repaid all outstanding principal balances and related accrued and unpaid interest under the Berkshire ALA and the Berkshire Term Loan 2. In connection with the extinguishments of debt under the Berkshire ALA and the second amendment to the Berkshire ALA, NG Advantage recognized a $1.1 million loss on debt extinguishment, which is included in "interest expense" in the accompanying consolidated statements of operations for the year ended December 31, 2022.

Plains Credit Facility. On May 1, 2021, we entered into a Loan and Security Agreement (the "Plains LSA") with PlainsCapital Bank ("Plains") that provided us a $20.0 million revolving line of credit through May 1, 2022. In May 2022, the Plains LSA was renewed and extended through May 1, 2023. The interest rate on amounts outstanding under the Plains LSA was the greater of the Prime Rate or 3.25%. On September 16, 2021, Plains issued an irrevocable standby letter of credit on behalf of the Company to the Chevron Products Company, a division of Chevron U.S.A. Inc. ("Chevron"), for $2.0 million relating to the Company's Adopt-A-Port program with Chevron. The standby letter of credit was valid until cancelled and was collateralized by the Company's revolving line of credit with Plains, reducing the amount available under the line of credit from $20.0 million to $18.0 million. On January 31, 2022, Plains issued an irrevocable standby letter of credit on behalf of the Company to Berkshire Bank for $7.0 million as collateral under the second amendment to the Berkshire ALA. However, pursuant to the Riverstone Credit Agreement, on December 22, 2022, the Plains LSA was terminated. Concurrently, the irrevocable standby letter of credit issued to Berkshire Bank in connection with the second amendment to the Berkshire ALA was cancelled. As a result, we deposited $2.0 million, in the form of a certificate of deposit, at Plains that serves as a security collateral for the standby letter of credit issued to Chevron. The $2.0 million is classified as short-term restricted cash and a current asset and is included in "Cash, cash equivalents and current portion of restricted cash" in the accompanying consolidated balance sheets as of December 31, 2022.

Share Repurchase Program. On March 12, 2020, our Board of Directors approved a share repurchase program (the "Repurchase Program") for up to $30.0 million (exclusive of fees and commissions) of our outstanding common stock. On December 7, 2021, our Board of Directors approved an increase in the aggregate purchase amount under the Repurchase Program from $30.0 million to $50.0 million (exclusive of fees and commissions). The Repurchase Program does not have an expiration date, does not obligate us to acquire any specific number of shares, and may be suspended or discontinued at any time. For the year ended December 31, 2022, we repurchased 1,190,254 shares of our common stock under the Repurchase Program for a total cost of $6.1 million (exclusive of fees and commissions) at an average price of $5.12 per share. As of December 31, 2022, we had used a total of $23.5 million under the Repurchase Program from its inception to repurchase 9,387,340 shares of our common stock and had a total of $26.5 million of authorized funds remaining under the Repurchase Program.

NG Advantage Fixed Supply Commitment. NG Advantage had entered into an arrangement with bp for the supply, sale and reservation of a specified volume of CNG transportation capacity through February 2022. In connection with that arrangement, in February 2018, we entered into a guaranty agreement with NG Advantage and bp, which was amended in June 2020, pursuant to which we guaranteed NG Advantage's payment obligations to bp in the event of a default by NG Advantage under the supply arrangement, in an amount up to $15.0 million plus related fees. On February 28, 2022, the supply arrangement between NG Advantage and bp expired, and our obligations under the guaranty agreement were fully released.

Fueling Station Equipment Removal. On July 7, 2022, we entered into an amendment to our Liquefied Natural Gas Fueling Station and LNG Master Sales Agreement with Pilot Travel Centers LLC ("Pilot"), dated August 2, 2010, to decommission and remove station equipment of select fueling stations located on Pilot's premises as agreed to in a phased removal schedule. The removal of the fueling station equipment and site improvements commenced in the third quarter of 2022 and is expected to be completed by the end of the first quarter of 2023. In connection with the removal of station equipment and site improvements, for the year ended December 31, 2022, we recognized $10.6 million in accelerated depreciation expense relating to the change in depreciable life of the affected station assets and $2.5 million in incremental asset retirement obligation charges.

At-The-Market Offerings. On May 10, 2021, we entered into an equity distribution agreement with Goldman Sachs & Co. LLC, as sales agent, to sell shares of our common stock having an aggregate offering price of up to $100.0 million in an at-the-market offering program (the "May ATM Program"). As of June 3, 2021, we sold 12,362,237 shares of our common stock under the May ATM Program, which exhausted the May ATM Program. On June 7, 2021, we entered into a new equity distribution agreement with Goldman Sachs & Co. LLC, as sales agent, to sell additional shares of our common stock having an aggregate offering price of up to $100.0 million in a new at-the-market offering program (the "June ATM Program" and, together with the May ATM Program, the "ATM Programs"). On June 8, 2021, we sold 10,473,946 shares of our common stock under the June ATM Program, which exhausted the June ATM Program.

For the year ended December 31, 2021, we issued 22,836,183 shares of our common stock under the ATM Programs for gross proceeds of $200.0 million, and incurred transaction costs of $6.5 million, including $6.0 million in commissions paid to Goldman Sachs & Co. LLC.

Debt Level and Debt Compliance

As of December 31, 2022, we had total indebtedness, excluding finance lease obligations, of $145.6 million in principal amount, of which $0.1 million is expected to become due in 2023. Certain of the agreements governing our outstanding debt, which are discussed in Note 12, have certain financial and non-financial covenants with which we must comply. As of December 31, 2022, we were in compliance with all of these covenants.

Key Trends

Market for RNG and conventional natural gas as a Vehicle Fuel

According to CARB, RNG and conventional natural gas are cleaner than gasoline and diesel fuel based on the GHG emissions produced by vehicles operated by these fuels. Additionally, RNG and conventional natural gas are generally less expensive for vehicle operators than gasoline and diesel on an energy equivalent basis. According to the U.S. Energy Information Administration, demand for renewable and conventional natural gas fuels in the United States has increased in recent years and is expected to continue to increase. We expect our sales of RNG and conventional natural gas to grow as more companies look to operate in an increasingly sustainable way. In addition to pressure from politicians, regulators and non-governmental organizations, the investment community has dramatically increased demands on companies to diminish their contributions to climate change. We believe that RNG is the best tool available today to reduce climate-harming GHG and meet sustainability objectives.

The market for our vehicle fuels, however, is a relatively new and developing market. As a result, it is difficult to accurately predict demand for our vehicle fuels, in general and in any specific geographic and customer markets, and consequently our timing and level of investment in particular markets may not be consistent with any growth in demand in these markets. Further, the new and developing nature of the market for our vehicle fuels has led to slow, volatile or unpredictable growth in many sectors. For example, to date, adoption and deployment of natural gas vehicles, both in general and in certain of our key customer markets, including heavy-duty trucking, have been slower than we anticipated.

We believe challenging market conditions are caused by a number of factors, including the following:

- Volatile prices for oil, diesel and gasoline, which may decrease the price advantage of our fuels. In addition, these pricing conditions have led us to reduce the prices we charge some customers for our fuels, which has reduced our profit margins.

- There has been increased focus by some parties, including lawmakers, regulators, policymakers, environmental and advocacy organizations and other powerful groups, on electric or other alternative vehicles or vehicle fuels. For example, the executive order signed by President Biden in December 2021 directs the federal government to achieve certain goals, including replacing its fleet of over 600,000 cars and trucks with 100% zero-emission vehicles by 2035. In addition, California lawmakers and regulators have implemented various measures designed to increase the use of electric, hydrogen and other zero-emission vehicles, including establishing firm goals for the number of these vehicles operating on state roads by specified dates and enacting various laws and other programs in support of these goals. Among other things, we believe many California lawmakers and regulators desire to limit and ultimately discontinue the production and use of internal combustion engines because such engines have "tailpipe" emissions.

- We believe the lack of substantial growth in the heavy-duty trucking market has been driven in part by the experience of operators with, or perceptions of, unsatisfactory performance by prior models of heavy-duty natural gas truck engines, actual or perceived insufficiencies in the financial incentives to convert, and improvements in diesel engine technology. If these conditions continue, then the growth levels in this market will continue to be low. We believe the newest models of heavy-duty natural gas truck engines have substantially addressed concerns with prior models. Further, we have launched our *Zero Now* truck financing program and the Chevron Adopt-A-Port program to combat operator concerns, but these programs may ultimately be unsuccessful.

To the extent these or other factors have contributed to curtailed demand or slowing growth in the market for our vehicle fuels, we believe they have also contributed to decreases in station construction activity in certain periods, as the success of this activity is dependent on the success of the market for our vehicle fuels generally. Moreover, we believe these factors have materially contributed to the volatility and declines in our stock price and market capitalization in recent years, which has and could in the future lead to decreased cash flows and indications of asset or goodwill impairment. If these adverse macroeconomic conditions and other uncertainties in our industry persist, our financial results and stock price may continue to be adversely affected.

In spite of these market conditions, we believe our key customer markets, including heavy-duty trucking, airports, refuse, and public transit, are well-suited for the adoption of our vehicle fuels because they consume relatively high volumes of fuel, refuel at centralized locations or along well-defined routes and/or are facing increasingly stringent emissions or other environmental requirements. We also expect the lower GHG emissions associated with our RNG vehicle fuel will result in increased demand for this fuel, resulting in our continued delivery of increasing volumes of RNG to our vehicle fleet customers. Additionally, we anticipate that, over time, cities and communities in the United States and Canada will follow large cities in Europe in banning diesel vehicles. If these projections materialize, we believe there will be growth in the consumption of our vehicle fuels in our key customer and geographic markets, and our goal is to capitalize on this growth if and when it materializes. In that event, we expect our operating costs and capital expenditures would increase in connection with any growth of our business in the future.

Our Performance

Overview. Our gross revenue mostly consists of volume-related product and service revenue and station construction sales. Our revenue can vary between periods due to a variety of factors, including, among others, the amount and timing of vehicle fuel sales, natural gas commodity prices, station construction sales, sales of Environmental Credits, and recognition of government credits, grants and incentives, such as AFTC. In addition, our volume-related product revenue has been and may continue to be subject to fluctuations as a result of our entry into certain commodity swap arrangements in October 2018, because the changes in fair value of these and certain other derivative instruments, including existing and anticipated fueling contracts under our *Zero Now* truck financing program, are included in volume-related product revenue. Furthermore, our volume-related product revenue has been affected by the Amazon Warrant Charges resulting from immediate vesting of a portion of the Amazon Warrant and subsequent vesting associated with fuel purchases made by Amazon and its affiliates.

Our cost of sales can also vary between periods due to a variety of factors, including fluctuations in natural gas commodity prices, station construction and labor costs, as well as the other factors that impact our revenue levels described above.

In addition, our performance in certain periods has been affected by transactions or events that have resulted in significant cash or non-cash gains or losses. Such gains or losses may not recur regularly, in the same amounts or at all in future periods and, with respect to non-cash gains and losses, do not impact our liquidity.

These significant fluctuations in our operating results may render period-to-period comparisons less meaningful, especially given the current uncertainties relating to macro-economic growth, inflation trends, and the ongoing effect of the COVID-19 pandemic, and investors in our securities should not rely on the results of one period as an indicator of performance in any other period. Additionally, these fluctuations in our operating results could cause our performance in any period to fall below the financial guidance we may have provided to the public or the estimates and projections of the investment community, which could negatively affect the price of our common stock.

See “Results of Operations” below for more information about our performance in 2021 and 2022.

Volume. The amount of RNG and conventional natural gas, in the form of CNG and LNG, that we sold increased by 8.9% from 2021 to 2022 primarily due to the effect of COVID-19 restrictions being lifted and an increase in economic activities and travel generally.

The amount of RNG we sell as vehicle fuel, which is delivered in the form of CNG or LNG, has continued to experience robust growth, and increased by 18.7% from 2021 to 2022. We believe the increased demand for RNG is attributable to the belief in the dramatic reduction in the amount of climate-harming greenhouse gas that can be achieved through the use of RNG and pressure from politicians, regulators, non-governmental organizations and the investment community directed at companies to reduce their contributions to GHG emissions. To the extent demand for RNG continues to increase, we expect our joint venture(s) with TotalEnergies and bp and our expanded supply agreements to increase our volume-related product revenue due to increased volumes of RNG vehicle fuel sold and increased generation of RINs and LCFS Credits. In addition, such an increase in RNG demand could also result in more robust competition for supplies of RNG, including from other vehicle fuel providers, gas utilities (which may have distinct advantages in accessing RNG supply, including potential use of ratepayer funds to fund RNG purchases if approved by a utility’s regulatory commission) and other users and providers. We expect to invest in production projects to help ensure that we have adequate supply of RNG, and we are pursuing development and ownership of livestock waste ADG projects on our own and with partners including TotalEnergies and bp.

Environmental Credits. When we sell RNG and conventional natural gas for use as a vehicle fuel, we are eligible to generate RINs and LCFS Credits, which we then seek to sell to third parties.

The markets for RINs and LCFS Credits have been volatile and unpredictable in recent periods, and the prices for these credits have been subject to significant fluctuations. For example, in 2022, market prices for RINs have been as high as $3.56 and as low as $2.47. Additionally, the value of RINs and LCFS Credits, and consequently the revenue levels we may receive from our sale of these credits, may be adversely affected by changes to the federal and state programs under which these credits are generated and sold, prices for and use of oil, diesel or gasoline, the inclusion of additional qualifying fuels in the programs, increased production levels of other fuels in the programs, or other conditions. Further, our ability to generate revenue from sales of these credits depends on our strict compliance with these federal and state programs, which are complex and can involve a significant degree of judgment. If the agencies that administer and enforce these programs disagree with our judgments, otherwise determine we are not in compliance, conduct reviews of our activities or make changes to the programs, then our ability to generate or sell these credits could be temporarily restricted pending completion of reviews or as a penalty, permanently limited or lost entirely, and we could be subject to fines or other sanctions. Any of these outcomes could force us to purchase credits in the open market to cover any credits we have contracted to sell, retire credits we may have generated but not yet sold, reduce or eliminate a significant revenue stream or incur substantial additional and unplanned expenses.

Risk Management Activities

From time to time, we enter into fuel sales contracts that require us to sell CNG or LNG to our customers at a fixed price. These contracts expose us to the risk that the price of natural gas commodity may increase above the natural gas commodity cost component included in the price at which we are committed to sell the natural gas to our customers.

In an effort to mitigate the volatility of our earnings related to any futures contracts and to reduce our risk related to our fixed price sales contracts, we operate under a hedging policy pursuant to which we purchase futures contracts to hedge our exposure to variability in expected future cash flows related to a particular fixed price contract or bid. Subject to the conditions set forth in the policy, we purchase futures contracts in quantities reasonably expected to effectively hedge our exposure to cash flow variability related to fixed price sales contracts entered into after the date of the policy. Unless otherwise agreed in advance by our Board of Directors and the derivatives committee thereof, we will conduct our futures contract activities and enter into fixed price sales contracts only in accordance with our hedging policy.

Due to the restrictions of our hedging policy, we expect to offer few fixed price sales contracts to our customers. If we do offer a fixed price sales contract, we anticipate including a price component that would cover our estimated cash requirements over the duration of the underlying futures contracts. The amount of this price component will vary based on the anticipated volume and the natural gas price component to be covered under the fixed price sales contract.

In October 2018, in support of our *Zero Now* truck financing program, we executed two commodity swap contracts with TotalEnergies Gas & Power North America, an affiliate of TotalEnergies and THUSA, for a total of five million diesel gallons annually from April 1, 2019 to June 30, 2024. These commodity swap contracts are intended to manage risks related to the diesel-to-natural gas price spread in connection with the natural gas fuel supply commitments we have made and expect to make in our current and anticipated fueling agreements with fleet operators that participate in the *Zero Now* program.

Critical Accounting Policies and Estimates

This discussion is based upon our consolidated financial statements included in this report, which have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP"). The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. Actual results could differ from those estimates and may result in material effects on our operating results and financial position.

We believe the critical accounting policies discussed below affect our more significant estimates made in preparing our consolidated financial statements. See Notes 1 and 2 for more information about these and our other significant accounting policies.

Revenue Recognition

In general, revenue is recognized when control of the promised goods or services is transferred to our customers, in an amount that reflects the consideration to which we expect to be entitled in exchange for the goods or services. To achieve that core principle, a five-step approach is applied: (1) identify the contract with a customer, (2) identify the performance obligations in the contract, (3) determine the transaction price, (4) allocate the transaction price to the performance obligations in the contract, and (5) recognize revenue allocated to each performance obligation when we satisfy the performance obligation. A performance obligation is a promise in a contract to transfer a distinct good or service to the customer and is the unit of account for revenue recognition.

We recognize revenue on various products and services.

Our volume-related product revenue consists of sales of RNG and conventional natural gas, in the form of CNG and LNG, AFTC incentives, and sales of RINs and LCFS Credits in addition to Amazon Warrant Charges and changes in fair value of our derivative instruments.

RNG and conventional natural gas are sold pursuant to contractual commitments over defined delivery periods. These contracts typically include a stand-ready obligation to supply natural gas. We recognize fuel revenue in the amount to which we have the right to invoice. We have a right to consideration based on the amount of GGEs of fuel dispensed by the customer and current pricing conditions. Customers are typically billed on a monthly basis. Since payment terms are less than a year, we have elected the practical expedient which allows us to not assess whether a customer contract has a significant financing component.

Our service revenue consists of sales of O&M and other services. O&M and other services are sold pursuant to contractual commitments over defined performance periods. These contracts typically include a stand-ready obligation to provide O&M and/or other services based on a committed and agreed upon routine maintenance schedule or when and if called upon by the customer.

We recognize O&M and other services revenue in the amount to which we have the right to invoice. We have a right to consideration based on services rendered or on the amount of GGEs of fuel dispensed by the customer multiplied by an agreed-upon rate. Customers are typically billed on a monthly basis. Since payment terms are less than a year, we have elected the practical expedient which allows us to not assess whether a customer contract has a significant financing component.

We sell RIN Credits and LCFS Credits to third parties that need the credits to comply with federal and state requirements. Revenue is recognized on these credits when there is an agreement in place to monetize the credits at a determinable price and the RNG fuel has been sold. The sales price for some environmental credit transactions may not be determinable in the period during which the RNG was sold as pricing is established in the quarter after the RNG was sold. In these circumstances, revenue from RIN and LCFS credits is recognized once the sales price has been established and therefore is considered determinable.

Changes in fair value of derivative instruments relates to our commodity swap and certain customer fueling contracts under our *Zero Now* truck financing program. The contracts are measured at fair value with changes in the fair value recorded in our consolidated statements of operations in the period incurred. The amounts are classified as revenue because our commodity swap contracts are used to economically offset the risk associated with the diesel-to-natural gas price spread resulting from existing and anticipated customer fueling contracts under our *Zero Now* truck financing program.

Amazon Warrant Charges are determined based on the grant date fair value of the award, and the associated non-cash stock-based sales incentive charges, which are recorded as a reduction of revenue, are recognized as the customer purchases fuel and vesting conditions become probable of being achieved. See Note 1 for additional information.

Station construction contracts are generally short-term, except for certain larger and more complex stations, which can take up to 24 months to complete. For most of our station construction contracts, the customer contracts with us to provide a significant service of integrating a complex set of tasks and components into a single station. Hence, the entire contract is accounted for as one performance obligation.

We recognize station construction revenue over time as we perform under these contracts because of the continual transfer of control of the goods to the customer, who typically controls the work in process. Revenue is recognized based on the extent of progress towards completion of the performance obligation and is recorded proportionally as costs are incurred. Costs to fulfill our obligations under these contracts typically include labor, materials and subcontractors' costs, other direct costs and an allocation of indirect costs.

Refinements of estimates to account for changing conditions and new developments are continuous and characteristic of the process. Many factors that can affect contract profitability may change during the performance period of the contract, including differing site conditions, the availability of skilled contract labor, the performance of major suppliers and subcontractors, and unexpected changes in material costs. Because a significant change in one or more of these estimates could affect the profitability of these contracts, the contract price and cost estimates are reviewed periodically as work progresses and adjustments proportionate to the cost-to-cost measure of progress are reflected in contract revenues in the reporting period when such estimates are revised as discussed above. Provisions for estimated losses on uncompleted contracts are recorded in the period in which the losses become known.

In certain contracts with our customers, we agree to provide multiple goods or services, including construction of and sale of a station, O&M services, and sale of fuel to the customer. These contracts have multiple performance obligations because the promise to transfer each separate good or service is separately identifiable and distinct. This evaluation requires significant judgment and the decision to combine a group of contracts or separate the combined or single contract into multiple performance obligations could change the amount of revenue recognized in one or more periods.

We allocate the contract price to each performance obligation using best estimates of the standalone selling price of each distinct good or service in the contract. The primary method used to estimate the standalone selling price for fuel and O&M services is observable standalone sales, and the primary method used to estimate the standalone selling price for station construction sales is the expected cost plus a margin approach because we sell customized customer-specific solutions. Under this approach, we forecast expected costs of satisfying a performance obligation and then add an appropriate margin for the good or service.

AFTC is considered variable consideration because it can either increase or decrease the transaction price based on volumes of vehicle fuel sold. Additionally, AFTC is not recognized as revenue until it is authorized through federal legislation, which also provides a determinable price. We recognize revenue in the period the credit is authorized through federal legislation.

We collect and remit taxes assessed by various governmental authorities that are imposed on and concurrent with revenue-producing transactions between us and our customers. These taxes may include, among others, fuel, sales and value-added taxes. We report the collection of these taxes on a net basis and they are excluded from revenue and cost of sales.

Income Taxes

Income taxes are computed using the asset and liability method. Under this method, deferred income taxes are recognized by applying enacted statutory tax rates applicable to future years to differences between the tax bases and financial carrying amounts of existing assets and liabilities. The impact on deferred taxes of changes in tax rates and laws, if any, are applied to the years during which temporary differences are expected to be settled and are reflected in the consolidated financial statements in the period of enactment. Valuation allowances are established when management determines it is more likely than not that deferred tax assets will not be realized. When evaluating the need for a valuation analysis, we use estimates involving a high degree of judgment including projected future U.S. GAAP income and the amounts and estimated timing of the reversal of any deferred tax assets and liabilities.

We have a recognition threshold and a measurement attribute for the financial statement recognition and measurement of tax positions taken or expected to be taken in a tax return. For those benefits to be recognized, a tax position must be more likely than not sustainable upon examination by taxing authorities based on the technical merits of the position. The amount recognized is measured as the largest amount of benefit that has a greater than 50% likelihood of being realized upon ultimate settlement. We recognize potential accrued interest and penalties related to unrecognized tax benefit in income tax expense.

We operate within multiple domestic and foreign taxing jurisdictions and are subject to audit in these jurisdictions. These audits can involve complex issues, which may require an extended period of time to resolve. Although we believe that adequate consideration has been given to these issues, it is possible that the ultimate resolution of these issues could be significantly different than originally estimated.

Fair Value Measurements

We have established a framework that follows the authoritative guidance for fair value measurements with respect to assets and liabilities that are measured at fair value on a recurring basis and non-recurring basis. Under the framework, fair value is defined as the exit price, or the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants, as of the measurement date. The framework also establishes a hierarchy for inputs used in measuring fair value that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that the most observable inputs be used when available. Observable inputs are inputs market participants would use in valuing the asset or liability and are developed based on market data obtained from sources independent of our Company. Unobservable inputs are inputs that reflect our assumptions about the factors market participants would use in valuing the asset or liability and are developed based upon the best information available in the circumstances. The hierarchy consists of the following three levels: Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities; Level 2 inputs include quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, and inputs (other than quoted prices) that are observable for the asset or liability, either directly or indirectly; Level 3 inputs are unobservable inputs for the asset or liability. Categorization within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement.

Our significant uses of fair value measurements include the valuation of commodity swaps, customer contracts, and available-for-sale debt securities, all of which require significant judgment.

Recently Adopted Accounting Pronoucements and Recently Issued Accounting Pronouncements.

See Note 1 for information about recently adopted accounting pronouncements and recently issued accounting pronouncements.

Results of Operations

The discussions below compare our results of operations in 2022 and 2021. Historical results are not indicative of the results to be expected in the current period or any future period.

2022 Compared to 2021

The table below presents, for each period, each line item of our statement of operations as a percentage of our total revenue for the period. The narrative that follows provides a comparative discussion of certain of these line items between periods.

	Year Ended December 31,	
	2021	**2022**
Statements of Operations Data:		
Revenue:		
Product revenue	83.4 %	88.8 %
Service revenue	16.6	11.2
Total revenue	100.0	100.0
Operating expenses:		
Cost of sales (exclusive of depreciation and amortization shown separately below):		
Product cost of sales	74.2	66.6
Service cost of sales	10.2	6.7
Selling, general and administrative	35.2	26.1
Depreciation and amortization	17.7	13.0
Total operating expenses	137.3	112.4
Operating loss	(37.2)	(12.3)
Interest expense	(1.7)	(1.5)
Interest income	0.4	0.8
Other income, net	0.4	—
Loss from equity method investments	(0.2)	(1.1)
Gain from sale of certain assets of subsidiary	1.5	—
Loss before income taxes	(36.8)	(14.1)
Income tax expense	—	(0.1)
Net loss	(36.8)	(14.2)
Loss attributable to noncontrolling interest	0.4	0.2
Net loss attributable to Clean Energy Fuels Corp.	(36.4)%	(14.0)%

Product revenue. Product revenue for 2022 increased by $159.9 million to $373.0 million, representing 88.8% of total revenue, compared to $213.1 million, representing 83.4% of total revenue, for 2021. The increase was due to (1) higher prices of fuel sold and an increase in total GGEs of fuel sold, resulting in $90.9 million increase in product revenue from 2021 to 2022, (2) a $59.3 million decrease in non-cash stock-based sales incentive contra-revenue charges related to the Amazon Warrant, (3) an increase in RIN revenue of $2.9 million resulting from higher GGEs of RNG sold and higher average RIN prices in 2022 compared to those in 2021, (4) an increase in AFTC revenue of $1.1 million from 2021 to 2022, (5) an increase in station construction sales of $5.9 million due to increased construction activities, and (6) a change in fair value of our commodity swap and customer contracts entered into in connection with our *Zero Now* truck financing program, as we recognized an unrealized gain of $0.5 million in 2022 compared to an unrealized loss of $3.5 million in 2021. The increase in product revenue between periods was partially offset by a decrease in LCFS revenue of $4.2 million resulting from lower average LCFS prices in 2022 compared to those in 2021.

Service revenue. Service revenue for 2022 increased $4.7 million to $47.2 million, representing 11.2% of total revenue, compared to $42.5 million, representing 16.6% of total revenue, for 2021. The increase was primarily due to an increase in GGEs serviced in 2022 as compared to that in 2021.

Product cost of sales. Product cost of sales for 2022 increased by $90.1 million to $279.7 million, representing 66.6% of total revenue, from $189.6 million, representing 74.2% of total revenue, in 2021. The increase was primarily due to an increase in GGEs of fuel sold, an increase in natural gas prices, and a $4.4 million increase in the cost of station construction activities.

Service cost of sales. Service cost of sales for 2022 increased by $2.0 million to $28.0 million, representing 6.7% of total revenue, from $26.0 million, representing 10.2% of total revenue, in 2021. The increase was primarily due to an increase in GGEs serviced in 2022 as compared to that in 2021.

Selling, general and administrative. Selling, general and administrative expenses increased by $19.6 million to $109.5 million in 2022, from $89.9 million in 2021. The increase was primarily driven by (1) a $11.5 million increase in stock-based compensation expense due to a full year of expense recognized in 2022 relating to equity awards granted in 2021, (2) a $5.7 million increase in salaries and benefits, and (3) a $2.3 million increase in legal, consulting and other professional fees.

Depreciation and amortization. Depreciation and amortization increased by $9.5 million to $54.7 million in 2022, from $45.2 million in 2021. The increase was primarily due to the recognition of accelerated depreciation expense and asset retirement obligation charges relating to the Pilot fueling station decommission and removal that began in the third quarter of 2022. The increase in depreciation expense was partially offset by a lower amount of depreciable assets.

Interest expense. Interest expense increased by $1.9 million to $6.3 million in 2022, from $4.4 million in 2021. The increase was primarily due to a $3.4 million loss from extinguishment of debt relating to the full repayment of outstanding debt under the Berkshire ALA and the second amendment to the Berkshire ALA (see Note 12) and certain financing obligations of NG Advantage. The increase was partially offset by lower average outstanding indebtedness between periods.

Other income, net. Other income, net decreased by $0.8 million to $0.1 million in 2022, from $0.9 million in 2021, primarily due to certain other fees earned in the prior year period.

Loss from equity method investments. Loss from equity method investments increased by $4.4 million to $4.8 million in 2022, from $0.4 million in 2021, primarily due to the operating results of SAFE&CEC S.r.l. and our joint venture(s) with TotalEnergies and bp.

Gain from sale of certain assets of subsidiary. No gain was recognized in 2022 as compared to a gain of $3.9 million recognized in 2021. The gain recorded in prior year was a result of the satisfaction of specified performance criteria in 2021 (the final year of the earnout) related to the assets sold in the bp Transaction (as defined in Note 3) in accordance with the related Amended APA (as defined in Note 3).

Income tax expense. Income tax expense increased by $0.1 million to $0.2 million in 2022, from $0.1 million in 2021, primarily due to an increase in deferred taxes associated with goodwill.

Loss attributable to noncontrolling interest. In 2022 and 2021, we recorded a gain of $0.9 million and $1.0 million, respectively, for the noncontrolling interest in the net loss of NG Advantage. The noncontrolling interest in NG Advantage represents a 6.7% minority interest that was held by third parties during both the 2022 and 2021 periods.

Seasonality and Inflation

To some extent, we experience seasonality in our results of operations. Some of our customers tend to consume more of our vehicle fuels in the summer months, when buses and other fleet vehicles use more fuel to power their air conditioning systems, which typically translate to an increased volume of fuel sold in the summer months. In addition, natural gas commodity prices tend to be higher in the fall and winter months, due to increased overall demand for natural gas for heating during these periods.

Historically, inflation has not significantly affected our operating results; however, costs for construction, repairs, maintenance, electricity and insurance are all subject to inflationary pressures, which could affect our ability to maintain our stations adequately, build new stations, expand our existing facilities or pursue additional facilities, and could materially impact our operating costs.

Liquidity and Capital Resources

Liquidity

Liquidity is the ability to meet present and future financial obligations through operating cash flows, the sale or maturity of investments or the acquisition of additional funds through capital management. Our financial position and liquidity are, and will continue to be, influenced by a variety of factors, including the level of our outstanding indebtedness and the principal and interest we are obligated to pay on our indebtedness; the amount and timing of any capital calls related to the joint venture(s) with TotalEnergies and/or bp, or any other joint venture we may enter into in the future; the amount and timing of any additional debt or equity financing we may pursue; our capital expenditure requirements; any merger, divestiture or acquisition activity; and our ability to generate cash flows from our operations. We expect cash provided by our operating activities to fluctuate as a result of a number of factors, including our operating results and the factors that affect these results, including the amount and timing of our vehicle fuel sales, station construction sales, sales of RINs and LCFS Credits and recognition of government credits, the continuing direct and indirect effects of the COVID-19 pandemic, grants and incentives, if any; fluctuations in commodity, station construction and labor costs; environmental credit prices; variations in the fair value of certain of our derivative instruments that are recorded in revenue; and the amount and timing of our billing, collections and liability payments.

Cash Flows

Operating Activities. Cash provided by operating activities was $66.7 million in 2022, compared to cash provided by operating activities of $41.3 million in 2021. The increase in cash provided by operating activities in 2022 was primarily attributable to the collection of AFTC receivables in 2022 relating to 2021 and 2022 fuel volumes and changes in working capital resulting from the timing of receipts, accruals, billings and payments of cash.

Investing Activities. Cash used in investing activities was $148.5 million in 2022, compared to cash used in investing activities of $207.7 million in 2021. The decrease in cash used in investing activities in 2022 was primarily attributable to $8.4 million in net purchases of short-term investments in 2022, compared to $100.2 million in net purchases of short-term investments in 2021, a $3.0 million increase in net earnout proceeds received in connection with the bp Transaction, partially offset by a $21.4 million increase in capital expenditures in 2022, higher investments in other entities, including our $89.7 million contribution to the bpJV, and a $2.6 million decrease in proceeds from property and equipment disposals.

Financing Activities. Cash provided by financing activities was $101.6 million in 2022, compared to $152.8 million provided by financing activities in 2021. The decrease in cash provided by financing activities in 2022 was primarily attributable to the net proceeds received from the issuance of common stock in connection with our ATM Programs in 2021 (there were no ATM program activities in 2022), a $3.2 million increase in common stock repurchases, higher payment of debt extinguishment costs of $3.2 million, and a $4.4 million decrease in reimbursement proceeds relating to the Adopt-A-Port Program, partially offset by $155.5 million increase in proceeds received from the issuance of debt.

Capital Expenditures, Indebtedness and Other Uses of Cash

We require cash to fund our capital expenditures, operating expenses and working capital and other requirements, including costs associated with fuel sales; outlays for the design and construction of new fueling stations; additions or other modifications to existing fueling stations; RNG production facilities; debt repayments and repurchases; repurchases of common stock; purchases of heavy-duty trucks that use our fuels; additions or modifications of LNG production facilities; supporting our operations, including maintenance and improvements of our infrastructure; supporting our sales and marketing activities, including support of legislative and regulatory initiatives; financing vehicles for our customers; any investments in other entities; any mergers or acquisitions, including acquisitions to expand our RNG production capacity; pursuing market expansion as opportunities arise, including geographically and to new customer markets; and to fund other activities or pursuits and for other general corporate purposes.

Our business plan calls for approximately $90.0 million in capital expenditures in 2023. These capital expenditures primarily relate to the construction of fueling stations, IT software and equipment and LNG plant costs, and we expect to fund these expenditures primarily through cash on hand and cash generated from operations. Further, in 2023, we anticipate deploying up to approximately $40.0 million to develop ADG RNG production facilities. In 2022, we contributed $89.7 million to the bpJV. As of December 31, 2022, we have contributed $178.0 million into developing ADG RNG production facilities.

We had total indebtedness, consisting of our debt and finance leases, of approximately $153.1 million in principal amount as of December 31, 2022, of which approximately $1.0 million, $1.4 million, $0.6 million, and $150.1 million is expected to become due in 2023, 2024, 2025, and 2026, respectively. Based on our outstanding indebtedness and applicable interest rates as of December 31, 2022, we expect our total interest payment obligations relating to our indebtedness to be approximately $16.8 million for the year ending December 31, 2023. We plan to and believe we are able to make all expected principal and interest payments in the next 12 months.

We also have indebtedness, including the amount representing interest, from our operating leases of approximately $84.0 million as of December 31, 2022, of which approximately $8.1 million, $8.1 million, $8.1 million, $8.0 million, $7.9 million and $43.8 million is expected to become due in 2023, 2024, 2025, 2026, 2027 and thereafter, respectively.

We intend to make payments under our various debt instruments when due and pursue opportunities for earlier repayment and/or refinancing if and when these opportunities arise. Although we believe we have sufficient liquidity and capital resources to repay our debt coming due in the next 12 months, we may elect to suspend, or limit repurchases under, our share repurchase program or pursue alternatives, such as refinancing, or debt or equity offerings, to increase our cash management flexibility.

Sources of Cash

Historically, our principal sources of liquidity have consisted of cash on hand, cash provided by our operations, including, if available, AFTC and other government credits, grants and incentives, cash provided by financing activities, and sales of assets. In August 2022, AFTC was reinstated and extended and applies retroactively to vehicle fuel sales made beginning January 1, 2022. For the year ended December 31, 2022, we recognized $21.8 million in AFTC revenue, and, as of December 31, 2022, excluding current portion of restricted cash, we had total cash and cash equivalents and short-term investments of $263.5 million, compared to $229.2 million as of December 31, 2021.

We expect cash provided by our operating activities to fluctuate depending on our operating results, which can be affected by the factors described above, as well as the other factors described in this MD&A and Item 1A. “Risk Factors” of this report.

Subject to the following paragraph, we believe our cash and cash equivalents and short-term investments and anticipated cash provided by our operating and financing activities will satisfy our business requirements for at least the 12 months following the date of this report. Subsequent to that period, we may need to raise additional capital to fund any planned or unanticipated capital expenditures, investments, debt repayments, share repurchases or other expenses that we cannot fund through cash on-hand, cash provided by our operations or other sources. Moreover, we may use our cash resources faster than we predict due to unexpected expenditures, the direct and indirect impacts of the COVID-19 pandemic, or higher-than-expected expenses, in which case we may need to seek capital from alternative sources sooner than we anticipate. The timing and necessity of any future capital raise would depend on various factors, including our rate and volume of, and prices for, natural gas fuel sales and other volume-related activity, the direct and indirect impacts of the COVID-19 pandemic, new station construction, debt repayments (either before or at maturity) and any potential mergers, acquisitions, investments, divestitures or other strategic relationships we may pursue, as well as the other factors that affect our revenue and expense levels as described in this MD&A and elsewhere in this report.

If we deploy additional capital to develop ADG RNG production facilities and fueling stations to support contracted RNG fueling volume, we could be required to raise additional capital.

We may raise additional capital through one or more sources, including, among others, obtaining equity capital, including through offerings of our common stock or other securities, obtaining new or restructuring existing debt, selling assets, or any combination of these or other potential sources of capital. We may not be able to raise capital when needed, on terms that are favorable to us or our stockholders or at all. Any inability to raise necessary capital may impair our ability to develop and maintain fueling infrastructure, invest in strategic transactions or acquisitions or repay our outstanding indebtedness and may reduce our ability to support and build our business and generate sustained or increased revenue.

Material Cash Requirements

The table below represents our material cash requirements, including the scheduled maturities of our contractual obligations and our commitments for capital expenditures as of December 31, 2022. This table excludes certain potential cash requirements because they may involve future cash payments that are considered uncertain and cannot be estimated because they vary based upon future conditions; however, the exclusion of these obligations should not be construed as an implication that they are immaterial, as they could significantly affect our short- and long-term liquidity and capital resource needs depending on a variety of future events, facts and conditions.

	Payments Due by Period				
Contractual Obligations: (in thousands)	**Total**	**Less than 1 year**	**1 - 3 years**	**3 - 5 years**	**More than 5 years**
Long-term debt [1]	$ 216,117	$ 16,702	$ 33,262	$ 166,153	$ —
Finance lease obligations [2]	3,349	1,095	2,124	130	—
Operating lease commitments [3]	84,119	8,129	16,275	15,882	43,833
Long-term take-or-pay contracts [4]	5,178	3,223	1,955	—	—
Construction contracts [5]	69,801	69,801	—	—	—
Capital expenditure for RNG project [6]	22,237	22,237			
Total	$ 400,801	$ 121,187	$ 53,616	$ 182,165	$ 43,833

(1) Consists of long-term debt, including future interest payments, to finance acquisitions, equipment purchases and development of RNG production projects. For our variable-rate debt (which consists of the Term Loan, see Note 12), we have assumed an interest rate of 10.92% (Adjusted Term SOFR plus Applicable Margin) as of December 31, 2022.

(2) Consist of finance lease obligations, including future interest payments, to finance equipment purchases.

(3) Represent various leases including ground leases for our Boron Plant and fueling stations, property leases relating to our office spaces, and leases for equipment.

(4) Represent estimates of our long-term, quarterly natural gas purchase contracts with a take-or-pay commitment.

(5) Consist of our obligations to fund various fueling station construction projects, net of amounts funded through December 31, 2022 and excluding contractual commitments related to station sales contracts.

(6) Represents our capital expenditure commitment to fund the development and construction of an ADG RNG project, net of amounts funded through December 31, 2022. The project is expected to be substantially complete in the second quarter of 2024.

Off-Balance Sheet Arrangements

As of December 31, 2022, we had the following off-balance sheet arrangements that have had, or are reasonably likely to have, a material current or future effect on our financial condition, changes in financial condition, revenue or expenses, results of operations, liquidity, capital expenditures or capital resources:

- Outstanding surety bonds for construction contracts and general corporate purposes totaling $50.2 million;
- An outstanding loan commitment to an equity method investee;
- Quarterly fixed-price natural gas purchase contracts with take-or-pay commitments, the amount of which is shown under “Contractual Obligations” above;
- One long-term natural gas sale contract with a fixed supply commitment.

We provide surety bonds primarily for construction contracts in the ordinary course of our business, as a form of guarantee. No liability has been recorded in connection with our surety bonds because, based on historical experience and available information, we do not believe it is probable that any amounts will be required to be paid under these arrangements for which we will not be reimbursed.

In November 2022, we entered into an agreement with one of our equity method investees pursuant to which we committed to make available up to $5.5 million in delayed draw loans to support the equity method investee's working capital requirements.

As of December 31, 2022, we had quarterly fixed-price natural gas purchase contracts with take-or-pay commitments extending through June 2024.

In addition, as of December 31, 2022, we had a fixed supply arrangement with UPS for the supply and sale of 170.0 million GGEs of RNG through March 2026.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk.

In the ordinary course of our business, we are exposed to various market risks, including commodity price risks, risks related to foreign currency exchange rates, and risks related to fluctuations in interest rates.

Commodity Price Risk

We are subject to market risk with respect to our sales of natural gas, which have historically been subject to volatile market conditions. Our exposure to market risk is heightened when we have a fixed-price sales contract with a customer that is not covered by a futures contract, or when we are otherwise unable to pass through natural gas price increases to customers. Natural gas prices and availability are affected by many factors, including, among others, drilling activity, supply, weather conditions, overall economic conditions and foreign and domestic government regulations.

Natural gas costs represented $74.6 million, $111.8 million, and $182.4 million of our cost of sales in 2020, 2021, and 2022, respectively.

In October 2018, in support of our *Zero Now* truck financing program, we entered into two commodity swap contracts with TotalEnergies Gas & Power North America, an affiliate of TotalEnergies and THUSA, for a total of five million diesel gallons annually from April 1, 2019 to June 30, 2024. These commodity swap contracts are intended to manage risks related to the diesel-to-natural gas price spread associated with the natural gas fuel supply commitments we make in our fueling agreements with fleet operators who participate in the *Zero Now* truck financing program.

We have prepared a sensitivity analysis to estimate our exposure to price risk with respect to our commodity swap contracts. If the diesel-to-natural gas price spread were to fluctuate by 10% as of December 31, 2022, we would expect a corresponding fluctuation in the fair value of our commodity swap contracts of approximately $1.1 million.

Foreign Currency Exchange Rate Risk

For the year ended December 31, 2022, our primary exposure to foreign currency exchange rates relates to our Canadian operations that had certain outstanding accounts receivable and accounts payable denominated in Canadian dollar, which were not hedged.

We have performed a sensitivity analysis to estimate our exposure to market risk with respect to our monetary transactions denominated in a foreign currency. If the exchange rates on these assets and liabilities were to fluctuate by 10% from the rates as of December 31, 2022, we would expect a corresponding fluctuation in the value of the assets and liabilities of approximately $0.1 million, net.

Interest Rate Risk

As of December 31, 2022, we had $150.0 million of debt that bears interest at a rate equal to either adjusted Term SOFR, the Federal Funds Effective Rate, or the Prime Rate plus a margin per annum. Thus, depending on our interest rate election during the period, our interest expense would fluctuate with a change in Term SOFR, the Federal Funds Effective Rate or the Prime Rate. If these rates were to increase or decrease by 1% for the year, the impact on our annual interest expense would be approximately $1.5 million.

Certain LIBOR tenors were discontinued after 2021 with other LIBOR tenors to be discontinued after June 2023. We intend to monitor the developments with respect to the discontinuance of LIBOR and work with our lenders to minimize the effect of such a discontinuance on our financial condition and results of operations; however, the effect of the anticipated discontinuance of LIBOR on us and our debt instruments remains uncertain. If our lenders have increased costs due to changes in LIBOR, we may experience potential increases in interest rates on our variable rate debt, which could adversely affect our interest expense, results of operations and cash flows.

Item 8. Financial Statements and Supplementary Data.

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Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Clean Energy Fuels Corp.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Clean Energy Fuels Corp and subsidiaries (the Company) as of December 31, 2022 and 2021, the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2022, and the related notes and financial statement schedule II (collectively, the consolidated financial statements). In our opinion, based on our audits and the report of the other auditors, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2022, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 28, 2023 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

We did not audit the consolidated financial statements of CE Bp Renew Co, LLC a 50 percent owned investee company. The Company's investment in CE Bp Renew Co, LLC was $156.8 million and $69.8 million as of December 31, 2022 and 2021, respectively, and its loss from equity method investment of CE Bp Renew Co, LLC was $2.7 million, $0.4 million and $0 for the years 2022, 2021 and 2020, respectively. The consolidated financial statements of CE Bp Renew Co, LLC were audited by other auditors whose report has been furnished to us, and our opinion, insofar as it relates to the amounts included for CE Bp Renew Co, LLC, is based solely on the report of the other auditors.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits and the report of the other auditors provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of a critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing separate opinions on the critical audit matter or on the accounts or disclosures to which they relate.

Fair value of embedded derivatives and commodity swaps

As discussed in Note 8 to the consolidated financial statements, the Company used the income approach to value its derivative assets and liabilities associated with its embedded derivatives in fueling agreements under its Zero Now truck financing program and the commodity swap contracts used to manage price risks related to these agreements. As of December 31, 2022, the Company recorded derivative assets and liabilities related to the embedded derivatives and commodity swaps of $6,755 thousand and $3,845 thousand, respectively. The Company used a discounted cash flow model to estimate the fair value of these embedded derivatives and commodity swaps, classified as Level 3 in the fair value hierarchy because they are valued using unobservable inputs.

We identified the assessment of the measurement of fair value for the embedded derivatives and commodity swaps as a critical audit matter due to the significant measurement uncertainty associated with the fair value of such instruments. There was a high degree of subjective auditor judgment in assessing the significant unobservable inputs, such as commodity forward curves and differentials applied to the commodity forward curves.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's derivatives process. This included controls related to the (1) development of the significant unobservable inputs, including monitoring of changes to the inputs, and (2) relevance and reliability of observable inputs reasonably available. We inspected the underlying fueling agreements associated with the embedded derivatives, on a sample basis, to evaluate the existence and accuracy of inputs into the valuation model. We also confirmed directly with the counter-party to the commodity swap contracts and inspected the commodity swap contracts to evaluate the existence and accuracy of inputs into the valuation model, including confirming the relevant terms of the commodity swap contracts. We involved financial instrument valuation professionals with specialized skills and knowledge, who assisted in assessing the fair value of the embedded derivatives and commodity swaps by developing an estimate of the fair values of the embedded derivatives and commodity swaps using commodity forward curves and differentials applied to the commodity forward curves obtained from publicly available market data, and compared the results to the Company's fair value estimates.

/s/ KPMG LLP

We have served as the Company's auditor since 2001.

Irvine, California
February 28, 2023

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Clean Energy Fuels Corp.:

Opinion on Internal Control Over Financial Reporting

We have audited Clean Energy Fuels Corp and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2022 and 2021, the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2022, and the related notes and financial statement schedule II (collectively, the consolidated financial statements), and our report dated February 28, 2023 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed 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. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG LLP

Irvine, California
February 28, 2023

CLEAN ENERGY FUELS CORP. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS
(In thousands, except share and per share data)

	December 31, 2021	December 31, 2022
Assets		
Current assets:		
Cash, cash equivalents and current portion of restricted cash	$ 99,448	$ 125,950
Short-term investments	129,722	139,569
Accounts receivable, net of allowance of $1,205 and $1,375 as of December 31, 2021 and December 31, 2022, respectively	87,433	91,430
Other receivables	24,447	17,026
Inventory	31,302	37,144
Prepaid expenses and other current assets	37,584	60,601
Total current assets	409,936	471,720
Operating lease right-of-use assets	42,537	52,586
Land, property and equipment, net	261,761	264,068
Long-term portion of restricted cash	7,008	—
Notes receivable and other long-term assets, net	56,189	30,467
Investments in other entities	109,811	193,273
Goodwill	64,328	64,328
Intangible assets, net	5,500	5,915
Total assets	$ 957,070	$ 1,082,357
Liabilities and Stockholders' Equity		
Current liabilities:		
Current portion of debt	$ 12,845	$ 93
Current portion of finance lease obligations	846	948
Current portion of operating lease obligations	3,551	4,206
Accounts payable	24,352	44,435
Accrued liabilities	75,159	90,079
Deferred revenue	7,251	5,970
Derivative liabilities, related party	1,900	2,415
Total current liabilities	125,904	148,146
Long-term portion of debt	23,215	145,471
Long-term portion of finance lease obligations	2,427	2,134
Long-term portion of operating lease obligations	39,431	48,911
Long-term portion of derivative liabilities, related party	2,483	1,430
Other long-term liabilities	8,199	8,794
Total liabilities	201,659	354,886
Commitments and contingencies (Note 15)		
Stockholders' equity:		
Preferred stock, $0.0001 par value. 1,000,000 shares authorized; no shares issued and outstanding	—	—
Common stock, $0.0001 par value. 454,000,000 shares authorized; 222,684,923 shares and 222,437,429 shares issued and outstanding as of December 31, 2021 and December 31, 2022, respectively	22	22
Additional paid-in capital	1,519,918	1,553,668
Accumulated deficit	(771,242)	(829,975)
Accumulated other comprehensive loss	(1,622)	(3,722)
Total Clean Energy Fuels Corp. stockholders' equity	747,076	719,993
Noncontrolling interest in subsidiary	8,335	7,478
Total stockholders' equity	755,411	727,471
Total liabilities and stockholders' equity	$ 957,070	$ 1,082,357

See accompanying notes to consolidated financial statements.

CLEAN ENERGY FUELS CORP. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except share and per share data)

	Year Ended December 31, 2020	2021	2022
Revenue:			
Product revenue	$ 251,954	$ 213,133	$ 372,995
Service revenue	39,770	42,513	47,169
Total revenue	291,724	255,646	420,164
Operating expenses:			
Cost of sales (exclusive of depreciation and amortization shown separately below):			
Product cost of sales	161,705	189,600	279,748
Service cost of sales	23,705	26,004	27,993
Change in fair value of derivative warrants	(40)	—	—
Selling, general and administrative	68,516	89,906	109,456
Depreciation and amortization	47,682	45,184	54,674
Total operating expenses	301,568	350,694	471,871
Operating loss	(9,844)	(95,048)	(51,707)
Interest expense	(7,348)	(4,430)	(6,308)
Interest income	1,345	1,082	3,374
Other income, net	3,025	905	95
Loss from equity method investments	(161)	(430)	(4,824)
Gain from sale of certain assets of subsidiary	1,063	3,885	—
Gain from formation of equity method investment	700	—	—
Loss before income taxes	(11,220)	(94,036)	(59,370)
Income tax (expense) benefit	(309)	(119)	(220)
Net loss	(11,529)	(94,155)	(59,590)
Loss attributable to noncontrolling interest	1,665	1,009	857
Net loss attributable to Clean Energy Fuels Corp.	$ (9,864)	$ (93,146)	$ (58,733)
Net loss attributable to Clean Energy Fuels Corp. per share:			
Basic	$ (0.05)	$ (0.44)	$ (0.26)
Diluted	$ (0.05)	$ (0.44)	$ (0.26)
Weighted-average common shares outstanding:			
Basic	200,657,912	213,118,694	222,414,790
Diluted	200,657,912	213,118,694	222,414,790

See accompanying notes to consolidated financial statements.

CLEAN ENERGY FUELS CORP. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(In thousands)

	Year Ended December 31, 2020			Year Ended December 31, 2021			Year Ended December 31, 2022		
	Clean Energy Fuels Corp.	Noncontrolling Interest	Total	Clean Energy Fuels Corp.	Noncontrolling Interest	Total	Clean Energy Fuels Corp.	Noncontrolling Interest	Total
Net loss	$ (9,864)	$ (1,665)	$ (11,529)	$ (93,146)	$ (1,009)	$ (94,155)	$ (58,733)	$ (857)	$ (59,590)
Other comprehensive income (loss), net of tax:									
Foreign currency translation adjustments net of $0 tax in 2020, 2021 and 2022	1,355	—	1,355	(1,394)	—	(1,394)	(1,773)	—	(1,773)
Unrealized gain (loss) on available-for-sale securities, net of $0 tax in 2020, 2021 and 2022	2	—	2	(19)	—	(19)	(327)	—	(327)
Total other comprehensive income (loss)	1,357	—	1,357	(1,413)	—	(1,413)	(2,100)	—	(2,100)
Comprehensive loss	$ (8,507)	$ (1,665)	$ (10,172)	$ (94,559)	$ (1,009)	$ (95,568)	$ (60,833)	$ (857)	$ (61,690)

See accompanying notes to consolidated financial statements.

CLEAN ENERGY FUELS CORP. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In thousands, except share data)

	Common stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Noncontrolling Interest in Subsidiary	Total Stockholders' Equity
	Shares	Amount					
Balance, December 31, 2019	204,723,055	20	1,203,186	(668,232)	(1,566)	9,621	543,029
Issuance of common stock	1,512,535	—	1,683	—	—	—	1,683
Repurchase of common stock	(7,744,386)	—	(14,647)	—	—	—	(14,647)
Stock-based compensation	—	—	2,957	—	—	—	2,957
Net loss	—	—	—	(9,864)	—	(1,665)	(11,529)
Other comprehensive income	—	—	—	—	1,357	—	1,357
Increase in ownership in subsidiary	—	—	(1,388)	—	—	1,388	—
Balance, December 31, 2020	198,491,204	20	1,191,791	(678,096)	(209)	9,344	522,850
Issuance of common stock, net of issuance costs	24,646,419	2	197,919	—	—	—	197,921
Repurchase of common stock	(452,700)	—	(2,916)	—	—	—	(2,916)
Stock-based compensation	—	—	14,994	—	—	—	14,994
Stock-based sales incentive charges	—	—	118,130	—	—	—	118,130
Net loss	—	—	—	(93,146)	—	(1,009)	(94,155)
Other comprehensive loss	—	—	—	—	(1,413)	—	(1,413)
Balance, December 31, 2021	222,684,923	22	1,519,918	(771,242)	(1,622)	8,335	755,411
Issuance of common stock	942,760	0	1,365	—	—	—	1,365
Repurchase of common stock	(1,190,254)	(0)	(6,122)	—	—	—	(6,122)
Stock-based compensation	—	—	26,473	—	—	—	26,473
Stock-based sales incentive charges	—	—	12,034	—	—	—	12,034
Net loss	—	—	—	(58,733)	—	(857)	(59,590)
Other comprehensive loss	—	—	—	—	(2,100)	—	(2,100)
Balance, December 31, 2022	222,437,429	$ 22	$ 1,553,668	$ (829,975)	$ (3,722)	$ 7,478	$ 727,471

See accompanying notes to consolidated financial statements.

CLEAN ENERGY FUELS CORP. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

(In thousands)

	Year Ended December 31,		
	2020	**2021**	**2022**
Cash flows from operating activities:			
Net loss	$ (11,529)	$ (94,155)	$ (59,590)
Adjustments to reconcile net loss to net cash provided by operating activities:			
Depreciation and amortization	47,682	45,184	54,674
Provision for credit losses and inventory	2,662	1,257	2,035
Stock-based compensation expense	2,957	14,994	26,473
Stock-based sales incentive charges	—	83,641	24,302
Change in fair value of derivative instruments	(2,175)	3,490	(517)
Amortization of discount and debt issuance cost	(46)	20	(1,712)
Loss (gain) on disposal of property and equipment	(2,875)	1,365	12
Loss on extinguishment of debt	1,249	39	3,413
Gain from sale of certain assets of subsidiary	(1,063)	(3,885)	—
Gain from formation of equity method investment	(700)	—	—
Loss from equity method investments	161	430	4,824
Non-cash lease expense	2,756	2,945	3,400
Deferred income taxes	120	69	173
Expense reimbursement from JV	—	1,640	—
Changes in operating assets and liabilities:			
Accounts and other receivables	53,784	(24,260)	(1,072)
Inventory	108	(5,704)	(9,318)
Prepaid expenses and other assets	5,275	(10,498)	(1,366)
Operating lease liabilities	(3,141)	(3,053)	(3,314)
Accounts payable	(9,337)	6,615	9,324
Deferred revenue	(10,976)	4,550	(1,281)
Accrued liabilities and other	(13,871)	16,614	16,271
Net cash provided by operating activities	61,041	41,298	66,731
Cash flows from investing activities:			
Purchases of short-term investments	(74,292)	(324,170)	(410,027)
Maturities and sales of short-term investments	101,850	223,991	401,639
Purchases of and deposits on property and equipment	(13,273)	(23,075)	(44,518)
Disbursements for loans receivable	(535)	(3,905)	(2,310)
Payments on and proceeds from sales of loans receivable	1,567	421	1,116
Cash received from sale of certain assets of subsidiary, net	4,830	887	3,885
Investments in other entities	(650)	(78,919)	(89,700)
Payment and deposits on equipment and manure rights for RNG production projects	—	(5,830)	(8,986)
Proceeds from disposal of property and equipment	4,673	2,941	360
Net cash provided by (used in) investing activities	24,170	(207,659)	(148,541)
Cash flows from financing activities:			
Issuance of common stock	1,683	204,455	1,365
Repurchase of common stock	(14,647)	(2,916)	(6,122)
Fees paid for issuance of common stock	—	(6,534)	—
Fees paid for debt issuance costs	(131)	(1,277)	(486)
Proceeds for Adopt-A-Port program	—	5,815	1,410
Repayment of proceeds for Adopt-A-Port program	—	(360)	(1,163)
Proceeds from debt instruments	65,860	4,400	159,883
Proceeds from revolving line of credit	—	1,450	1,700
Repayments of borrowing under revolving line of credit	—	(1,450)	(1,700)
Repayments of debt instruments and finance lease obligations	(70,399)	(50,737)	(49,999)
Payments of debt extinguishment costs	(1,023)	(14)	(3,239)
Net cash provided by (used in) financing activities	(18,657)	152,832	101,649
Effect of exchange rates on cash, cash equivalents and restricted cash	201	8	(345)
Net increase (decrease) in cash, cash equivalents and restricted cash	66,755	(13,521)	19,494
Cash, cash equivalents and restricted cash, beginning of period	53,222	119,977	106,456
Cash, cash equivalents and restricted cash, end of period	$ 119,977	$ 106,456	$ 125,950
Supplemental disclosure of cash flow information:			
Income taxes paid	$ 8	$ 15	$ 68
Interest paid, net of $57, $0 and $0 capitalized, respectively	$ 5,622	$ 3,907	$ 1,873

See accompanying notes to consolidated financial statements.

Note 1 —Summary of Significant Accounting Policies

The Company and Nature of Business

Clean Energy Fuels Corp., together with its majority and wholly owned subsidiaries (hereinafter collectively referred to as the “Company,” unless the context or the use of the term indicates or requires otherwise) is engaged in the business of selling renewable and conventional natural gas as alternative fuels for vehicle fleets and related fueling solutions to its customers, primarily in the United States and Canada. The Company’s principal business is supplying renewable natural gas (“RNG”) and conventional natural gas, in the form of compressed natural gas (“CNG”) and liquefied natural gas (“LNG”), for medium and heavy-duty vehicles and providing operation and maintenance (“O&M”) services for public and private vehicle fleet customer stations. The Company is also focused on developing, owning, and operating dairy and other livestock waste RNG projects and supplying RNG (currently procured solely from third party sources and will be supplemented by internally produced RNG when the Company’s RNG projects come online) to its customers in the heavy and medium-duty commercial transportation sector.

As a comprehensive clean energy solutions provider, the Company also designs and builds, as well as operates and maintains, public and private vehicle fueling stations in the United States and Canada; sells and services compressors and other equipment used in RNG production and at fueling stations; transports and sells RNG and conventional natural gas, in the form of CNG and LNG, via “virtual” natural gas pipelines and interconnects; sells U.S. federal, state and local government credits it generates by selling RNG in the form of CNG and LNG as a vehicle fuel, including Renewable Identification Numbers (“RIN Credits” or “RINs”) under the federal Renewable Fuel Standard Phase 2 and credits under the California and the Oregon Low Carbon Fuel Standards (collectively, “LCFS Credits”); and obtains federal, state and local tax credits, grants and incentives.

Basis of Presentation

The accompanying consolidated financial statements include the accounts of the Company and its subsidiaries, and, in the opinion of management, reflect all adjustments, which include only normal recurring adjustments, necessary to state fairly the Company’s consolidated financial position, results of operations, comprehensive income (loss), stockholders’ equity, and cash flows in accordance with accounting principles generally accepted in the United States of America (“U.S. GAAP”). All intercompany accounts and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the accompanying consolidated financial statements and these notes. Actual results could differ from those estimates and may result in material effects on the Company’s operating results and financial position. Significant estimates made in preparing the accompanying consolidated financial statements include (but are not limited to) those related to revenue recognition, fair value measurements, goodwill and long-lived asset valuations and impairment assessments, income tax valuations, stock-based compensation expense and stock-based sales incentive charges.

Inventory

Inventory consists of raw materials and spare parts, work in process and finished goods and is stated at the lower of cost (first-in, first-out) or net realizable value. The Company evaluates inventory balances for excess quantities and obsolescence by analyzing estimated demand, inventory on hand, sales levels and other information and reduces inventory balances to net realizable value for excess and obsolete inventory based on this analysis.

Inventories consisted of the following as of December 31, 2021 and 2022 (in thousands):

	2021	2022
Raw materials and spare parts	$ 31,302	$ 37,144
Total inventory	$ 31,302	$ 37,144

Derivative Instruments and Hedging Activities

In connection with the Company’s *Zero Now* truck financing program, the Company entered into commodity swap contracts in October 2018 intended to manage risks related to the diesel-to-natural gas price spread in connection with the natural gas fuel supply commitments the Company makes in its fueling agreements with fleet operators that participate in the *Zero Now* program. The Company has not designated any derivative instruments as hedges for accounting purposes and does not enter into such instruments for speculative trading purposes. These derivative instruments are recorded in the accompanying consolidated balance sheets and are measured as either an asset or liability at fair value with changes in fair value recognized in earnings. See Note 7 for more information.

Property and Equipment

Property and equipment are recorded at cost. Depreciation and amortization are recognized over the estimated useful lives of the assets using the straight-line method. The estimated useful lives of depreciable assets are three to twenty years for LNG liquefaction plant assets, up to ten years for station equipment and LNG trailers, and three to seven years for all other depreciable assets. Leasehold improvements are amortized over the shorter of their estimated useful lives or related lease terms. Periodically, the Company receives cash grant funding to assist in the financing of fueling station construction. The Company initially records the grant proceeds as a reduction of the cost of the respective asset and subsequently amortizes the grant proceeds over the estimated useful life of the asset, resulting in lower total depreciation expense recognized over the estimated useful life of the asset.

Included in “Land, property and equipment, net” in the accompanying consolidated balance sheets were grant proceeds of $27.8 million and $24.9 million as of December 31, 2021 and 2022, respectively. Accumulated amortization of the grant proceeds was $18.0 million and $16.5 million as of December 31, 2021 and 2022, respectively. The Company recorded amortization expense relating to grant proceeds of $1.7 million, $1.7 million and $1.4 million for the years ended December 31, 2020, 2021 and 2022, respectively. No grant proceeds were received for the years ended December 31, 2022 and 2020. Total grant proceeds received were approximately $0.5 million for the year ended December 31, 2021.

Leases

On January 1, 2019, the Company adopted Accounting Standards Codification (“ASC”) 842, *Leases*, whereby leases are classified as either operating leases or finance leases.

At the inception of a contract the Company assesses whether the contract is, or contains, a lease. The Company’s assessment is based on: (1) whether the contract involves the use of a distinct identified asset, (2) whether the Company obtains the right to substantially all the economic benefit from the use of the asset throughout the period, and (3) whether the Company has the right to direct the use of the asset. The commencement date of the contract is the date the lessor makes the underlying asset available for use by the lessee.

Right-of-use (“ROU”) assets represent the Company’s right to use an underlying asset during the lease term and lease liabilities represent obligations to make lease payments arising from the lease. ROU assets and lease liabilities are recognized at the commencement date based on the net present value of fixed lease payments over the lease term. ROU assets also include any initial direct costs and advance lease payments made and exclude lease incentives. Lease liabilities also include terminal purchase options when deemed reasonably certain to exercise. The Company’s lease term includes options to extend when it is reasonably certain that it will exercise that option. The Company has elected not to recognize

ROU assets and lease liabilities for short-term leases that have a term of 12 months or less; the Company recognizes lease expense for these leases on a straight-line basis over the lease term.

As most of the Company's operating leases do not have an implicit rate that can be readily determined, the Company uses its secured incremental borrowing rate for the same term as the underlying lease based on information available at lease commencement. For finance leases, the Company uses the rate implicit in the lease.

The lease classification affects the expense recognition on the consolidated statements of operations. Operating lease charges are recorded in "Cost of sales, exclusive of depreciation and amortization," and "Selling, general and administrative" expense. Finance lease charges are split, whereby depreciation on assets under finance leases is recorded in "Depreciation and amortization" expense and an implied interest component is recorded in "Interest expense." The expense recognition for operating leases and finance leases is substantially consistent with legacy accounting.

Long-Lived Assets

The Company reviews the carrying value of its long-lived assets, including property and equipment and intangible assets with finite useful lives, for impairment whenever events or changes in circumstances indicate that the carrying value of an asset or asset group may not be recoverable. Events that could result in an impairment review include, among others, a significant decrease in the operating performance of a long-lived asset or asset group or the decision to close a fueling station. Impairment testing involves a comparison of the sum of the undiscounted future cash flows of the asset or asset group to its carrying amount. If the sum of the undiscounted future cash flows exceeds the carrying amount, then no impairment exists. If the carrying amount exceeds the sum of the undiscounted future cash flows, then a second step is performed to determine the amount of impairment, if any, to be recognized. An impairment loss is recognized to the extent that the carrying amount of the asset or asset group exceeds its fair value. The fair value of the asset or asset group is based on estimated discounted future cash flows of the asset or asset group using a discount rate commensurate with the related risk. The estimate of future cash flows requires management to make assumptions and to apply judgment, including forecasting future sales and expenses and estimating useful lives of the assets. These estimates can be affected by a number of factors, including, among others, future results, demand, and economic conditions, many of which can be difficult to predict.

There were no impairments of the Company's long-lived assets in the years ended December 31, 2020, 2021 and 2022.

Intangible assets with finite useful lives are amortized over their respective estimated useful lives using the straight-line method. The estimated useful lives of intangible assets with finite useful lives are one to eight years for customer relationships, one to fifty years for acquired contracts, two to ten years for trademarks and trade names, and three years for non-compete agreements.

The Company's intangible assets as of December 31, 2021 and 2022 were as follows (in thousands):

	2021	2022
Customer relationships	$ 5,376	$ 5,376
Acquired contracts	9,884	10,299
Trademark and trade names	2,700	2,700
Non-compete agreements	860	860
Total intangible assets	18,820	19,235
Less accumulated amortization	(13,320)	(13,320)
Net intangible assets	$ 5,500	$ 5,915

Amortization expense for intangible assets was $0.8 million and $0.5 million for the years ended December 31, 2020 and 2021, respectively. No amortization expense for intangible assets was recognized for the year ended December 31, 2022.

In connection with the Company's investment in anaerobic digester gas ("ADG") RNG production projects, the Company acquired contractual rights relating to manure feedstock totaling $5.5 million and $0.4 million in 2021 and 2022, respectively. The amounts paid for contractual rights to manure feedstock are classified and included under "Acquired contracts" in the table above.The acquired contractual rights to manure feedstock have a contractual term ranging from 20 to 50 years and will be amortized over the contractual term using the straight-line method of amortization, commencing on the date of commercial operation of the ADG RNG facility.

Estimated amortization expense subsequent to the year ended December 31, 2022 is expected to be approximately $0.0 million in 2023, $0.1 million in 2024, $0.3 million in 2025, $0.3 million in 2026, $0.3 million in 2027, and $4.9 million thereafter.

Goodwill

Goodwill represents the excess of costs incurred over the fair value of the net assets of acquired businesses. The Company assesses its goodwill using either a qualitative or quantitative approach to determine whether it is more likely than not that the fair value of its reporting unit is less than its carrying value. The Company is required to use judgment when applying the goodwill impairment test, including, among other considerations, the identification of reporting unit(s), the assessment of qualitative factors, and the estimation of fair value of a reporting unit in the quantitative approach. The Company determined that it is a single reporting unit for the purpose of goodwill impairment tests. The Company performs the impairment test annually on October 1, or more frequently if facts and circumstances warrant a review.

The qualitative goodwill assessment includes the evaluation of potential impact on a reporting unit's fair value of certain events and circumstances, including its enterprise value, macroeconomic conditions, industry and market considerations, cost factors, and other relevant entity-specific events. If it is determined, based upon the qualitative assessment, that it is more likely than not that the reporting unit's fair value is less than its carrying amount, then a quantitative impairment test is performed.

The quantitative assessment estimates the reporting unit's fair value based on its enterprise value plus an assumed control premium as evidence of fair value. The estimates used to determine the fair value of the reporting unit may change based on results of operations, macroeconomic conditions, stock price fluctuations, or other factors. Changes in these estimates could materially affect our assessment of the fair value and goodwill impairment for the reporting unit.

During the years ended December 31, 2020, 2021 and 2022, the Company utilized the quantitative approach and concluded that there were no impairment to goodwill.

The following table summarizes the activity related to the carrying amount of goodwill (in thousands):

Balance as of December 31, 2020	$	64,328
Balance as of December 31, 2021	$	64,328
Balance as of December 31, 2022	$	64,328

Revenue Recognition

The Company recognizes revenue when control of the promised goods or services is transferred to its customers, in an amount that reflects the consideration to which it expects to be entitled in exchange for the goods or services. To achieve that core principle, a five-step approach is applied: (1) identify the contract with a customer, (2) identify the performance obligations in the contract, (3) determine the transaction price, (4) allocate the transaction price to the performance obligations in the contract, and (5) recognize revenue allocated to each performance obligation when the Company satisfies the performance obligation. A performance obligation is a promise in a contract to transfer a distinct good or service to the customer and is the unit of account for revenue recognition.

The Company is generally the principal in its customer contracts because it has control over the goods and services prior to them being transferred to the customer, and as such, revenue is recognized on a gross basis. Sales and usage-based taxes are excluded from revenues. Revenue is recognized net of allowances for returns and any taxes collected from customers, which are subsequently remitted to governmental authorities.

Product Revenue

Volume-Related

The Company's volume-related product revenue consists of sales of RNG and conventional natural gas, in the form of CNG and LNG, AFTC incentives, and sales of RINs and LCFS Credits in addition to Amazon Warrant Charges (defined in Note 13) and changes in fair value of the Company's derivative instruments associated with providing fuel to customers under contracts.

RNG and conventional natural gas are sold pursuant to contractual commitments over defined delivery periods. These contracts typically include a stand-ready obligation to supply natural gas. The Company applies the 'right to invoice' practical expedient and recognizes fuel revenue in the amount to which the Company has the right to invoice. The Company has a right to consideration based on the amount of gasoline gallon equivalents ("GGEs") of fuel dispensed by the customer and current pricing conditions. The Company calculates one GGE to equal 125,000 British Thermal Units ("BTUs"), and, as such, one million BTUs ("MMBTU") equal eight GGEs. Customers are typically billed on a monthly basis. Since payment terms are less than a year, the Company has elected the practical expedient which allows it to not assess whether a customer contract has a significant financing component.

Contract modifications are not distinct from the existing contract and are typically renewals of fuel sales. As a result, these modifications are accounted for as if they were part of the existing contract. The effect of a contract modification on the transaction price is recognized prospectively.

The Company sells RINs and LCFS Credits to third parties that need the credits to comply with federal and state requirements. Revenue is recognized on these credits when there is an agreement in place to monetize the credits at a determinable price and the RNG fuel has been sold. The sales price for some environmental credit transactions may not be determinable in the period in which the RNG was sold as pricing is established in the quarter after the RNG was sold. In these circumstances, revenue from RIN and LCFS credits is recognized once the sales price has been established and therefore is considered determinable.

Amazon Warrant Charges are determined based on the grant date fair value of the award, and the associated non-cash stock-based sales incentive charges, which are recorded as a reduction of revenue, are recognized as the customer purchases fuel and vesting conditions become probable of being achieved. See discussion under "Amazon Warrant" below and Note 13 for additional information.

The changes in fair value of derivative instruments relate to the Company's commodity swap and customer fueling contracts under the *Zero Now* truck financing program. The contracts are measured at fair value with changes in fair value recorded in the accompanying consolidated statements of operations in the period incurred. The amounts are classified as revenue because the Company's commodity swap contracts are used to economically offset the risk associated with the diesel-to-natural gas price spread resulting from existing and anticipated customer fueling contracts under the Company's *Zero Now* truck financing program. See Note 7 for more information about these derivative instruments. For the years ended December 31, 2020, 2021 and 2022, changes in the fair value of commodity swaps and customer contracts amounted to a gain (loss) of $2.1 million, $(3.5) million, and $0.5 million, respectively.

AFTC is generated when RNG or conventional natural gas is sold for use as fuel to operate a motor vehicle. See discussion under “Alternative Fuel Excise Tax Credit” below for more information about AFTC, which is not recognized as revenue until the period the credit is authorized through federal legislation.

Station Construction Sales

Station construction contracts are generally short-term, except for certain larger and more complex stations, which can take up to 24 months to complete. For most of the Company’s station construction contracts, the customer contracts with the Company to provide a significant service of integrating a complex set of tasks and components into a single station. Hence, the entire contract is accounted for as one performance obligation.

The Company recognizes revenue over time as the Company performs under its station construction contracts because of the continual transfer of control of the goods to the customer, who typically controls the work in process. Revenue is recognized based on the extent of progress towards completion of the performance obligation and is recorded proportionally as costs are incurred. Costs to fulfill the Company’s obligations under these contracts typically include labor, materials and subcontractors’ costs, other direct costs and an allocation of indirect costs.

Refinements of estimates to account for changing conditions and new developments are continuous and characteristic of the process. Many factors that can affect contract profitability may change during the performance period of the contract, including differing site conditions, the availability of skilled contract labor, the performance of major suppliers and subcontractors, and unexpected changes in material costs. Because a significant change in one or more of these estimates could affect the profitability of these contracts, the contract price and cost estimates are reviewed periodically as work progresses and adjustments proportionate to the cost-to-cost measure of progress are reflected in contract revenues in the reporting period when such estimates are revised. Provisions for estimated losses on uncompleted contracts are recorded in the period in which the losses become known.

Contract modifications are typically expansions in scope of an existing station construction project. As a result, these modifications are accounted for as if they were part of the existing contract. The effect of a contract modification on the transaction price and the Company’s measure of progress for the performance obligation to which it relates is recognized as an adjustment to revenue (either as an increase or a reduction) on a cumulative catch-up basis.

Under the typical payment terms of the Company’s station construction contracts, the customer makes either performance-based payments (“PBPs”) or progress payments. PBPs are interim payments of the contract price based on quantifiable measures of performance or the achievement of specified events or milestones. Progress payments are interim payments of costs incurred as the work progresses. For some of these contracts, the Company may be entitled to receive an advance payment. The advance payment typically is not considered a significant financing component because it is used to meet working capital demands that can be higher in the early stages of a construction contract and to protect the Company if the customer fails to adequately complete some or all of its obligations under the contract. In addition, the customer retains a small portion of the contract price until completion of the contract. Such retained portion of the contract price is not considered a significant financing component because the intent is to protect the customer.

In certain contracts with its customers, the Company agrees to provide multiple goods or services, including construction of and sale of a station, O&M services, and sale of fuel to the customer. These contracts have multiple performance obligations because the promise to transfer each separate good or service is separately identifiable and distinct. This evaluation requires significant judgment and the decision to combine a group of contracts or separate the combined or single contract into multiple performance obligations could change the amount of revenue recognized in one or more periods.

The Company allocates the contract price to each performance obligation using best estimates of the standalone selling price of each distinct good or service in the contract. The primary method used to estimate the standalone selling price for fuel and O&M services is observable standalone sales, and the primary method used to estimate the standalone selling price for station construction sales is the expected cost plus a margin approach because the Company sells customized customer-specific solutions. Under this approach, the Company forecasts expected costs of satisfying a performance obligation and then adds an appropriate margin for the good or service.

Service Revenue

O&M and Other Services

O&M and other services are sold pursuant to contractual commitments over defined performance periods. These contracts typically include a stand-ready obligation to provide O&M and/or other services based on a committed and agreed upon routine maintenance schedule or when and if called upon by the customer.

The Company applies the 'right to invoice' practical expedient and recognizes O&M and other services revenue in the amount to which the Company has the right to invoice. The Company has a right to consideration based on services rendered or on amount of GGEs of fuel dispensed by the customer multiplied by an agreed-upon rate. Customers are typically billed on a monthly basis. Since payment terms are less than a year, the Company has elected the practical expedient which allows it to not assess whether a customer contract has a significant financing component.

Contract modifications are not distinct from the existing contract and are typically renewals of O&M and other service sales. As a result, these modifications are accounted for as if they were part of the existing contract. The effect of a contract modification on the transaction price is recognized prospectively.

Other

The majority of other revenue is from sales of used natural gas heavy-duty trucks purchased by the Company. Revenue on these contracts is recognized at the point in time when the customer accepts delivery of the truck.

Alternative Fuel Excise Tax Credit

Under separate pieces of U.S. federal legislation, the Company was eligible to receive a federal alternative fuel excise tax credit ("AFTC") for its natural gas vehicle fuel sales made between October 1, 2006 and December 31, 2021. The AFTC credit was equal to $0.50 per GGE of CNG that the Company sold as vehicle fuel, and $0.50 per diesel gallon of LNG that the Company sold as vehicle fuel in 2020 and 2021. The Inflation Reduction Act of 2022, enacted on August 16, 2022, extended AFTC for an additional three years, beginning retroactively to January 1, 2022. AFTC incentive under the extension remains at $0.50 per GGE of CNG and $0.50 per diesel gallon of LNG that the Company sells as vehicle fuel through December 31, 2024.

Based on the service relationship with its customers, either the Company or its customer claims the credit. The Company records its AFTC credits, if any, as revenue in its consolidated statements of operations because the credits are fully payable to the Company and do not offset income tax liabilities. As such, the credits are not deemed income tax credits under the accounting guidance applicable to income taxes.

LNG Transportation Costs

The Company records the costs incurred to transport LNG to its customers in "Product cost of sales" in the accompanying consolidated statements of operations.

Advertising Costs

Advertising costs are expensed as incurred. Advertising costs were immaterial for the years ended December 31, 2020, 2021 and 2022.

Stock-Based Compensation

The Company recognizes compensation expense for all stock-based payment arrangements over the requisite service period of the award and recognizes forfeitures as they occur. For service and performance-based stock options, the Company determines the grant date fair value using the Black-Scholes option pricing model, which requires the input of certain assumptions, including the expected life of the stock-based payment award, stock price volatility and risk-free interest rate. For market-based stock options, the Company determines the grant date fair value using the Monte Carlo simulation model, which requires the input of certain assumptions, including the derived service period and the volatility of the Company's stock price. For restricted stock units, the Company determines the grant date fair value based on the closing market price of its common stock on the date of grant.

Amazon Warrant

The Amazon Warrant (as defined in Note 13) is accounted for as an equity instrument and measured in accordance with Accounting Standards Codification ("ASC") 718, *Compensation – Stock Compensation*. To determine the fair value of the Amazon Warrant, the Company used the Black-Scholes option pricing model, which is based in part on assumptions that require management to use judgment. For awards granted to a customer, which are not in exchange for distinct goods or services, the fair value of the awards earned based on service or performance conditions is recorded as a reduction of the transaction price in accordance with ASC 606, *Revenue from Contracts with Customers*. Based on the fair value of the award, the Company determines the amount of non-cash stock-based sales incentive charges on the customer's pro-rata achievement of vesting conditions, which is recorded as a reduction of revenue in the consolidated statements of operations.

Income Taxes

Income taxes are computed using the asset and liability method. Under this method, deferred income taxes are recognized by applying enacted statutory tax rates applicable to future years to differences between the tax bases and financial carrying amounts of existing assets and liabilities. The impact on deferred taxes of changes in tax rates and laws, if any, are applied to the years during which temporary differences are expected to be settled and are reflected in the consolidated financial statements in the period of enactment. Valuation allowances are established when management determines it is more likely than not that deferred tax assets will not be realized. When evaluating the need for a valuation analysis, we use estimates involving a high degree of judgment including projected future US GAAP income and the amounts and estimated timing of the reversal of any deferred tax assets and liabilities.

The Company has a recognition threshold and a measurement attribute for the financial statement recognition and measurement of tax positions taken or expected to be taken in a tax return. For those benefits to be recognized, a tax position must be more likely than not sustainable upon examination by taxing authorities based on the technical merits of the position. The amount recognized is measured as the largest amount of benefit that has a greater than 50 percent likelihood of being realized upon ultimate settlement. The Company recognizes potential accrued interest and penalties related to unrecognized tax benefit in income tax expense.

The Company operates within multiple domestic and foreign taxing jurisdictions and is subject to audit in these jurisdictions. These audits can involve complex issues, which may require an extended period of time to resolve. Although the Company believes that adequate consideration has been given to these issues, it is possible that the ultimate resolution of these issues could be significantly different from originally estimated.

Net Loss Per Share

Basic net loss per share is computed by dividing the net loss attributable to Clean Energy Fuels Corp. by the weighted-average number of common shares outstanding and common shares issuable for little or no cash consideration during the period. Diluted net loss per share is computed by dividing the net loss attributable to Clean Energy Fuels Corp. by the weighted-average number of common shares outstanding and common shares issuable for little or no cash consideration during the period and potentially dilutive securities outstanding during the period, and therefore reflects the dilution from common shares that may be issued upon exercise or conversion of these potentially dilutive securities, such as stock options, warrants, convertible notes and restricted stock units. The dilutive effect of stock awards and warrants is computed under the treasury stock method. The dilutive effect of convertible notes and restricted stock units is computed under the if-converted method. Potentially dilutive securities are excluded from the computations of diluted net loss per share if their effect would be antidilutive.

Foreign Currency Translation and Transactions

The Company uses the local currency as the functional currency of its foreign subsidiary and equity method investment. Accordingly, all assets and liabilities outside the United States are translated into U.S. dollars at the rate of exchange in effect at the balance sheet date. Revenue and expense items are translated at the weighted-average exchange rates prevailing during the period. Foreign currency translation adjustments are recorded in Accumulated other comprehensive loss" in stockholders' equity.

Foreign currency transactions occur when there is a transaction denominated in other than the respective entity's functional currency. The Company records the changes in the exchange rate for these transactions in its consolidated statements of operations. For each of the years ended December 31, 2020, 2021 and 2022, foreign exchange transaction gains and (losses) were immaterial and were included in "Other income (expense), net" in the accompanying consolidated statements of operations.

Comprehensive Loss

Comprehensive loss is defined as the change in equity (net assets) of a business enterprise during the period from transactions and other events and circumstances from non-owner sources. The difference between net loss and comprehensive loss for the years ended December 31, 2020, 2021 and 2022 was comprised of the Company's foreign currency translation adjustments and unrealized gains and losses on available-for-sale securities.

Concentration of Credit Risk

Credit is extended to all customers based on financial condition, and collateral is generally not required. Concentrations of credit risk with respect to trade receivables are limited because of the large number of customers comprising the Company's customer base and dispersion across many different industries and geographies. Certain international customers, however, have historically been slower to pay on trade receivables. Accordingly, the Company continually monitors collections and payments from its customers and maintains a provision for estimated credit losses based upon its historical experience and any specific customer collection issues that it has identified. Although credit losses have historically been within the Company's expectations and the provisions established, the Company cannot guarantee that it will continue to experience the same credit loss rates that it has in the past.

Recently Adopted Accounting Pronouncements

In July 2021, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2021-05, *Leases (Topic 842): Lessors–Certain Leases with Variable Lease Payments*. This ASU requires a lessor to classify leases with variable lease payments that do not depend on an index or rate as operating leases on the commencement date if classification as a sales-type or direct financing lease would result in a day-one loss. The amendment in this update is effective for fiscal years, including interim periods within those years, beginning after December 15, 2021. The Company adopted this ASU in the first quarter of 2022 on a prospective basis. The adoption of this ASU did not have a material impact on the Company's consolidated financial statements.

In November 2021, the FASB issued ASU No. 2021-10, *Government Assistance (Topic 832): Disclosures by Business Entities about Government Assistance*, which requires business entities (except for not-for-profit entities and employee benefit plans) to disclose information about certain government assistance they receive. The Topic 832 disclosure requirements include: (i) the nature of the transactions and the related accounting policy used; (ii) the line items on the balance sheet and income statement that are affected and the amounts applicable to each financial statement line item; and (iii) significant terms and conditions of the transactions. The ASU is effective for fiscal years beginning after December 15, 2021, and the disclosure requirements under this ASU are for annual periods only. The Company adopted this ASU in the first quarter of 2022 on a prospective basis. Refer to disclosures under Property and Equipment in Note 1 – Summary of Significant Accounting Policies for additional information on the Company's accounting treatment of government grants.

Note 2 —Revenue from Contracts with Customers

Disaggregation of Revenue

The table below presents the Company's revenue disaggregated by revenue source (in thousands):

	Year Ended December 31,		
	2020	2021	2022
Product revenue:			
Volume-related			
Fuel sales[1]	$ 169,460	$ 130,973	$ 281,103
Change in fair value of derivative instruments[2]	2,135	(3,490)	517
RIN Credits	15,254	31,736	34,635
LCFS Credits	18,681	16,808	12,634
AFTC [3]	19,831	20,700	21,760
Total volume-related product revenue	225,361	196,727	350,649
Station construction sales	26,593	16,406	22,346
Total product revenue	251,954	213,133	372,995
Service revenue:			
Volume-related, O&M services	39,582	41,934	45,901
Other services	188	579	1,268
Total service revenue	39,770	42,513	47,169
Total revenue	$ 291,724	$ 255,646	$ 420,164

(1) Includes non-cash stock-based sales incentive contra-revenue charges associated with the Amazon Warrant for the years ended December 31, 2020, 2021 and 2022 of $0.0 million, $83.6 million and $24.3 million, respectively. See Note 13 for more information.

(2) Represents changes in fair value of derivative instruments related to the Company's commodity swap and customer fueling contracts associated with the Company's *Zero Now* truck financing program. The amounts are classified as revenue because the Company's commodity swap contracts are used to economically offset the risk associated with the diesel-to-natural gas price spread resulting from customer fueling contracts under the Company's *Zero Now* truck financing program. See Note 1 and Note 7 for more information about these derivative instruments.

(3) Represents AFTC, which was renewed and extended for three years beginning retroactively to January 1, 2022.

Remaining Performance Obligations

Remaining performance obligations represent the transaction price of customer orders for which the work has not been performed. As of December 31, 2022, the aggregate amount of the transaction price allocated to remaining performance obligations was $23.4 million, which related to the Company's station construction sale contracts. The

Company expects to recognize revenue on the remaining performance obligations under these contracts over the next 12 to 24 months.

For volume-related revenue, the Company has elected to apply an optional exemption, which waives the requirement to disclose the remaining performance obligation for revenue recognized through the 'right to invoice' practical expedient.

Costs to Fulfill a Contract

The Company capitalizes costs incurred to fulfill its contracts that (1) relate directly to the contract, (2) are expected to generate resources that will be used to satisfy the Company's performance obligations under the contract, and (3) are expected to be recovered through revenue generated under the contract. Contract fulfillment costs are recorded to depreciation expense as the Company satisfies its performance obligations over the term of the contract. These costs primarily relate to set-up and other direct installation costs incurred by NG Advantage, LLC ("NG Advantage"), for equipment that must be installed on customers' land before NG Advantage is able to deliver CNG to the customer because the customer does not have direct access to the natural gas pipelines. These costs are classified in "Land, property, and equipment, net" in the accompanying consolidated balance sheets. As of December 31, 2021 and 2022, these capitalized costs incurred to fulfill contracts were $10.1 million and $10.1 million with accumulated depreciation of $7.6 million and $7.9 million, respectively, and related depreciation expense of $0.5 million and $0.3 million for the years ended December 31, 2021 and 2022, respectively.

Contract Balances

The timing of revenue recognition, billings and cash collections results in billed accounts receivable, unbilled receivables (contract assets), and customer advances and deposits (contract liabilities) in the accompanying consolidated balance sheets. Changes in the contract asset and liability balances during the year ended December 31, 2022, were not materially affected by any factors outside the normal course of business.

As of December 31, 2021 and 2022, the Company's contract balances were as follows (in thousands):

	2021	2022
Accounts receivable, net	$ 87,433	$ 91,430
Contract assets - current	$ 966	$ 6,063
Contract assets - non-current	3,532	2,976
Contract assets - total	$ 4,498	$ 9,039
Contract liabilities - current	$ 5,523	$ 5,477
Contract liabilities - total	$ 5,523	$ 5,477

Accounts Receivable, Net

"Accounts receivable, net" in the accompanying consolidated balance sheets include billed and accrued amounts that are currently due from customers. The amounts due are stated at their net estimated realizable value. The Company maintains an allowance to provide for the estimated amount of receivables that will not be collected. The allowance is based on an assessment of customer creditworthiness, historical payment experience, the age of outstanding receivables, and economic conditions that may affect a customer's ability to pay.

Contract Assets

Contract assets include unbilled amounts typically resulting from the Company's station construction sale contracts, when the cost-to-cost method of revenue recognition is utilized and revenue recognized exceeds the amount billed to the customer, and right to payment is not just subject to the passage of time. Amounts may not exceed their net realizable value. Contract assets are classified as current or noncurrent based on the timing of billings. The current portion is included in “Other receivables” and in “Prepaid expenses and other current assets” and the noncurrent portion is included in “Notes receivable and other long-term assets, net” in the accompanying consolidated balance sheets.

Contract Liabilities

Contract liabilities consist of billings in excess of revenue recognized from the Company’s station construction sale contracts and payments received primarily from customers of NG Advantage in advance of the satisfaction of performance obligations and are classified as current or noncurrent based on when the revenue is expected to be recognized. The current portion and noncurrent portion of contract liabilities are included in “Deferred revenue” and in “Other long-term liabilities,” respectively, in the accompanying consolidated balance sheets. Billings in excess of revenue recognized of $5.4 million and $5.5 million and advance payments of $0.1 million and $0.0 million are classified as current as of December 31, 2021 and 2022, respectively.

Revenue recognized during the year ended December 31, 2021 relating to the Company’s contract liability balances as of December 31, 2020 was $1.5 million. Changes in the contract liability balances between December 31, 2021 and 2022 were primarily driven by $2.6 million of revenue recognized relating to the Company’s contract liability balances as of December 31, 2021, partially offset by billings in excess of revenue recognized in 2022.

Note 3 —Divestitures

bp Transaction

On February 27, 2017, Clean Energy Renewable Fuels (“Renewables”) entered into an asset purchase agreement (the “APA”) with BP Products North America, Inc. (“bp”). Pursuant to the APA, Renewables agreed to sell to bp its assets relating to its RNG production business (the “bp Transaction”), consisting of Renewables’ two RNG production facilities, Renewables’ interest in joint ventures formed with a third-party to develop new RNG production facilities, and Renewables’ third-party RNG supply contracts (the “Assets”).

Under the APA, bp was required, following the closing of the bp Transaction, to pay Renewables up to an additional $25.0 million in cash over a five-year period if certain conditions relating to the Assets are met. In February 2018, the Company received $0.9 million in cash for its satisfaction of the performance criteria for the first period under the APA, which ended on December 31, 2017. Upon its receipt of such cash, the Company paid $0.1 million in cash and issued 15,877 shares of the Company’s common stock with a fair value of $0.0 million to former holders of options to purchase membership units in Renewables. The performance criteria for the second period under the APA, which ended on December 31, 2018, was also satisfied, and the Company received a cash payment of $5.4 million in March 2019. During the year ended December 31, 2019, after receipt of the cash payment, the Company paid $0.6 million in cash to former holders of options to purchase membership units in Renewables. In December 2019, the Company and bp entered into an Amendment to the APA (“Amended APA”) which amended the earn-out for years four and five and paid the Company an additional $2.8 million for year three of the earn-out period. As a result of the performance criteria for year three under the APA being satisfied, and the additional $2.8 million received by the Company in December 2019 in accordance with the Amended APA, the Company recognized a gross gain of $8.4 million and accrued amounts due to former holders of options to purchase membership units in Renewables of $0.9 million as of December 31, 2019. During the year ended December 31, 2020, the Company recognized a gross gain of $1.0 million and accrued amounts due to former holders of options to purchase membership units in Renewables of $0.1 million as a result of the performance criteria being satisfied for year four under the Amended APA. During the year ended December 31, 2021, the Company recognized a gross gain of $4.4 million and accrued amounts due to former holders of options to purchase membership units in Renewables of $0.5 million as a result of the performance criteria being satisfied for year five under the Amended APA, representing the final earnout payment under the Amended APA. The Company recognized a net gain of $7.5 million, $1.1 million, and

$3.9 million during the years ended December 31, 2019, 2020 and 2021, respectively, which is included in "Gain from sale of certain assets of subsidiary" in the accompanying consolidated statements of operations.

As of December 31, 2022, the Company had paid $10.3 million in cash and issued 770,269 shares of the Company's common stock with a fair value of $2.0 million to former holders of options to purchase membership units in Renewables.

Following the completion of the bp Transaction, Renewables and the Company continue to procure RNG from bp under a long-term supply contract (the "bp Supply Agreement") and from other RNG suppliers and resell such RNG through the Company's fueling infrastructure. On October 1, 2018, Renewables and bp amended the bp Supply Agreement to extend the term and add additional RNG supply. bp and Renewables share in the RINs and LCFS Credits generated from the increased RNG supply sold through the Company's vehicle fueling infrastructure and to other customers. See Note 1 for information on revenue recognition of these credits.

SAFE&CEC S.r.l.

On November 26, 2017, the Company, through its former subsidiary, IMW Industries Ltd. (formerly known as Clean Energy Compression Corp.) ("CEC"), entered into an investment agreement with Landi Renzo S.p.A. ("LR"), an alternative fuels company based in Italy. Pursuant to the investment agreement, the Company and LR agreed to combine their respective natural gas compressor fueling systems manufacturing subsidiaries, CEC and SAFE S.p.A, into a new company, "SAFE&CEC S.r.l." (such combination transaction is referred to as the "CEC Combination"). SAFE&CEC S.r.l. is focused on manufacturing, selling and servicing natural gas fueling compressors and related equipment for the global natural gas fueling market. At the closing of the CEC Combination on December 29, 2017, the Company owned 49% of SAFE&CEC S.r.l. and LR owned 51% of SAFE&CEC S.r.l.

The Company accounts for its interest in SAFE&CEC S.r.l. using the equity method of accounting because the Company does not control but has the ability to exercise significant influence over SAFE&CEC S.r.l.'s operations. The Company recorded income (loss) from this investment of $(0.2) million, $0.6 million and $(0.6) million for the years ended December 31, 2020, 2021 and 2022, respectively. The Company had an investment balance in SAFE&CEC S.r.l. of $23.9 million and $21.8 million as of December 31, 2021 and 2022, respectively.

Note 4 —Investments in Other Entities and Noncontrolling Interest in a Subsidiary

TotalEnergies Joint Venture

On March 3, 2021, the Company entered into an agreement (the "TotalEnergies JV Agreement") with TotalEnergies S.E. ("TotalEnergies") to create 50/50 joint ventures to develop ADG RNG production facilities in the United States. Pursuant to the TotalEnergies JV Agreement, each ADG RNG production facility project will be formed as a separate limited liability company ("LLC") that is owned 50/50 by the Company and TotalEnergies, and contributions to such LLCs count toward the TotalEnergies JV Equity Obligations (as defined below). The TotalEnergies JV Agreement contemplates investing up to $400.0 million of equity in production projects, and TotalEnergies and the Company each committed to initially provide $50.0 million (the "TotalEnergies JV Equity Obligations"). In October 2021, TotalEnergies and the Company executed a LLC agreement (the "DR Development Agreement") for an ADG RNG production facility project (the "DR JV"). Under the DR Development Agreement, TotalEnergies and the Company have each committed to contribute $7.0 million to the DR JV, and in November 2021, TotalEnergies and the Company each contributed an initial $4.8 million to the DR JV. The Company accounts for its interest in the LLC using the equity method of accounting because the Company does not control but has the ability to exercise significant influence over the LLC's operations. The Company recorded a loss of $0.1 million and $0.2 million from the LLC's operations for the years ended December 31, 2021 and 2022, respectively. The Company had an investment balance of $4.7 million and $4.5 million as of December 31, 2021 and 2022, respectively.

The following table presents the combined summarized financial information of the joint venture with TotalEnergies (in thousands):

	Year Ended December 31,	
	2021	2022
Revenue	$ —	$ —
Gross profit	—	—
Operating loss	(119)	(454)
Net loss	$ (119)	$ (454)

	As of December 31,	
	2021	2022
Current assets	$ 3,086	$ 11
Non-current assets	13,103	32,773
Total assets	$ 16,189	$ 32,784
Current liabilities	$ 6,770	$ 4,326
Non-current liabilities	—	19,493
Total liabilities	$ 6,770	$ 23,819

bp Joint Venture

On April 13, 2021, the Company entered into an agreement (the "bp JV Agreement") with bp Products North America, Inc. ("bp") that created a 50/50 joint venture (the "bpJV") to develop, own and operate new ADG RNG production facilities in the United States. Pursuant to the bp JV Agreement, bp and the Company committed to provide $50.0 million and $30.0 million, respectively, with bp and the Company each receiving 30.0 million of Class A Units in the bpJV and bp also receiving 20.0 million of Class B Units in the bpJV. bp's initial $50.0 million contribution was made on April 13, 2021 and consisted of all unpaid principal outstanding under the loan agreement dated December 18, 2020, pursuant to which bp advanced $50.0 million to the Company to fund capital costs and expenses incurred prior to formation of the bpJV, including capital costs and expenses for permitting, engineering, equipment, leases and feed stock rights. Pursuant to the bp JV agreement, the Company had the option, exercisable prior to August 31, 2021 (the "bp Option"), to commit an additional $20.0 million to the bpJV upon which bp's Class B Units would convert into Class A Units. On June 21, 2021, the Company contributed $50.2 million to the bpJV, which consisted of (i) its initial contribution commitment of $30.0 million, (ii) the $20.0 million additional contribution to effect the conversion of bp's Class B Units into Class A Units pursuant to the Company's exercise of the bp Option, and (iii) $0.2 million for interest in accordance with the bp JV Agreement to effect the conversion of bp's Class B Units into Class A Units.

In December 2021, the bpJV issued a capital call for $143.2 million in additional funding, requiring bp and the Company each to contribute $71.6 million, and, in March 2022, the bpJV issued a second capital call for $76.2 million in additional funding, requiring bp and the Company each to contribute $38.1 million. Pursuant to the bpJV capital calls, the Company contributed $20.0 million, $51.6 million and $38.1 million in December 2021, June 2022 and September 2022, respectively. As of December 31, 2022, bp and the Company have each satisfied its respective contribution commitments in connection with these capital calls, and the Company and bp each own 50% of the bpJV. 100% of the RNG produced from the projects developed and owned by the bpJV will be available to the Company pursuant to the Company's marketing agreement with bp.

The Company accounts for its interest in the bpJV using the equity method of accounting because the Company does not control but has the ability to exercise significant influence over the bpJV's operations. The Company recorded a loss of $0.4 million and $2.7 million from this investment for the years ended December 31, 2021 and 2022, respectively. The Company had an investment balance in the bpJV of $69.8 million and $156.8 million as of December 31, 2021 and 2022, respectively. Combined summarized financial information for the bpJV is as follows (in thousands):

	Year Ended December 31,	
	2021	2022
Revenue	$ —	$ —
Gross profit	—	—
Operating loss	(678)	(7,210)
Net loss	(603)	(5,485)
Net loss attributable to bpJV	$ (599)	$ (5,426)

	As of December 31,	
	2021	2022
Current assets	$ 152,072	$ 157,241
Non-current assets	70,433	207,464
Total assets	$ 222,505	$ 364,705
Current liabilities	$ 24,932	$ 22,698
Non-current liabilities	1,000	2,716
Total liabilities	$ 25,932	$ 25,414
Equity attributable to shareowners of bpJV	$ 191,170	$ 313,544
Equity attributable to noncontrolling interest	5,403	25,747
Total equity	$ 196,573	$ 339,291

SAFE&CEC S.r.l.

On December 29, 2017, the Company obtained a 49% ownership interest in SAFE&CEC S.r.l. See Note 3 for more information. Summarized financial information for SAFE&CEC S.r.l. is as follows (in thousands):

	Year Ended December 31,		
	2020	2021	2022
Revenue	$ 89,535	$ 109,119	$ 110,104
Gross profit	19,008	25,784	24,902
Operating income	609	4,728	2,513
Net income (loss)	$ (306)	$ 2,392	$ 951

	As of December 31,	
	2021	2022
Current assets	$ 75,137	$ 82,514
Non-current assets	56,052	60,187
Total assets	$ 131,189	$ 142,701
Current liabilities	$ 58,910	$ 73,931
Non-current liabilities	21,730	20,248
Total liabilities	$ 80,640	$ 94,179

Other Equity Method Investments

The Company had an investment balance in other equity method investments of $3.5 million and $2.2 million as of December 31, 2021 and 2022, respectively. The Company recorded income (loss) from other equity method investments of $0.1 million, $(0.6) million, and $(1.2) million for the years ended December 31, 2020, 2021 and 2022, respectively. The Company accounts for its interest using the equity method of accounting because the Company does not control but has the ability to exercise significant influence over the investees' operations. Combined summarized financial information for the Company's other equity method investments is as follows (in thousands):

	Year Ended December 31,		
	2020	2021	2022
Revenue	$ 463	$ 704	$ 1,217
Gross profit	155	216	506
Operating loss	(90)	(1,757)	(2,556)
Net loss	$ (126)	$ (1,793)	$ (2,585)

	As of December 31,	
	2021	2022
Current assets	$ 1,349	$ 1,652
Non-current assets	7,047	4,609
Total assets	$ 8,396	$ 6,261
Current liabilities	$ 1,012	$ 1,169
Non-current liabilities	192	2,383
Total liabilities	$ 1,204	$ 3,552

NG Advantage

On October 14, 2014, the Company entered into a Common Unit Purchase Agreement ("UPA") with NG Advantage for a 53.3% controlling interest in NG Advantage. NG Advantage is engaged in the business of transporting CNG in high-capacity trailers to industrial and institutional energy users, such as hospitals, food processors, manufacturers and paper mills that do not have direct access to natural gas pipelines.

In connection with the arrangement between NG Advantage and bp for the supply, sale and reservation of a specified volume of CNG transportation capacity until February 2022, on February 28, 2018, the Company entered into a guaranty agreement with NG Advantage and bp pursuant to which the Company guaranteed NG Advantage's payment obligations to bp in the event of default by NG Advantage under the supply arrangement, in an amount up to an aggregate of $30.0 million plus related fees which was subsequently reduced to $15.0 million effective June 24, 2020. As initial consideration for the guaranty agreement, NG Advantage issued to the Company 19,660 common units, which increased the Company's controlling interest in NG Advantage from 53.3% to 53.5%.

On October 1, 2018, the Company purchased 1,000,001 common units from NG Advantage for an aggregate cash purchase price of $5.0 million. This purchase increased Clean Energy's controlling interest in NG Advantage from 53.5% to 61.7%.

In each month from November 2018 through February 2019, the Company was issued 100,000 additional common units of NG Advantage, for a total of 400,000 common units, pursuant to the guaranty agreement entered in February 2018. The issuance of 400,000 additional common units increased the Company's controlling interest in NG Advantage to 64.6%.

During the year ended December 31, 2019, the Company agreed to lend NG Advantage up to $26.7 million under a series of promissory notes that were incorporated into a delayed draw convertible promissory note (the "November 2019

Convertible Note"). In connection with the promissory notes between NG Advantage and the Company, NG Advantage issued to the Company warrants to purchase 2,086,879 common units. On February 6, 2020, the Company converted the outstanding principal and accrued interest under the November 2019 Convertible Note into common units of NG Advantage, resulting in an increase in the Company's controlling interest in NG Advantage from 64.6% to 93.2%.

On February 29, 2020, NG Advantage issued to the Company 283,019 common units of NG Advantage pursuant to the guaranty agreement entered into in February 2018, increasing the Company's controlling interest in NG Advantage to 93.3%. On February 28, 2022, the supply arrangement between NG Advantage and bp expired. As a result, the Company's obligations under the guaranty agreement entered into in February 2018 were fully released. As of December 31, 2022, the Company's controlling interest in NG Advantage remained at 93.3%.

For the years ended December 31, 2021 and 2022, NG Advantage borrowed $5.0 million and $29.1 million, respectively, from the Company under a series of advance agreements. As of December 31, 2021 and 2022, NG advantage had an outstanding balance of $18.4 million and $47.5 million, respectively, plus accrued and unpaid interest under the advance agreements. This intercompany transaction has been eliminated in consolidation.

The Company recorded a loss attributable to the noncontrolling interest in NG Advantage of $1.7 million, $1.0 million, and $0.9 million for the years ended December 31, 2020, 2021 and 2022, respectively. The noncontrolling interest was $8.3 million and $7.5 million as of December 31, 2021 and 2022, respectively.

Investments in Equity Securities

For investments in equity securities of privately held entities without readily determinable fair values, the Company measures such investments at cost, adjusted for impairment, if any, and observable price changes in orderly transactions for the identical or similar investment of the same issuer. As of December 31, 2021 and 2022, the Company had an investment balance recorded at cost of $8.0 million. The Company did not recognize any adjustments to the recorded cost basis during the years ended December 31, 2021 and 2022.

Note 5 —Cash, Cash Equivalents and Restricted Cash

Cash, cash equivalents and restricted cash as of December 31, 2021 and 2022 consisted of the following (in thousands):

	2021	2022
Current assets:		
Cash and cash equivalents	$ 99,448	$ 123,950
Restricted cash - standby letter of credit	—	2,000
Total cash, cash equivalents and current portion of restricted cash	$ 99,448	$ 125,950
Long-term assets:		
Restricted cash - held as collateral	$ 7,008	$ —
Total long-term portion of restricted cash	$ 7,008	$ —
Total cash, cash equivalents and restricted cash	$ 106,456	$ 125,950

The Company considers all highly liquid investments with maturities of three months or less on the date of acquisition to be cash equivalents.

The Company places its cash and cash equivalents with high credit quality financial institutions. At times, such investments may be in excess of the Federal Deposit Insurance Corporation ("FDIC") and Canadian Deposit Insurance Corporation ("CDIC") limits. Financial instruments that potentially subject the Company to concentrations of credit risk consist principally of cash deposits. The amounts in excess of FDIC and CDIC limits were approximately $98.0 million and $124.8 million as of December 31, 2021 and 2022, respectively.

The Company classifies restricted cash as short-term and a current asset if the cash is expected to be used in operations within a year or to acquire a current asset. Otherwise, the restricted cash is classified as long-term. In January 2022, in connection with the second amendment to the Berkshire ALA (as defined in Note 12), the lender to NG Advantage released to the Company $7.0 million, classified in "Long-term portion of restricted cash" in the accompanying consolidated balance sheet as of December 31, 2021. The amount represented the collateral deposit for the limited guaranty provided by the Company under the Berkshire ALA. See Note 12 for more information. The $2.0 million short-term restricted cash classified as a current asset as of December 31, 2022 is related to a certificate of deposit held as collateral for the standby letter of credit issued to Chevron Products Company, a division of Chevron U.S.A. Inc., in connection with the Company's Adopt-A-Port program.

Note 6 —Short-Term Investments

Short-term investments include available-for-sale debt securities, excluded from cash equivalents, that have maturities of one year or less on the date of acquisition and certificates of deposit. Available-for-sale debt securities are carried at fair value, inclusive of unrealized gains and losses. Unrealized gains and losses on available for sale debt securities are recognized in other comprehensive income (loss), net of applicable income taxes. Gains or losses on sales of available-for-sale debt securities are recognized on the specific identification basis.

The Company reviews available-for-sale debt securities for declines in fair value below their cost basis each quarter and whenever events or changes in circumstances indicate that the cost basis of an asset may not be recoverable, and evaluates the current expected credit loss. This evaluation is based on a number of factors, including historical experience, market data, issuer-specific factors, economic conditions, and any changes to the credit rating of the security. As of December 31, 2022, the Company has not recorded a credit loss related to available-for-sale debt securities and believes the carrying values for its available-for-sale debt securities are properly recorded.

Short-term investments as of December 31, 2021 consisted of the following (in thousands):

	Amortized Cost	Gross Unrealized Gain (Loss)	Estimated Fair Value
Municipal bonds and notes	$ 6,001	$ (1)	$ 6,000
Zero coupon bonds	123,210	(18)	123,192
Certificates of deposit	530	—	530
Total short-term investments	$ 129,741	$ (19)	$ 129,722

Short-term investments as of December 31, 2022 consisted of the following (in thousands):

	Amortized Cost	Gross Unrealized Gain (Loss)	Estimated Fair Value
Zero coupon bonds	$ 74,524	$ (365)	$ 74,159
U.S. government securities	64,861	19	64,880
Certificates of deposit	530	—	530
Total short-term investments	$ 139,915	$ (346)	$ 139,569

Note 7 —Derivative Instruments and Hedging Activities

In October 2018, the Company executed two commodity swap contracts with TotalEnergies Gas & Power North America, an affiliate of TotalEnergies and THUSA (as defined in Notes 12), for a total of 5.0 million diesel gallons annually from April 1, 2019 to June 30, 2024. These commodity swap contracts are used to manage diesel price fluctuation risks related to the natural gas fuel supply commitments the Company makes in its fueling agreements with fleet operators that participate in the *Zero Now* truck financing program. These contracts are not designated as accounting hedges and as a result, changes in the fair value of these derivative instruments are recognized in "Product revenue" in the accompanying consolidated statements of operations.

The Company has entered into fueling agreements with fleet operators under the *Zero Now* truck financing program. Certain of these fueling agreements contain a pricing feature indexed to diesel, which the Company determined to be an embedded derivative and is recorded at fair value at the time of execution, with the changes in fair value of the embedded derivative recognized in "Product revenue" in the accompanying consolidated statements of operations.

Derivatives and embedded derivatives as of December 31, 2021 consisted of the following (in thousands):

	Gross Amounts Recognized	Gross Amounts Offset	Net Amount Presented
Assets:			
Fueling agreements:			
Prepaid expenses and other current assets	$ 2,038	$ —	$ 2,038
Notes receivable and other long-term assets, net	4,738	—	4,738
Total derivative assets	$ 6,776	$ —	$ 6,776
Liabilities:			
Commodity swaps:			
Current portion of derivative liabilities, related party	$ 1,900	$ —	$ 1,900
Long-term portion of derivative liabilities, related party	2,483	—	2,483
Total derivative liabilities	$ 4,383	$ —	$ 4,383

Derivatives and embedded derivatives as of December 31, 2022 consisted of the following (in thousands):

	Gross Amounts Recognized	Gross Amounts Offset	Net Amount Presented
Assets:			
Fueling agreements:			
Prepaid expenses and other current assets	$ 1,640	$ —	$ 1,640
Notes receivable and other long-term assets, net	5,115	—	5,115
Total derivative assets	$ 6,755	$ —	$ 6,755
Liabilities:			
Commodity swaps:			
Current portion of derivative liabilities, related party	$ 2,415	$ —	$ 2,415
Long-term portion of derivative liabilities, related party	1,430	—	1,430
Total derivative liabilities	$ 3,845	$ —	$ 3,845

As of December 31, 2021 and 2022, the Company had a total volume on open commodity swap contracts of 11.9 million and 6.9 million diesel gallons, respectively, at a weighted-average price per gallon of approximately $3.18 per gallon.

The following table reflects the weighted-average price of open commodity swap contracts as of December 31, 2021 and 2022, by year with associated volumes:

	December 31, 2021		December 31, 2022	
Year	Volumes (Diesel Gallons)	Weighted-Average Price per Diesel Gallon	Volumes (Diesel Gallons)	Weighted-Average Price per Diesel Gallon
2022	5,000,000	$ 3.18	—	$ —
2023	5,000,000	$ 3.18	5,000,000	$ 3.18
2024	1,875,000	$ 3.18	1,875,000	$ 3.18

Note 8 —Fair Value Measurements

The Company follows the authoritative guidance for fair value measurements with respect to assets and liabilities that are measured at fair value on a recurring basis and non-recurring basis. Under the standard, fair value is defined as the exit price, or the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants, as of the measurement date. The standard also establishes a hierarchy for inputs used in measuring fair value that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that the most observable inputs be used when available. Observable inputs are inputs market participants would use in valuing the asset or liability developed based on market data obtained from sources independent of the Company. Unobservable inputs are inputs that reflect the Company’s assumptions about the factors market participants would use in valuing the asset or liability developed based upon the best information available in the circumstances. The hierarchy consists of the following three levels: Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities; Level 2 inputs include quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, and inputs (other than quoted prices) that are observable for the asset or liability, either directly or indirectly; Level 3 inputs are unobservable inputs for the asset or liability. Categorization within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement.

Assets and Liabilities Measured at Fair Value on a Recurring Basis

The Company’s U.S. government issued debt securities are classified within Level 1 because they are valued using the most recent quoted prices for identical assets in active markets. Zero coupon bonds and certificate of deposits are classified within Level 2 because they are valued using the most recent quoted prices for identical assets in markets that are not active and quoted prices for similar assets in active markets.

The Company used the income approach to value its outstanding commodity swap contracts and embedded derivatives in its fueling agreements under the *Zero Now* truck financing program (see Note 7). Under the income approach, the Company used a discounted cash flow (“DCF”) model in which cash flows anticipated over the term of the contracts are discounted to their present value using an expected discount rate. The discount rate used for cash flows reflects the specific risks in spot and forward rates and credit valuation adjustments. This valuation approach is considered a Level 3 fair value measurement. The significant unobservable inputs used in the fair value measurement of the Company’s derivative instruments are Ultra-Low Sulfur Diesel (“ULSD”) forward prices and differentials from ULSD to Petroleum Administration for Defense District (“PADD”) regions. Significant increases (decreases) in any of those inputs in isolation would result in a significantly lower (higher) fair value measurement. Generally, a change in the ULSD forward prices is accompanied by a directionally opposite but less extreme change in the ULSD-PADD differential.

The Company estimated the fair value of its outstanding commodity swap contracts based on the following inputs as of December 31, 2021 and 2022:

	December 31, 2021		December 31, 2022	
Significant Unobservable Inputs	Input Range	Weighted Average	Input Range	Weighted Average
ULSD Gulf Coast Forward Curve	$2.03 - $2.15	$ 2.11	$ 2.35 - $ 2.59	$ 2.48
Historical Differential to PADD 3 Diesel	$0.87 - $1.58	$ 1.03	$ 0.88 - $ 1.62	$ 1.13
Historical Differential to PADD 5 Diesel	$1.82 - $2.69	$ 2.13	$ 1.89 - $ 3.00	$ 2.30

The Company estimated the fair value of embedded derivatives in its fueling agreements under the *Zero Now* truck financing program based on the following inputs as of December 31, 2021 and 2022:

	December 31, 2021		December 31, 2022	
Significant Unobservable Inputs	Input Range	Weighted Average	Input Range	Weighted Average
ULSD Gulf Coast Forward Curve	$2.03 - $2.15	$ 2.11	$ 2.35 - $ 2.59	$ 2.48
Historical Differential to PADD 3 Diesel	$0.87 - $1.58	$ 1.03	$ 0.88 - $ 1.62	$ 1.13
Historical Differential to PADD 5 Diesel	$1.82 - $2.69	$ 2.13	$ 1.91 - $ 3.05	$ 2.31

Convertible Promissory Note

In connection with a loan commitment the Company had with a certain equity method investee (see Note 15), during the year ended December 31, 2022, the Company provided $2.0 million in funding. In exchange for the funding proceeds, the Company was issued a convertible promissory note bearing interest at 7% per annum with a maturity date the earlier of April 2024 or upon the occurrence of a triggering event such as change of control or an event of default. The convertible promissory note is classified as available-for-sale and is measured using the income approach. Under the income approach, the Company used a discounted cash flow (“DCF”) model in which cash flows anticipated over the term of the note are discounted to their present value using an expected discount rate. The discount rate used reflects the interest rates offered on loans with similar terms to borrowers of similar credit quality, which are Level 3 inputs. As such, this valuation approach is considered a Level 3 fair value measurement.

The following table provides quantitative information about the significant inputs used to estimate the fair value of the convertible promissory note as of December 31, 2022:

Significant Unobservable Inputs	December 31, 2022
Risk-free interest rate	4.57%
Credit adjustment	8.36%
Credit adjusted discount rate	12.93%

The above significant unobservable inputs are subject to change based on changes in economic and market conditions. The use of significant unobservable inputs creates uncertainty in the measurement of fair value as of the reporting date. Significant increase or decrease in any of those inputs in isolation would result in a significantly lower or higher fair value measurement. Generally, a change in market interest rates is accompanied by a directionally opposite change in the estimated fair value of fixed-rate debt securities. The Company records changes in the fair value of available-for-sale debt securities in "Unrealized gain (loss) on available-for-sale securities" as part of other comprehensive income (loss) in the accompanying consolidated statements of comprehensive loss.

There were no transfers of assets or liabilities between Level 1, Level 2, and Level 3 of the fair value hierarchy as of December 31, 2021 or 2022.

The following tables provide information by level for assets and liabilities that are measured at fair value on a recurring basis as of December 31, 2021 and 2022 (in thousands):

	December 31, 2021	Level 1	Level 2	Level 3
Assets:				
Available-for-sale securities (1):				
Municipal bonds and notes	$ 6,000	$ —	$ 6,000	$ —
Zero coupon bonds	123,192	—	123,192	—
Certificates of deposit (1)	530	—	530	—
Embedded derivatives (3)	6,776	—	—	6,776
Liabilities:				
Commodity swap contracts (2)	$ 4,383	$ —	$ —	$ 4,383

	December 31, 2022	Level 1	Level 2	Level 3
Assets:				
Available-for-sale securities:				
U.S. government securities(1)	$ 64,880	$ 64,880	$ —	$ —
Zero coupon bonds(1)	74,159	—	74,159	—
Convertible promissory note(4)	1,880	—	—	1,880
Certificates of deposit (1)	530	—	530	—
Embedded derivatives (3)	6,755	—	—	6,755
Liabilities:				
Commodity swap contracts (2)	$ 3,845	$ —	$ —	$ 3,845

(1) Included in “Short-term investments” in the accompanying consolidated balance sheets. See Note 6 for more information.

(2) Included in “Derivative liabilities, related party” and “Long-term portion of derivative liabilities, related party” as of December 31, 2021 and 2022 in the accompanying consolidated balance sheets. See Note 7 for more information.

(3) Included in "Prepaid expenses and other current assets" and "Notes receivable and other long-term assets, net" as of December 31, 2021 and 2022 in the accompanying consolidated balance sheets. See Note 7 for more information.

(4) Included in "Notes receivable and other long-term assets, net" in the accompanying consolidated balance sheets as of December 31, 2022.

The following table provides a reconciliation of the beginning and ending balances of items measured at fair value on a recurring basis as shown in the tables above that used significant unobservable inputs (Level 3), as well as the change in unrealized gains or losses for the periods included in earnings (in thousands):

	Assets: Commodity Swap Contracts	Assets: Embedded Derivatives	Assets: Convertible Promissory Note	Liabilities: Commodity Swap Contracts	Liabilities: Embedded Derivatives
Balance as of December 31, 2020	$ 5,648	$ 791	$ —	$ —	$ (556)
Settlements, net	(225)	—	—	1,083	—
Total gain (loss)	(5,423)	5,985	—	(5,466)	556
Balance as of December 31, 2021	$ —	$ 6,776	$ —	$ (4,383)	$ —
Balance as of December 31, 2021	$ —	$ 6,776	$ —	$ (4,383)	$ —
Settlements, net	—	—	—	7,761	—
Total gain (loss)	—	(21)	(134)	(7,223)	—
Purchases	—	—	2,014	—	—
Balance as of December 31, 2022	$ —	$ 6,755	$ 1,880	$ (3,845)	$ —
Change in unrealized gain (loss) for the year ended December 31, 2021 included in earnings	$ (5,648)	$ 5,985	$ —	$ (4,383)	$ 556
Change in unrealized gain (loss) for the year ended December 31, 2022 included in earnings	$ —	$ (21)	$ —	$ 538	$ —
Change in unrealized gain (loss) for the year ended December 31, 2022 included in other comprehensive loss	$ —	$ —	$ (134)	$ —	$ —

Other Financial Assets and Liabilities

The carrying amounts of the Company’s cash, cash equivalents, receivables and payables approximate fair value due to the short-term nature of those instruments. The carrying amounts of the Company’s debt instruments approximated their respective fair values as of December 31, 2021 and 2022. The fair values of these debt instruments were estimated using a discounted cash flow analysis based on interest rates offered on loans with similar terms to borrowers of similar credit quality, which are Level 3 inputs. See Note 12 for more information about the Company’s debt instruments.

Note 9 —Other Receivables

Other receivables as of December 31, 2021 and 2022 consisted of the following (in thousands):

	2021	2022
Loans to customers to finance vehicle purchases	$ 419	$ 523
Accrued customer billings	4,417	4,910
Fuel tax credits	12,684	9,462
Other	6,927	2,131
Total other receivables	$ 24,447	$ 17,026

Note 10 —Land, Property and Equipment

Land, property and equipment, net as of December 31, 2021 and 2022 consisted of the following (in thousands):

	2021	2022
Land	$ 3,476	$ 3,476
LNG liquefaction plants	94,633	94,790
Station equipment	354,699	353,104
Trailers	72,783	73,253
Other equipment	93,135	106,184
Construction in progress	74,963	91,105
	693,689	721,912
Less accumulated depreciation	(431,928)	(457,844)
Total land, property and equipment, net	$ 261,761	$ 264,068

Included in "Land, property and equipment, net" are capitalized software costs of $33.8 million and $35.3 million as of December 31, 2021 and 2022, respectively. Accumulated amortization of the capitalized software costs are $30.4 million and $32.1 million as of December 31, 2021 and 2022, respectively.

The Company recorded amortization expense related to the capitalized software costs of $2.5 million, $1.6 million and $1.7 million for the years ended December 31, 2020, 2021 and 2022, respectively.

As of December 31, 2021 and 2022, $2.1 million and $12.9 million, respectively, are included in "Accounts payable" and "Accrued liabilities" in the accompanying consolidated balance sheets, representing amounts related to purchases of property and equipment. These amounts are excluded from the accompanying consolidated statements of cash flows as they are non-cash investing activities.

Fueling Station Equipment Removal

The Company was requested by Pilot Travel Centers LLC (“Pilot”) to remove station equipment at select Pilot locations to accommodate Pilot making physical changes to the premises, which required the removal of the Company’s station equipment. The premises where the affected fueling stations are located were secured by long-term lease agreements between Pilot and the Company pursuant to which the Company had contractual rights to operate its fueling stations until the expiration of the respective leases. However, in July 2022, the Company entered into an amendment (the “Amendment”) to the Liquefied Natural Gas Fueling Station and LNG Master Sales Agreement between Pilot and Clean Energy, dated August 2, 2010, to decommission and remove station equipment from the premises where the affected fueling stations are located in accordance with a phased removal schedule. The Amendment requires the Company to remove station equipment and site improvements from the premises beginning in the third quarter of 2022 and to complete removal by the end of the first quarter of 2023. In connection with the removal of station equipment and site improvements, the Company recognized $10.6 million in accelerated depreciation expense relating to the change in depreciable life of the affected station assets and $2.5 million in incremental asset retirement obligation (“ARO”) charges. Amounts associated with the accelerated depreciation expense and incremental ARO charges are included in “Depreciation and amortization” in the accompanying consolidated statements of operations for the year ended December 31, 2022.

Note 11 —Accrued Liabilities

Accrued liabilities as of December 31, 2021 and 2022 consisted of the following (in thousands):

	2021	2022
Accrued alternative fuels incentives (1)	$ 28,106	$ 34,239
Accrued employee benefits	4,547	5,128
Accrued gas and equipment purchases	17,158	22,008
Accrued interest	893	1,827
Accrued property and other taxes	3,369	3,782
Accrued salaries and wages	8,172	6,857
Other (2)	12,914	16,238
Total accrued liabilities	$ 75,159	$ 90,079

(1) Includes amount for RINs, LCFS Credits, and AFTC payable to third parties.

(2) No individual item in “Other” exceeds 5% of total current liabilities.

Note 12 —Debt

Debt obligations as of December 31, 2021 and 2022 consisted of the following (in thousands):

	December 31, 2021		
	Principal Balance	Unamortized Debt Financing Costs	Balance, Net of Financing Costs
NG Advantage debt	$ 25,832	$ 72	$ 25,760
SG Facility	9,500	—	9,500
Other debt	800	—	800
Total debt	36,132	72	36,060
Less amounts due within one year	(12,868)	(23)	(12,845)
Total long-term debt	$ 23,264	$ 49	$ 23,215

	December 31, 2022		
	Principal Balance	Unamortized Debt Financing Costs	Balance, Net of Financing Costs
Riverstone Term Loan	$ 150,000	$ 4,529	$ 145,471
Other debt	93	—	93
Total debt	150,093	4,529	145,564
Less amounts due within one year	(93)	—	(93)
Total long-term debt	$ 150,000	$ 4,529	$ 145,471

The following is a summary of the aggregate maturities of debt obligations for each of the annual periods subsequent to December 31, 2022 (in thousands):

	2023	2024	2025	2026	2027	Thereafter	Total
Riverstone Term Loan	$ —	$ —	$ —	$ 150,000	$ —	$ —	$ 150,000
Other Debt	93	—	—	—	—	—	93
Total	$ 93	$ —	$ —	$ 150,000	$ —	$ —	$ 150,093

Riverstone Credit Agreement

On December 22, 2022 (the "Closing Date"), the Company entered into a Senior Secured First Lien Term Loan Credit Agreement (the "Riverstone Credit Agreement") with a syndicate of lenders. Pursuant to the Riverstone Credit Agreement, the lenders made a $150,000,000 senior secured term loan (the "Term Loan") to the Company. Payments for the Term Loan are interest only with a balloon principal payment due on the maturity date, which is December 22, 2026. The Term Loan bears interest, at the option of the Company, at (a) Adjusted Term SOFR or (b) the Alternate Base Rate ("ABR"), which is defined as the greater of (i) the Prime Rate, (ii) the Federal Funds Effective Rate plus 0.50%, and (iii) one-month Adjusted Term SOFR plus 1.00%, plus a margin of 6.50% for interest rate based on SOFR or 5.50% for election under the ABR through the second anniversary of the Closing Date. After the second anniversary of the Closing Date, the applicable margin increases to 7.25% for election under SOFR or 6.25% for election under the ABR. Interest rate for the Term Loan has an interest rate floor of 1.50% for election under SOFR and 2.50% for election under the ABR. Proceeds from the Term Loan were or will be used to repay certain existing indebtedness of the Company, to finance permitted investments from time to time, to pay transaction costs related to the Riverstone Credit Agreement and for other general corporate purposes. In connection with the Term Loan, the Company is obligated to pay other facility fees customary for credit facilities of similar size and type.

The Company has the option to prepay all or any portion of the amounts owed prior to the maturity date and is subject to customary mandatory prepayments clauses. All prepayments and all other payments of the Term Loan principal are subject to a call premium (2.0% from the one-year anniversary of the Closing Date to the date that is eighteen months after the Closing Date, 2.5% after the date that is eighteen months after the Closing Date to the date that is twenty-four months after the Closing Date, and 3% at any time thereafter). No call premium applies to any prepayment of the Term Loan made prior to the first anniversary of the Closing Date. In conjunction with the Riverstone Credit Agreement, the Company and certain of its subsidiaries entered into a Guarantee and Collateral Agreement (the "Security Agreement") in favor of the lenders. Under the Security Agreement, the Company and certain of its subsidiaries granted the lenders a security interest in substantially all of their personal property, rights and assets as collateral for the Term Loan under the Riverstone Credit Agreement. The Company and certain of its subsidiaries also agreed to grant a security interest in certain of their material real property interests.

The Riverstone Credit Agreement contains customary representations, warranties, and affirmative and negative covenants, including compliance with certain financial ratios and liquidity test and limitation on the Company's ability to incur additional indebtedness, make certain payments, and enter into certain transactions. Additionally, the Riverstone Credit Agreement includes a number of events of default clauses. If any event of default occurs (subject, in certain instances, to specified grace periods), the then outstanding principal, premium, if any, interest and any other monetary obligations under the Riverstone Credit Agreement may become due and payable immediately.

SG Credit Agreement

On January 2, 2019, the Company entered into a term credit agreement (the "Credit Agreement") with Société Générale, a company incorporated as a société anonyme under the laws of France ("SG"). The Credit Agreement provided for a term loan facility (the "SG Facility") pursuant to which the Company was able to obtain, subject to certain conditions, up to $100.0 million of loans ("SG Loans") in support of its *Zero Now* truck financing program. Under the Credit Agreement, the Company was permitted to use the proceeds from the SG Loans to fund the incremental cost of trucks purchased or financed under the *Zero Now* truck financing program and related fees and expenses incurred by the Company in connection therewith. On March 12, 2021, the Credit Agreement was amended to permit the Company to use up to $45.0 million of proceeds from the SG Loans to fund certain station build costs, and up to $20.0 million to fund the TotalEnergies JV Equity Obligations. Under the amended terms of the Credit Agreement, the Company's ability to draw from the SG Facility expired on January 2, 2022. Interest on outstanding SG Loans accrued at a rate equal to LIBOR plus 1.30% per annum, and a commitment fee on any unused portion of the SG Facility accrued at a rate equal to 0.39% per annum. Interest and commitment fees were payable quarterly. On December 22, 2022, pursuant to the Riverstone Credit Agreement, the Company repaid the remaining $2.0 million outstanding balance under the SG Facility and the related accrued and unpaid interest. Upon such payment, the SG Facility was paid in full and no amounts remained outstanding thereon.

The Credit Agreement did not include financial covenants, and the Company did not provide SG with any security for its obligations under the Credit Agreement. As described below, THUSA entered into the Guaranty to guarantee the Company's payment obligations to SG under the Credit Agreement. As of December 31, 2022, the Company had no amounts outstanding on the SG Facility.

TotalEnergies Credit Support Agreement

The Company entered into a credit support agreement with TotalEnergies Holdings USA Inc. ("THUSA"), a wholly owned subsidiary of TotalEnergies, on January 2, 2019, which was subsequently amended on March 12, 2021 (as amended, the "CSA") in conjunction with the March 12, 2021 amendment to the Credit Agreement. Under the CSA, THUSA agreed to enter into a guaranty agreement ("Guaranty") pursuant to which it guaranteed the Company's obligation to repay to SG up to $100.0 million in SG Loans and interest thereon in accordance with the Credit Agreement. In consideration for the commitments of THUSA under the CSA, the Company was required to pay THUSA a quarterly guaranty fee at a rate per quarter equal to 2.5% of the average aggregate SG Loan amount for the preceding calendar quarter.

Following any payment by THUSA to SG under the Guaranty, the Company would be obligated to immediately pay to THUSA the full amount of such payment plus interest on such amount at a rate equal to LIBOR plus 1.0%. In addition, the Company would be obligated to pay and reimburse THUSA for all reasonable out-of-pocket expenses it incurred in the performance of its services under the CSA, including all reasonable out-of-pocket attorneys' fees and expenses incurred in connection with the payment to SG under the Guaranty or any enforcement or attempt to enforce any of the Company's obligations under the CSA. The CSA included customary representations and warranties and affirmative and negative covenants by the Company. In addition, upon the occurrence of a Trigger Event (as described below) and during its continuation, THUSA may, among other things: elect not to guarantee additional SG Loans; declare all or any portion of the outstanding amounts the Company owes THUSA under the CSA to be due and payable; and exercise all other rights it may have under applicable law. Each of the following events constituted a Trigger Event: the Company defaults with respect to any payment obligation under the CSA; any representation or warranty made by the Company in the CSA was false, incorrect, incomplete or misleading in any material respect when made; the Company fails to observe or perform any material covenant, obligation, condition or agreement in the CSA; or the Company defaults in the observance or performance of any agreement, term or condition contained in any other agreement with THUSA or an affiliate of THUSA.

As security for the Company's obligations under the CSA, on January 2, 2019, the Company entered into a pledge and security agreement with THUSA and delivered a collateral assignment of contracts to THUSA, pursuant to which the Company collaterally assigned to THUSA all fueling agreements it enters into with participants in the *Zero Now* truck financing program. In addition, on January 2, 2019, the Company entered into a lockbox agreement with THUSA and PlainsCapital Bank, under which the Company granted THUSA a security interest in the cash flow generated by the fueling agreements the Company enters into with participants in the *Zero Now* truck financing program.

Until the occurrence of a Trigger Event or Fundamental Trigger Event (as described below) under the CSA, the Company had the freedom to operate in the normal course, and there were no restrictions on the flow of funds in and out of the lockbox account established pursuant to the lockbox agreement. Upon the occurrence of a Trigger Event under the CSA, all funds in the lockbox account will be: first, used to make scheduled debt repayments under the Credit Agreement;

and second, released to the Company. Further, upon the occurrence of a "Fundamental Trigger Event" under the CSA and during its continuation, in addition to exercising any of the remedies available to THUSA upon the occurrence of a Trigger Event as described above: all participants in the *Zero Now* program would pay amounts owed under their fueling agreements with the Company directly into the lockbox account; under a "sweep" mechanism, all cash in the lockbox account would be used to prepay all outstanding SG Loans under the Credit Agreement; no other disbursements from the lockbox account could be made without THUSA's consent; THUSA would retain dominion over the lockbox account; and the funds in the account would remain as security for the Company's payment and reimbursement obligations under the CSA. Each of the following events constituted a Fundamental Trigger Event: the Company defaults in the observance or performance of any agreement, term or condition contained in the Credit Agreement that would constitute an event of default thereunder, up to or beyond any grace period provided in such agreement, unless waived by SG; the Company defaults in the observance or performance of any agreement, term or condition contained in any evidence of indebtedness other than the Credit Agreement, and the effect of such default is to cause, or permit the holders of such indebtedness to cause, acceleration of indebtedness in an aggregate amount for all such collective defaults of $20.0 million or more; voluntary and involuntary bankruptcy and insolvency events; and the occurrence of a change of control of the Company.

The CSA will terminate following the later of: the payment in full of all of the Company's obligations under the CSA; and the termination or expiration of the Guaranty following the maturity date of the last outstanding SG Loan or December 31, 2023, whichever is earlier.

NG Advantage Debt

On November 30, 2016, NG Advantage entered into a Loan and Security Agreement (the "Wintrust LSA") with Wintrust Commercial Finance ("Wintrust"), pursuant to which Wintrust agreed to lend NG Advantage $4.7 million. The proceeds were primarily used to fund the purchases of CNG trailers and equipment. Interest and principal were payable monthly in 72 equal monthly installments at an annual rate of 5.17%. As collateral security for the prompt payment in full when due of NG Advantage's obligations to Wintrust under the Wintrust LSA, NG Advantage pledged to and granted Wintrust a security interest in all of its right, title and interest in the CNG trailers and equipment purchased with the proceeds received under the Wintrust LSA. As of December 31, 2022, NG Advantage had fully repaid all outstanding amounts under the Wintrust LSA.

On December 10, 2020, NG Advantage entered into an Amended and Restated Loan and Security Agreement with Berkshire Bank (the "Berkshire ALA") to substitute and replace the two existing loans with Berkshire Bank dated May 12, 2016 and January 24, 2017 (collectively, the "Original Debt"). The Berkshire ALA provided NG Advantage a 5-year term loan of $14.5 million with payments of principal and interest due monthly beginning February 1, 2021 at an annual interest rate of 5%, maturing on January 1, 2026. NG Advantage used the funds provided by the Berkshire ALA to repay in full the outstanding principal balance plus accrued and unpaid interest of the Original Debt, and to repay the outstanding balances of certain other financing obligations to unrelated lenders. NG Advantage pledged as collateral certain assets and equipment including trailers under the Berkshire ALA, and the Company provided a limited guaranty of up to $7.0 million classified in "Long-term portion of restricted cash" in the accompanying consolidated balance sheets as of December 31, 2021.

On January 31, 2022, NG Advantage entered into a second amendment to the Berkshire ALA pursuant to which Berkshire Bank agreed to extend additional new term loans with an aggregate principal amount of $14.0 million (collectively, the "Berkshire Term Loan 2") to NG Advantage. The Berkshire Term Loan 2 bore interest at an annual interest rate of 5% and had a maturity date of January 31, 2027. Payments for interest and principal were due monthly beginning March 1, 2022, with a final payment of remaining principal and interest due on the maturity date. Borrowings under the Berkshire Term Loan 2 were collateralized by various trailers and station assets of NG Advantage, and prepayment of the outstanding principal was permitted and subject to prepayment premiums. Financial and non-financial covenants of the Berkshire Term Loan 2 were identical to those under the Berkshire ALA. NG Advantage used the proceeds from the Berkshire Term Loan 2 to repay in full the outstanding balances of certain other financing obligations to unrelated lenders. As a result of the full repayment of NG Advantage's financing obligations to unrelated lenders, NG Advantage recognized a $2.3 million loss on extinguishment of debt, which is included in "interest expense" in the accompanying consolidated statements of operations for the year ended December 31, 2022. In connection with the second amendment to the Berkshire ALA, Berkshire Bank released $7.0 million, classified in "Long-term portion of restricted cash" in the accompanying consolidated balance sheets as of December 31, 2021, to the Company related to the Company's limited guaranty under the Berkshire ALA. Concurrently, the Company issued a $7.0 million irrevocable standby letter of credit to Berkshire Bank as collateral under the second amendment to the Berkshire ALA. The standby letter of credit is valid until specified release conditions are satisfied and is collateralized by the Plains LSA (as defined below).

The Berkshire ALA also provided NG Advantage a $1.0 million revolving line of credit which bore interest at the greater of the Prime Rate or 3.00%, plus 0.25% and had a maturity date of July 31, 2023.

Pursuant to the Riverstone Credit Agreement, on December 22, 2022, NG Advantage fully repaid and extinguished all outstanding amounts relating to the Berkshire ALA and the Berkshire Term Loan 2, including all accrued and unpaid interest. As a result of the full repayment of all outstanding principal plus accrued and unpaid interest under the Berkshire ALA and Berkshire Term Loan 2, NG Advantage recognized a $1.1 million loss on debt extinguishment, which is included in "interest expense" in the accompanying consolidated statements of operations for the year ended December 31, 2022. In addition, the $7.0 million irrevocable standby letter of credit issued to Berkshire Bank in connection with the second amendment to the Berkshire ALA was cancelled in conjunction with the full extinguishment of the Berkshire ALA and the Berkshire Term Loan 2.

Financing Obligations

NG Advantage has entered into sale and leaseback transactions with various lessors as described below. In each instance, the sale and leaseback transaction does not qualify for sale-leaseback accounting because of NG Advantage's continuing involvement with the buyer-lessor due to a fixed price repurchase option. As a result, the transactions are recorded under the financing method, in which the assets remain on the accompanying consolidated balance sheets and the proceeds from the transactions are recorded as financing liabilities.

On December 18, 2017, NG Advantage entered into a sale-leaseback arrangement through a Master Lease Agreement (the "BoA MLA") with Bank of America Leasing & Capital, LLC ("BoA"). Pursuant to the BoA MLA, NG Advantage received $2.1 million in cash for CNG trailers and simultaneously leased them back from BoA for five years commencing January 1, 2018 with interest and principal payable in 60 equal monthly installments at an annual rate of 4.86%. As of December 31, 2022, NG Advantage had repaid all outstanding amounts under the BoA MLA.

On March 1, 2018, NG Advantage entered into a sale-leaseback arrangement through a Master Lease Agreement (the "First National MLA") with First National Capital, LLC ("First National"). Pursuant to the First National MLA, NG Advantage received $6.3 million in cash, net of fees and the first month's lease payment for CNG trailers and simultaneously leased CNG trailers back from First National for six years commencing March 1, 2018 with interest and principal payable in 72 equal monthly installments at an annual rate of 9.28%. On January 31, 2022, NG Advantage used proceeds from the Berkshire Term Loan 2 and $0.8 million in deposits held with First National to repay in full the remaining outstanding financing obligations under the First National MLA. The application of $0.8 million in deposits to extinguish financing obligations under the First National MLA was excluded from the accompanying consolidated statements of cash flows as it was a non-cash financing activity. As of December 31, 2022, no amounts were outstanding under the First National MLA.

On December 20, 2018 (the "Closing Date"), NG Advantage entered into a purchase agreement to sell a compression station for $7.0 million to an entity the member owners of which were noncontrolling interest member owners of NG Advantage. On the Closing Date and immediately following the consummation of the sale of the compression station, NG Advantage entered into a lease agreement with the buyer of the station pursuant to which the station was leased back to NG Advantage for a term of five years with monthly rent payments equal to $0.1 million at an annual rate of 12.0%. On January 31, 2022, NG Advantage used proceeds from the Berkshire Term Loan 2 to repay in full the remaining outstanding financing obligations related to the lease agreement for the compression station. As of December 31, 2022, no amounts were outstanding.

Plains Credit Facility

On May 1, 2021, the Company entered into a Loan and Security Agreement (the "Plains LSA") with PlainsCapital Bank ("Plains"), which provided the Company a $20.0 million revolving line of credit through May 1, 2022. In May 2022, the Plains LSA was renewed and extended through May 1, 2023. The interest rate on amounts outstanding under the Plains LSA was the greater of the Prime Rate or 3.25%. On September 16, 2021, Plains issued an irrevocable standby letter of credit on behalf of the Company to the Chevron Products Company, a division of Chevron U.S.A. Inc. ("Chevron"), for $2.0 million relating to the Company's Adopt-A-Port program with Chevron. The standby letter of credit was valid until cancelled and was collateralized by the Plains LSA, reducing the amount available under the Plains LSA from $20.0 million to $18.0 million. On January 31, 2022, the Company issued an irrevocable standby letter of credit to Berkshire Bank for $7.0 million as collateral under the second amendment to the Berkshire ALA. The standby letter of credit was collateralized by the Plains LSA, reducing the amount available under the Plains LSA to $11.0 million.

Pursuant to the Riverstone Credit Agreement, on December 22, 2022, the Plains LSA was terminated. Concurrently, the $7.0 million irrevocable standby letter of credit issued to Berkshire Bank in connection with the second amendment to the Berkshire ALA was cancelled. As a result, the Company deposited $2.0 million, in the form of a certificate of deposit, at Plains as collateral for the standby letter of credit issued to Chevron in connection with the Company's Adopt-A-Port program. The $2.0 million certificate of deposit is classified as short-term restricted cash and a current asset and is included in "Cash, cash equivalents and current portion of restricted cash" in the accompanying consolidated balance sheets as of December 31, 2022.

Other Debt

As of December 31, 2022, the Company had other debt that will be due in 2023, bearing interest at 4.75%.

Note 13 —Stockholders' Equity

Authorized Shares

The Company's certificate of incorporation authorizes the issuance of two classes of capital stock designated as common stock and preferred stock, each having $0.0001 par value per share. On June 14, 2021, the Company's stockholders approved an increase in the number of shares of Common Stock the Company is authorized to issue from 304,000,000 to 454,000,000. As of December 31, 2022, the Company is authorized to issue 455,000,000 shares, of which 454,000,000 shares of capital stock are designated common stock and 1,000,000 shares are designated preferred stock.

Dividend Provisions

The Company did not declare or pay any dividends during the years ended December 31, 2020, 2021 and 2022.

Voting Rights

Each holder of common stock has the right to one vote per share owned on matters presented for stockholder action.

TotalEnergies Private Placement

On May 9, 2018, the Company entered into a stock purchase agreement (the "Purchase Agreement") with TotalEnergies Marketing Services, S.E. ("TMS"), a wholly owned subsidiary of TotalEnergies. Pursuant to the Purchase Agreement, the Company agreed to sell and issue, and TMS agreed to purchase, up to 50,856,296 shares of the Company's common stock at a purchase price of $1.64 per share, all in a private placement (the "TotalEnergies Private Placement"). The purchase price per share was determined based on the volume-weighted average price for the Company's common stock between March 23, 2018 (the day on which discussions began between the Company and TotalEnergies) and May 3, 2018 (the day on which the Company agreed in principle with TotalEnergies regarding the structure and basic terms of its investment). As of the date of the Purchase Agreement, TotalEnergies did not hold or otherwise beneficially own any shares of the Company's common stock, and TotalEnergies has agreed, until the later of May 9, 2020 or such date when it ceases to hold more than 5.0% of the Company's common stock then outstanding, among other similar undertakings and subject to customary conditions and exceptions, to not purchase shares of the Company's common stock or otherwise pursue transactions that would result in TotalEnergies beneficially owning more than 30.0% of the Company's equity securities without the approval of the Company's board of directors.

On June 13, 2018, the Company and TMS closed the TotalEnergies Private Placement, in which: (1) the Company issued to TMS all of the 50,856,296 shares of its common stock issuable under the Purchase Agreement, resulting in TotalEnergies beneficially holding approximately 25.0% of the outstanding shares of the Company's common stock and the largest ownership position of the Company as of September 30, 2018; (2) TotalEnergies paid to the Company an aggregate of $83.4 million in gross proceeds, which the Company has used and expects to continue to use for working capital and general corporate purposes, which may include executing its business plans, pursuing opportunities for further growth, and retiring a portion of its outstanding indebtedness; and (3) the Company and TotalEnergies entered into a registration rights agreement, described below. In connection with the issuance of common stock, the Company incurred transaction fees of $1.9 million.

Pursuant to the Purchase Agreement, the Company and TotalEnergies also entered into a registration rights agreement on June 13, 2018, upon the closing under the Purchase Agreement. Pursuant to the registration rights agreement, the Company filed a registration statement with the SEC to cover the resale of the shares issued and sold under the Purchase Agreement, which was declared effective on August 16, 2018, and is obligated to use its commercially reasonable efforts to maintain the effectiveness of such registration statement until all such shares are sold or may be sold without restriction under Rule 144 under the Securities Act of 1933, as amended. As of December 31, 2022, the Company was in compliance with all of its registration covenants set forth in the registration rights agreement.

At-The-Market Offerings

On May 10, 2021, the Company entered into an equity distribution agreement with Goldman Sachs & Co. LLC, as sales agent, to sell shares of the Company's common stock having an aggregate offering price of up to $100.0 million in an at-the-market offering program (the "May ATM Program"). Through June 3, 2021, the Company sold 12,362,237 shares of common stock under the May ATM Program, which exhausted the May ATM Program. On June 7, 2021, the Company entered into a new equity distribution agreement with Goldman Sachs & Co. LLC, as sales agent, to sell additional shares of common stock having an aggregate offering price of up to $100.0 million in a new at-the-market offering program (the "June ATM Program" and, together with the May ATM Program, the "ATM Programs"). On June 8, 2021, the Company sold 10,473,946 shares of common stock under the June ATM Program which exhausted the June ATM Program.

For the year ended December 31, 2021, the Company issued 22,836,183 shares of common stock under the ATM Programs for gross proceeds of $200.0 million, and incurred transaction costs of $6.5 million, including $6.0 million in commissions paid to Goldman Sachs & Co. LLC.

Share Repurchase Program

On March 12, 2020, the Company's Board of Directors approved a share repurchase program of up to $30.0 million (exclusive of fees and commissions) of the Company's outstanding common stock (the "Repurchase Program"). On December 7, 2021, the Company's Board of Directors approved an increase in the aggregate purchase amount under the Repurchase Program from $30.0 million to $50.0 million (exclusive of fees and commissions). The Repurchase Program does not have an expiration date, and it may be suspended or discontinued at any time. During the year ended December 31, 2022, the Company repurchased 1,190,254 shares of its common stock under the Repurchase Program for a total cost of $6.1 million (exclusive of fees and commissions). As of December 31, 2022, the Company had utilized a total of $23.5 million under the Repurchase Program from its inception to repurchase 9,387,340 shares of common stock and had a total of $26.5 million of authorized funds remaining under the Repurchase Program. The Repurchase Program does not obligate the Company to acquire any specific number of shares. Repurchases under the Repurchase Program may be effected from time to time through open market purchases, privately negotiated transactions, structured or derivative transactions, including accelerated share repurchase transactions, or other methods of acquiring shares, in each case subject to market conditions, applicable securities laws and other relevant factors. Repurchases may also be made under plans complying with Rule 10b5-1 under the Securities Exchange Act of 1934, as amended.

Stock-Based Compensation

The following table summarizes the compensation expense and related income tax benefit related to the Company's stock-based compensation arrangements recognized in the accompanying consolidated statements of operations during the periods presented (in thousands):

	Year Ended December 31,		
	2020	2021	2022
Stock-based compensation expense, net of $0 tax in 2020, 2021 and 2022	$ 2,957	$ 14,994	$ 26,473

Equity Incentive Plans

In December 2006, the Company adopted its 2006 Equity Incentive Plan ("2006 Plan"), which became effective on May 24, 2007, the date the Company completed its initial public offering of common stock.

In May 2016, the Company adopted its 2016 Performance Incentive Plan ("2016 Plan"), which became effective on May 26, 2016, the date of approval of the 2016 Plan by the Company's stockholders. The 2006 Plan became unavailable for new awards upon the effectiveness of the 2016 Plan. Unissued awards under the 2006 Plan are not available for future grant under the 2016 Plan. If any outstanding award under the 2006 Plan expires or is canceled, the shares allocable to the unexercised portion of that award will be added to the share reserve under the 2016 Plan and will be available for grant under the 2016 Plan.

In May 2020, the Company adopted its Amended and Restated 2016 Performance Incentive Plan ("Amended 2016 Plan"), which increased the aggregate number of shares of the Company's common stock to be delivered pursuant to all awards granted under the 2016 Performance Incentive Plan by an additional 17,500,000 shares, and became effective on May 15, 2020, the date of approval of the Amended 2016 Plan by the Company's stockholders. As of December 31, 2022, the Company had 8,902,966 shares available for future grant under the Amended 2016 Plan.

Service-Based Stock Options

The Company has granted service-based stock options to key employees that vest annually over the three years following the date of grant at a rate of 34%, 33% and 33%, respectively, if the holder is in service to the Company at each vesting date. The service-based stock options granted have contractual terms of 10 years, and exercise price for the options granted is equal to the closing market price of the Company's common stock on the date of grant. The stock options are subject to the terms and conditions of the 2006 and 2016 Plans and a Notice of Grant of Stock Option and Stock Option Agreement.

The following table summarizes the Company's service-based stock option activity for the year ended December 31, 2022:

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Options outstanding as of December 31, 2021	11,813,671	$ 6.64		
Granted	731,736	$ 6.69		
Exercised	(387,641)	$ 2.67		
Forfeited or expired	(2,041,426)	$ 10.62		
Options outstanding as of December 31, 2022	10,116,340	$ 6.00	6.98	$ 10,347
Options exercisable as of December 31, 2022	6,222,399	$ 4.98	5.95	$ 9,731
Options vested and expected to vest as of December 31, 2022	10,116,340	$ 6.00	6.98	$ 10,347

As of December 31, 2022, there was $13.7 million of total unrecognized compensation cost related to unvested shares subject to outstanding service-based stock options. That cost is expected to be expensed over a remaining weighted average period of approximately 1.4 years. The total fair value of shares vested during the year ended December 31, 2022 was $13.8 million.

The fair value of each service-based stock option granted was estimated as of the date of grant using the Black-Scholes option pricing model and using the following assumptions:

	Year Ended December 31,		
	2020	2021	2022
Dividend yield	0.0%	0.0%	0.0%
Expected volatility	65.8% to 83.9%	76.8% to 96.8%	73.7% to 76.9%
Risk-free interest rate	0.37% to 1.21%	0.58% to 1.31%	1.52% to 4.34%
Expected life in years	6.0	5.6 to 5.8	5.6 to 5.9

The volatility amounts used were estimated based on the historical volatility of the Company's common stock over a term equal to the estimated life of the options. The expected lives used were based on historical exercise experience and the Company's anticipated exercise periods for its outstanding stock options. The risk-free interest rates used were based on the U.S. Treasury yield curve with terms approximating the expected life of the stock options at the time of grant.

The weighted-average grant date fair value per share of service-based stock options granted during the years ended December 31, 2020, 2021 and 2022 were $1.54, $5.90 and $4.40, respectively. The aggregate intrinsic value of service-based options exercised during the years ended December 31, 2020, 2021 and 2022 were $1.8 million, $10.1 million and $1.3 million, respectively. The Company recorded $1.7 million, $9.9 million and $11.9 million of stock option expense relating to service-based stock options for the years ended December 31, 2020, 2021 and 2022, respectively. The Company has not recorded any tax benefit related to its service-based stock option expense.

Performance-Based Stock Options

The Company granted 1,640,000 performance-based stock options to certain executives and key employees in 2021. The options granted vest in multiple tranches in which the vesting of each tranche is contingent upon securing a defined RNG production volume following the date of grant, if the holder is in service to the Company upon the achievement of such performance hurdles. The performance-based stock options have contractual terms of 10 years, and the exercise price for the options granted is equal to the closing market price of the Company's common stock on the date of grant. The stock options are subject to the terms and conditions of the 2016 Plan and a Notice of Grant of Stock Option and Stock Option Agreement.

The following table summarizes the Company's performance-based stock option activity for the year ended December 31, 2022:

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Options outstanding as of December 31, 2021	1,640,000	$ 6.77		
Granted	—	$ —		
Exercised	—	$ —		
Forfeited or expired	—	$ —		
Options outstanding as of December 31, 2022	1,640,000	$ 6.77	8.94	$ —
Options vested and exercisable as of December 31, 2022	410,000	$ 6.77	8.94	$ —

As of December 31, 2022, there was $4.5 million of total unrecognized compensation cost related to unvested shares subject to outstanding performance-based stock options. Compensation cost for the performance-based stock options is recognized when attainment of the performance hurdles is determined to be probable and over a period in which the Company estimates the performance hurdles will be achieved. The total fair value of shares vested during the year ended December 31, 2022 was $1.9 million.

The fair value of each performance-based stock option granted was estimated as of the date of grant using the Black-Scholes option pricing model and using the following assumptions:

	December 7, 2021
Dividend yield	0.0%
Expected volatility	77.1%
Risk-free interest rate	1.36%
Expected life in years	6.2

The volatility amount used was estimated based on (i) the historical volatility of the Company's common stock over a term equal to the estimated life of the options and on (ii) implied volatility of the Company's traded options. The expected life used was based on historical exercise experience and the Company's anticipated exercise period for its outstanding performance-based stock options. The risk-free interest rate used was based on the U.S. Treasury yield curve with terms approximating the expected life of the stock options at the time of grant.

The weighted-average grant date fair value per share of performance-based stock options granted during the year ended December 31, 2021 was $4.58. No performance-based stock options were granted during the year ended December 31, 2022. In addition, there were no performance-based stock options exercised during the year ended December 31, 2021 and 2022. The Company recognizes the grant date fair value of the options that are probable of being earned over the estimated performance period. Compensation cost relating to performance-based stock options was $1.0 million and $2.0 million for the years ended December 31, 2021 and 2022, respectively. The Company has not recorded any tax benefit related to its performance-based stock option expense.

Market-Based Stock Options

The Company granted 3,700,000 market-based stock options to select executives and employees in 2021. Market-based stock options vest if (i) the closing price of the Company's common stock equals or exceeds $14.00 for twenty consecutive trading days, representing 207% of the closing market price of the Company's common stock on the option grant date (the "Stock Price Condition") and (ii) the holder is employed by the Company at the time the Stock Price Condition is satisfied. The market-based stock options have contractual terms of 10 years, and the exercise price for the options granted is equal to the closing market price of the Company's common stock on the date of grant. The stock options are subject to the terms and conditions of the 2016 Plan and a Notice of Grant of Stock Option and Stock Option Agreement.

The following table summarizes the Company's market-based stock option activity for the year ended December 31, 2022:

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Options outstanding as of December 31, 2021	3,700,000	$ 6.77		
Granted	—	$ —		
Exercised	—	$ —		
Forfeited or expired	—	$ —		
Options outstanding as of December 31, 2022	3,700,000	$ 6.77	8.94	$ —
Options vested and exercisable as of December 31, 2022	—	$ —	—	$ —

As of December 31, 2022, there was $8.4 million of total unrecognized compensation cost related to unvested shares subject to outstanding market-based stock options. That cost is expected to be expensed over a remaining weighted average period of approximately 0.9 years. No vesting occurred during the year ended December 31, 2022.

The fair value of each market-based stock option granted was estimated on the date of grant using the Monte Carlo simulation model. The Monte Carlo simulation method is subject to variability as certain assumptions must be made, including the derived service period, which is estimated based on likely future stock price performance and volatility of the Company's common stock price. The fair value of each market-based stock option granted was estimated using the following assumptions:

	December 7, 2021
Dividend yield	0.0%
Expected volatility	67.8%
Risk-free interest rate	1.5%
Expected life in years	10.0

The volatility amount used was based on the historical volatility of the Company's common stock over a term equal to the estimated life of the options. The risk-free interest rate used was based on the U.S. Treasury yield curve with terms approximating the expected life of the stock options at the time of grant. The expected life used was based on the

Company's anticipated exercise period for its outstanding market-based stock options as the simulation was run from the valuation date through the end of the contractual life of the options using weekly time steps.

The weighted-average grant date fair value per share of market-based stock options granted during the year ended December 31, 2021 was $4.87. No market-based stock options were granted during the year ended December 31, 2022. In addition, there were no market-based stock options exercised during the years ended December 31, 2021 and 2022. The Company recorded $0.2 million and $9.4 million of compensation cost relating to market-based stock options during the years ended December 31, 2021 and 2022, respectively. The Company has not recorded any tax benefit related to its market-based stock option expense.

Service-Based Restricted Stock Units

The Company has granted service-based restricted stock units ("Service-Based RSUs") to key employees that vest annually over the three years following the date of grant at a rate of 34%, 33% and 33%, respectively, if the holder is in service to the Company at each vesting date. The Service-Based RSUs are subject to the terms and conditions of the 2016 Plan and a Notice of Grant of Restricted Stock Unit and Restricted Stock Unit Agreement.

The following table summarizes the Company's Service-Based RSU activity for the year ended December 31, 2022:

	Number of Shares	Weighted Average Fair Value at Grant Date
RSU outstanding and unvested as of December 31, 2021	1,126,942	$ 8.08
Granted	31,650	$ 6.41
Vested	(433,551)	$ 7.44
Forfeited or expired	(30,096)	$ 7.91
RSU outstanding and unvested as of December 31, 2022	694,945	$ 8.41

The weighted average grant-date fair value of RSUs granted during the years ended December 31, 2020, 2021 and 2022 was $2.56, $10.24 and $6.41, respectively.

As of December 31, 2022, there was $3.1 million of total unrecognized compensation cost related to unvested shares subject to outstanding Service-Based RSUs. That cost is expected to be expensed over a remaining weighted-average period of approximately 0.9 years.

The Company recorded $1.0 million, $3.9 million and $3.1 million of expense during the years ended December 31, 2020, 2021 and 2022, respectively, related to the Service-Based RSUs. The Company has not recorded any tax benefit related to its Service-Based RSU expense.

Employee Stock Purchase Plan

On May 7, 2013, the Company adopted an employee stock purchase plan (the "2013 ESPP"), pursuant to which eligible employees may purchase shares of the Company's common stock at 85% of the fair market value of the common stock on the last trading day of two consecutive, non-concurrent offering periods each year. The Company has reserved 2,500,000 shares of its common stock for issuance under the 2013 ESPP, and the first offering period under the ESPP commenced on September 1, 2013. At the Company's annual meeting of stockholders held on May 19, 2022, the Company's stockholders voted and approved the 2022 Employee Stock Purchase Plan (the "2022 ESPP"), making 2,500,000 shares of the Company's common stock available for issuance under the 2022 ESPP. Upon approval of the 2022 ESPP, the 2013 ESPP was terminated following the conclusion of the offering period dated June 30, 2022. The 2022 ESPP does not have a "pour over" feature; as such, any unissued shares under the 2013 ESPP are no longer available for issuance under the 2022 ESPP.

The Company recorded $0.0 million, $0.1 million and $0.1 million of expense for the years ended December 31, 2020, 2021 and 2022, respectively, related to the Company's ESPPs. The Company has not recorded any tax benefit related to its ESPP expense. As of December 31, 2022, the Company had not issued any shares pursuant to the 2022 ESPP.

Amazon Warrant

On April 16, 2021, the Company entered into a Project Addendum to Fuel Pricing Agreement ("Fuel Agreement") with Amazon Logistics, Inc., a subsidiary of Amazon.com, Inc. ("Amazon"), and a Transaction Agreement with Amazon (the "Transaction Agreement"), pursuant to which, among other things, the Company issued to Amazon.com NV Investment Holdings LLC, a subsidiary of Amazon ("Amazon Holdings"), a warrant to purchase up to an aggregate of 53,141,755 shares (the "Warrant Shares") of the Company's common stock at an exercise price of $13.49 per share, which was a 21.3% premium to the $11.12 closing price of the common stock on April 15, 2021.

The Warrant Shares vest in multiple tranches, the first of which for 13,283,445 Warrant Shares vested upon execution of the Fuel Agreement. Subsequent tranches will vest over time based on fuel purchases by Amazon and its affiliates, up to a total of $500.0 million, excluding any payments attributable to "Pass Through Costs," which consist of all costs associated with the delivered cost of gas and applicable taxes determined by reference to the selling price of gallons or gas sold.

Under the Transaction Agreement, the Company was required to use commercially reasonable efforts to obtain the approval of its stockholders with respect to the issuance of Warrant Shares in excess of 50,595,531 shares of common stock, pursuant to The Nasdaq Stock Market LLC's Listing Rule 5635(b) (the "Stockholder Approval"). On June 14, 2021, the Company obtained Stockholder Approval.

As a result of the issuance of additional shares of common stock under the ATM Programs and in accordance with the terms of the warrant, on June 14, 2021, the number of shares of the Company's common stock that may be purchased pursuant to the warrant, at an exercise price of $13.49 per share, increased by an aggregate of 5,625,959 shares (the "Additional Warrant Shares"). The Additional Warrant Shares vest in multiple tranches, the first of which for 1,406,490 Additional Warrant Shares vested on June 14, 2021. Subsequent tranches of the Additional Warrant Shares will vest over time based on fuel purchases by Amazon and its affiliates, consistent with the vesting schedule for the Warrant Shares as described above. The right to exercise the warrants and receive the Warrant Shares and Additional Warrant Shares (the "Amazon Warrant") that have vested expires April 16, 2031.

Amazon Holdings may not exercise the Amazon Warrant to the extent such exercise would cause Amazon Holdings to beneficially own more than 4.999% of the number of shares of Common Stock outstanding immediately after giving effect to such exercise (excluding any unvested portion of the Amazon Warrant) (the "Beneficial Ownership Limitation"). Amazon Holdings may, however, waive or modify the Beneficial Ownership Limitation by providing written notice to the Company sixty-one (61) days before such waiver or modification becomes effective (or immediately upon written notice to the Company to the extent the Company is subject to certain acquisition transactions pursuant to a tender or exchange offer).

Non-cash stock-based sales incentive contra-revenue charges ("Amazon Warrant Charges") associated with the Amazon Warrant are recognized as the customer purchases fuel and vesting conditions become probable of being achieved based on the grant date fair value of the Amazon Warrant. The fair values of the Amazon Warrant were determined as of the grant date in accordance with ASC 718, *Compensation – Stock Compensation*, using the Black-Scholes option pricing model and the following assumptions:

	April 16, 2021	June 14, 2021
Dividend yield	0.0%	0.0%
Expected volatility	66.46%	67.97%
Risk-free interest rate	1.59%	1.49%
Expected term in years	10.0	9.8

The volatility amounts used were estimated based on the historical volatility of the Company's common stock over a period matching the assumed term of the Amazon Warrant. The expected terms used were based on the term of the Amazon Warrant at the date of issuance. The risk-free interest rates used were based on the U.S. Treasury yield curve for the expected term of the Amazon Warrant at the date of issuance.

The following table summarizes the Amazon Warrant activity for the year ended December 31, 2022:

	Warrant Shares
Outstanding and unvested as of December 31, 2021	44,077,779
Granted	—
Vested	(1,763,112)
Outstanding and unvested as of December 31, 2022	42,314,667

As a result of the immediate vesting of a portion of the Warrant Shares and Additional Warrant Shares, the Company recognized Amazon Warrant Charges, in the second quarter of 2021, of $76.6 million and a customer incentive asset of $38.4 million representing Amazon Warrant Charges associated with future contractually required minimum fuel purchases which will be recognized as the fuel is purchased.

During the years ended December 31, 2021 and 2022, Amazon Warrant Charges in the consolidated statements of operations were $83.6 million and $24.3 million, respectively. Amazon Warrant Charges for the year ended December 31, 2021 included $76.6 million from the immediate vesting of a portion of the Warrant Shares and Additional Warrant Shares and $7.0 million associated with fuel purchases. Amazon Warrant Charges for the year ended December 31, 2022 were related to customer fuel purchases. As of December 31, 2021, the Company had a customer incentive asset of $12.4 million and $22.1 million, classified in "Prepaid expenses and other current assets" and "Notes receivable and other long-term assets, net," respectively, in the accompanying consolidated balance sheets. As of December 31, 2022, the Company had a customer incentive asset of $22.2 million, classified in "Prepaid expenses and other current assets" in the accompanying consolidated balance sheets.

Note 14 —Income Taxes

The components of loss before income taxes for the years ended December 31, 2020, 2021 and 2022 are as follows (in thousands):

	2020	2021	2022
U.S.	$ (11,216)	$ (93,117)	$ (58,431)
Foreign	(4)	(919)	(939)
Total loss before income taxes	$ (11,220)	$ (94,036)	$ (59,370)

The provision for income taxes for the years ended December 31, 2020, 2021 and 2022 consists of the following (in thousands):

	2020	2021	2022
Current:			
State	$ 80	$ 54	$ 47
Foreign	109	(4)	—
Total current	189	50	47
Deferred:			
Federal	48	18	78
State	72	51	95
Total deferred	120	69	173
Total expense	$ 309	$ 119	$ 220

A reconciliation of the income tax expense for the years ended December 31, 2020, 2021 and 2022, with the amount computed using the federal income tax rate of 21% as of December 31, 2020, 2021 and 2022, consists of the following (in thousands):

	2020	2021	2022
Computed expected tax (benefit)	$ (2,356)	$ (19,747)	$ (12,468)
Nondeductible expenses	2,775	617	4,218
Tax rate differential on foreign earnings	(144)	189	197
Joint ventures	(5,059)	(2)	441
Amazon warrants	—	3,707	1,134
Tax credits	(4,037)	(5,299)	(6,065)
Other	1,559	1,463	843
Change in valuation allowance	7,571	19,191	11,920
Total tax expense	$ 309	$ 119	$ 220

On December 20, 2019, AFTC was retroactively extended beginning January 1, 2018 through December 31, 2020. As a result, all AFTC revenue for vehicle fuel the Company sold in the 2018 and 2019 calendar year was recognized during the year ended December 31, 2019. AFTC revenues for vehicle fuel the Company sold in the 2020 and 2021 calendar year were recognized during the years ended December 31, 2020 and 2021, respectively. The Inflation Reduction Act of 2022, enacted in August 2022, extended AFTC for an additional three years, beginning retroactively to January 1, 2022.

The Company recorded a federal tax benefit of $4.2 million, $4.9 million and $5.8 million related to the exclusion of AFTC associated with 2020, 2021 and 2022 fuel sales in excess of its fuel tax obligation, respectively. These amounts increased the Company's deferred tax asset and the Company's deferred tax asset valuation allowance.

Deferred tax assets and liabilities result from differences between the financial statement carrying amounts and the tax bases of existing assets and liabilities. The tax effect of temporary differences that give rise to deferred tax assets and liabilities as of December 31, 2021 and 2022 are as follows (in thousands):

	2021	2022
Deferred tax assets:		
Accrued expenses	$ 5,379	$ 5,445
Lease obligations	11,388	14,093
Alternative minimum tax and general business credits	6,787	7,011
Stock option expense	7,214	7,850
Amazon warrants	16,026	16,169
Other	3,167	3,163
Depreciation and amortization	2,582	3,455
Loss carryforwards	128,514	141,381
Total deferred tax assets	181,057	198,567
Less valuation allowance	(162,018)	(177,224)
Net deferred tax assets	19,039	21,343
Deferred tax liabilities:		
Right-of-use assets	(11,266)	(13,950)
Commodity swap contracts	(649)	(784)
Goodwill	(2,534)	(2,847)
Investments in joint ventures and partnerships	(5,517)	(4,862)
Total deferred tax liabilities	(19,966)	(22,443)
Net deferred tax liabilities	$ (927)	$ (1,100)

As of December 31, 2022, the Company had federal, state and foreign net operating loss carryforwards of approximately $549.4 million, $420.1 million and $4.1 million, respectively. The Company's federal, state and foreign net operating loss carryforwards will, if not utilized, expire beginning in 2027, 2028 and 2033, respectively. The Company also has federal tax credit carryforwards of $7.0 million that will expire beginning in 2026. Due to the change of ownership provisions of Internal Revenue Code Section 382, utilization of a portion of the Company's net operating loss and tax credit carryforwards may be limited in future periods.

In assessing the realizability of the net deferred tax assets, management considers whether it is more likely than not that some or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers projected future taxable income and tax planning strategies in making this assessment. As of December 31, 2021 and 2022, the Company provided a valuation allowance of $162.0 million and $177.2 million, respectively, to reduce the net deferred tax assets due to uncertainty surrounding the realizability of these assets. The increase in the valuation allowance for the year ended December 31, 2022 of $15.2 million was primarily attributable to an increase in losses without benefit.

For the year ended December 31, 2022, the Company did not have any offshore earnings of certain non-U.S. subsidiaries which are permanently reinvested outside the United States.

The Company does not recognize the impact of a tax position in its financial statements unless the position is more likely than not to be sustained, based on the technical merits of the position. The Company has unrecognized tax benefits of $54.7 million as of December 31, 2022 that, if recognized, would not result in a tax benefit since it would be fully offset with a valuation allowance.

The following is a tabular reconciliation of the total amounts of unrecognized tax benefits for the years ended December 31, 2020, 2021 and 2022 (in thousands):

Unrecognized tax benefit—December 31, 2020	$ 45,299
Gross increases—tax positions in current year	5,650
Gross decreases—tax positions in prior year	(364)
Unrecognized tax benefit—December 31, 2021	50,585
Gross increases—tax positions in current year	4,358
Gross decreases—tax positions in prior year	(271)
Unrecognized tax benefit—December 31, 2022	$ 54,672

The increase in the Company's unrecognized tax benefits in the year ended December 31, 2021 is primarily attributable to the warrants issued to its customer and the portion of AFTC offset by the fuel tax the Company collected from its customers. The increase in the Company's unrecognized tax benefits in the year ended December 31, 2022 is primarily attributable to the additional warrants issued to its customer and the portion of AFTC offset by the fuel tax the Company collected from its customers.

ASC 740, *Income Taxes,* requires the Company to accrue interest and penalties where there is an underpayment of taxes based on the Company's best estimate of the amount ultimately to be paid. The Company's policy is to recognize interest accrued related to unrecognized tax benefits and penalties as income tax expense. The Company recognized interest and penalties related to uncertain tax positions of $0.0 million for each of the years ended December 31, 2020, 2021 and 2022.

The Company is subject to taxation in the United States and various states and foreign jurisdictions. The Company's tax years from 2019 to 2022 are subject to examination by various tax authorities. Although the Company is no longer subject to U.S. examination for years before 2019, and for state tax examinations for years before 2018, taxing authorities can adjust the net operating losses that arose in earlier years if and when the net operating losses reduce future income. In addition, the Company is required to indemnify SAFE&CEC S.r.l. for taxes that are imposed on CEC for pre-contribution tax periods.

A number of years may elapse before an uncertain tax position is finally resolved. It is often difficult to predict the final outcome or the timing of resolution of an uncertain tax position, but the Company believes that its reserves for income taxes reflect the most probable outcomes. The Company adjusts the reserve, as well as the related interest and penalties, in light of changing facts and circumstances. The amount of penalties accrued is immaterial. Settlement of any particular position would usually require the use of cash and result in the reduction of the related reserve, or there could be a change in the amount of the Company's net operating loss. The resolution of a matter would be recognized as an adjustment to the provision for income taxes at the effective tax rate in the period of resolution. The Company does not expect a significant increase or decrease in its uncertain tax positions within the next twelve months.

On August 16, 2022, the Inflation Reduction Act of 2022 ("the IRA") was signed into law. Besides the reinstatement of AFTC for the three year period from January 1, 2022 through December 31, 2024, the IRA offers tax incentives targeting energy transaction and renewables:

- The investment tax credit under Section 48 of the Internal Revenue Code is expanded to include Qualified Biogas Property, which is expected to be available for the RNG dairy projects that the Company has invested or will invest. The investment tax credit rate could range from 6% up to a 40% bonus rate depending on meeting certain wage, apprenticeship, and domestic content requirements.

- A new tax credit under Section 45Z of the Internal Revenue Code was introduced to apply to low-emissions transportation fuel produced at a qualified facility and sold by the taxpayer after December 31, 2024 through December 31, 2027. The IRA provides a base credit of 20 cents per gallon or $1.00 per gallon multiplied by an applicable emission factor if prevailing wage and apprentices requirements are met. The Company expects its RNG dairy projects will be eligible for this credit, although the rate of the credit per gallon is still pending further guidance from the US Treasury department.

- The alternative fuel refueling property credit under Section 30C of the Internal Revenue Code was reinstated for 2022 and extended an additional 10 years to apply to any property placed in service before January 1, 2033. The base credit amount is 6% with a bonus rate of 30% if wage and registered apprenticeship requirements are met with a maximum credit amount of $100,000 (previously $30,000) per single refueling pump.

The Internal Revenue Service has been granted broad authority to issue regulations or other guidance that could clarify how these taxes will be applied and credits will be eligible. The Company is continuing to evaluate the financial impact of the IRA as additional information becomes available.

Note 15 —Commitments and Contingencies

Environmental Matters

The Company is subject to federal, state, local and foreign environmental laws and regulations. The Company does not anticipate any expenditures to comply with such laws and regulations that would have a material effect on the Company's consolidated financial position, results of operations or liquidity. The Company believes that its operations comply, in all material respects, with applicable federal, state, local and foreign environmental laws and regulations.

Litigation, Claims and Contingencies

The Company may become party to various legal actions that arise in the ordinary course of its business. The Company is also subject to audit by tax and other authorities for varying periods in various federal, state, local and foreign jurisdictions, and disputes may arise during the course of these audits. It is impossible to determine the ultimate liabilities that the Company may incur resulting from any of these lawsuits, claims, proceedings, audits, commitments, contingencies and related matters or the timing of these liabilities, if any. If these matters were to ultimately be resolved unfavorably, it is possible that such an outcome could have a material adverse effect upon the Company's consolidated financial position, results of operations or liquidity. The Company does not, however, anticipate such an outcome and it believes the ultimate resolution of these matters will not have a material adverse effect on the Company's consolidated financial position, results of operations or liquidity.

Long-Term Take-or-Pay Natural Gas Purchase Contracts

The Company has entered into quarterly fixed price natural gas purchase contracts with take-or-pay commitments extending through June 2024. As of December 31, 2022, the fixed commitments under these contracts totaled approximately $3.2 million and $2.0 million for the years ending December 31, 2023 and 2024, respectively.

Loan Commitment to an Equity Method Investee

On November 7, 2022, the Company entered in a Note Purchase Agreement with a certain equity method investee. Pursuant to the Note Purchase Agreement, the Company irrevocably committed to make available up to $5.5 million in delayed draw loans to fund the investee's working capital requirements. In exchange, the Company will receive convertible promissory note(s) with principal amount equal to the draw down(s). The convertible promissory note(s) carries an interest rate equal to 7% per annum and is due and payable eighteen-months from the date of the draw down, subject to certain, specified prepayment clauses.

Note 16 —Leases

The Company's operating leases are comprised of real estate for fueling stations, office spaces, warehouses, a LNG liquefaction plant, and office equipment, and its finance leases are primarily comprised of vehicles.

NG Advantage has provided residual value guarantees on leases of certain vehicles aggregating $1.0 million to the lessors. NG Advantage expects to owe these amounts in full and therefore they have been included in the measurement of the lease liabilities and ROU assets.

Certain of the Company's real estate leases contain variable lease payments, including payments based on a change in the index or gasoline gallon equivalents of natural gas dispensed at fueling stations. These variable lease payments cannot be determined at the commencement of the lease and are not included in the ROU assets and lease liabilities. As such, amounts associated with these variable lease payments are recorded as a period expense when incurred.

Lessee Accounting

As of December 31, 2021 and 2022, the Company's finance and operating lease asset and liability balances were as follows (in thousands):

	2021	2022
Finance leases:		
Land, property and equipment, gross	$ 5,617	$ 5,703
Accumulated depreciation	(2,646)	(2,895)
Land, property and equipment, net	$ 2,971	$ 2,808
Current portion of finance lease obligations	$ 846	$ 948
Long-term portion of finance lease obligations	2,427	2,134
Total finance lease liabilities	$ 3,273	$ 3,082
Operating leases:		
Operating lease right-of-use assets	$ 42,537	$ 52,586
Current portion of operating lease obligations	$ 3,551	$ 4,206
Long-term portion of operating lease obligations	39,431	48,911
Total operating lease liabilities	$ 42,982	$ 53,117

The components of lease expense for finance and operating leases consisted of the following (in thousands):

	Year Ended December 31, 2021	Year Ended December 31, 2022
Finance leases:		
Depreciation on assets under finance leases	$ 809	$ 877
Interest on lease liabilities	181	164
Total finance leases expense	$ 990	$ 1,041
Operating leases:		
Lease expense	$ 7,313	$ 8,800
Lease expense on short-term leases	205	513
Variable lease expense	3,321	4,306
Sublease income	(726)	(636)
Total operating leases expense	$ 10,113	$ 12,983

Supplemental information on finance and operating leases is as follows (dollars in thousands):

	Year Ended December 31, 2021	Year Ended December 31, 2022
Operating cash outflows from finance leases	$ 181	$ 164
Operating cash outflows from operating leases	$ 5,804	$ 6,582
Financing cash outflows from finance leases	$ 789	$ 945
Assets obtained in exchange for new finance lease liabilities (1)	$ 879	$ 774
ROU assets obtained in exchange for operating lease liabilities (1)	$ 19,515	$ 13,449

	December 31, 2021	December 31, 2022
Weighted-average remaining lease term - finance leases	2.87 years	2.34 years
Weighted-average remaining lease term - operating leases	12.31 years	11.29 years
Weighted-average discount rate - finance leases	5.22%	5.71%
Weighted-average discount rate - operating leases	7.55%	8.44%

(1) These amounts are excluded from the accompanying consolidated statements of cash flows as they are non-cash investing, operating and/or financing activities.

The following schedule represents the Company's maturities of finance and operating lease liabilities as of December 31, 2022 (in thousands):

Fiscal Year	Finance Leases	Operating Leases
2023	$ 1,094	$ 8,129
2024	1,515	8,138
2025	610	8,137
2026	130	8,008
2027	—	7,874
Thereafter	—	43,833
Total minimum lease payments	3,349	84,119
Less amount representing interest	(267)	(31,002)
Present value of lease liabilities	$ 3,082	$ 53,117

Lessor Accounting

The Company leases fueling station equipment to customers pursuant to agreements that contain an option to extend and an end-of-term purchase option. Receivables from these leases are accounted for as finance leases, specifically sales-type leases, and are included in “Other receivables” and “Notes receivable and other long-term assets, net” in the accompanying consolidated balance sheets.

The Company recognizes the net investment in the lease as the sum of the lease receivable and the unguaranteed residual value, both of which are measured at the present value using the interest rate implicit in the lease.

During the years ended December 31, 2021 and 2022, the Company recognized $0.4 million and $0.4 million, respectively, in “Interest income” on its lease receivables.

The following schedule represents the Company’s maturities of lease receivables as of December 31, 2022 (in thousands):

Fiscal Year:		
2023	$	962
2024		962
2025		962
2026		985
2027		1,105
Thereafter		1,267
Total minimum lease payments		6,243
Less amount representing interest		(1,487)
Present value of lease receivables	$	4,756

Note 17 —401(k) Plan

The Company has established a savings plan (“Savings Plan”) which is qualified under Section 401(k) of the Internal Revenue Code. Eligible employees may elect to make contributions to the Savings Plan through salary deferrals of up to 90% of their base pay, subject to Internal Revenue Code limitations. The Company may also make discretionary contributions to the Savings Plans, subject to limitations. For each of the years ended December 31, 2020, 2021 and 2022 the Company contributed approximately $1.5 million, $1.6 million and $1.9 million, respectively, of matching contributions to the Savings Plan.

Note 18 —Net Loss Per Share

The following table sets forth the computations of basic and diluted earnings (loss) per share for the years ended December 31, 2020, 2021 and 2022 (in thousands, except share and per share amounts):

	2020	2021	2022
Net loss attributable to Clean Energy Fuels Corp.	$ (9,864)	$ (93,146)	$ (58,733)
Weighted-average common shares outstanding	200,657,912	213,118,694	222,414,790
Dilutive effect of potential common shares from restricted stock units, stock options and stock warrants	—	—	—
Weighted-average common shares outstanding - diluted	200,657,912	213,118,694	222,414,790
Basic loss per share	$ (0.05)	$ (0.44)	$ (0.26)
Diluted loss per share	$ (0.05)	$ (0.44)	$ (0.26)

The following potentially dilutive securities have been excluded from the diluted net loss per share calculations because their effect would have been antidilutive. Although these securities were antidilutive for these periods, they could be dilutive in future periods.

(in shares)	2020	2021	2022
Stock options	8,142,831	17,153,671	15,456,340
Convertibles notes	1,112,783	—	—
Restricted stock units	978,716	1,126,942	694,945
Amazon warrant shares	—	58,767,714	58,767,714
Total	10,234,330	77,048,327	74,918,999

Note 19 —Related Party Transactions

TotalEnergies S.E.

During the years ended December 31, 2021 and 2022, the Company recognized revenue of $4.9 million and $7.6 million, respectively, relating to RINs and LNG sold to TotalEnergies and its affiliates in the ordinary course of business, equipment lease revenue, AFTCs, and settlements on commodity swap contracts (Note 7). As of December 31, 2021 and 2022, the Company had receivables from TotalEnergies of $1.4 million and $2.5 million, respectively.

During the years ended December 31, 2021 and 2022, the Company paid TotalEnergies $2.0 million and $8.4 million, respectively, for expenses incurred in the ordinary course of business, settlements on commodity swap contracts (Note 7), and the guaranty fee under the CSA (Note 12). As of December 31, 2021 and 2022, the amount due to TotalEnergies was $0.1 million and $0.2 million, respectively.

SAFE&CEC S.r.l

During the years ended December 31, 2021 and 2022, the Company received $0.2 million and $0.2 million, respectively, from SAFE&CEC S.r.l. in the ordinary course of business. The receivable balance as of December 31, 2021 from SAFE&CEC S.r.l. was immaterial. As of December 31, 2022, the receivables balance from SAFE&CEC S.r.l. was $0.3 million.

During the years ended December 31, 2021 and 2022, the Company paid SAFE&CEC S.r.l. $9.6 million and $16.7 million, respectively, for parts and equipment in the ordinary course of business. As of December 31, 2021 and 2022, the Company had payables to SAFE&CEC S.r.l. of $0.2 million and $3.3 million, respectively.

TotalEnergies Joint Venture(s) and bpJV

Pursuant to the TotalEnergies JV Agreement and the bp JV Agreement, the Company manages the day-to-day operations of RNG projects under the joint ventures in exchange for management fees. During the years ended December 31, 2021 and 2022, the Company recognized management fee revenue of $0.4 million and $1.3 million, respectively. As of December 31, 2021 and 2022, the Company had receivables from the two joint ventures of $0.4 million and $0.5 million, respectively.

Equity Method Investee Loan Commitment

Pursuant to the Note Purchase Agreement (see Note 15), for the year ended December 31, 2022, the Company provided $2.0 million in cash funding. As of December 31, 2022, the carrying amount of the Company’s convertible promissory note measured at fair value was $1.9 million.

Note 20 —Reportable Segments and Geographic Information

Disclosures are required for certain information regarding operating segments, products and services, geographic areas of operation and major customers. Segment reporting is based on the "management approach," which assesses, how management organizes the Company's operating segments for which separate financial information is (1) available and (2) evaluated regularly by the Chief Operating Decision Maker ("CODM") in deciding how to allocate resources and in assessing performance. The Company's CODM is its Chief Executive Officer.

The Company operates in a single segment to supply natural gas. In making operating decisions, the CODM primarily considers consolidated financial information, accompanied by fuel and O&M services volume information. The assessment of operating results and the allocation of resources among the components of the business are made by the CODM and are based on profitability margins and volumes by market sector and by type. Contracts are evaluated based on the economics of a mix of products and services for a customer.

The table below presents the Company's revenue, operating loss and long-lived assets by geographic area (in thousands). Several of the Company's functions, including marketing, engineering, and finance are performed at the corporate level. As a result, significant interdependence and overlap exists among the Company's geographic areas. Geographic revenue data reflect internal allocations and are therefore subject to certain assumptions and the Company's methodology. Accordingly, revenue, operating loss, and long-lived assets shown for each geographic area may not be the amounts that would have been reported if the geographic areas were independent of one another. Revenue by geographic area is categorized based on where services are rendered and finished goods are sold. Operating loss by geographic area is categorized based on the location of the entity selling the finished goods or providing the services. Long-lived assets by geographic area are categorized based on the location of the assets.

	2020	2021	2022
Revenue:			
United States	$ 281,546	$ 252,310	$ 416,975
Canada	10,178	3,336	3,189
Total revenue	$ 291,724	$ 255,646	$ 420,164
Operating income (loss):			
United States	$ (9,853)	$ (94,157)	$ (50,796)
Canada	9	(891)	(911)
Total operating loss	$ (9,844)	$ (95,048)	$ (51,707)
Long-lived assets:			
United States	$ 383,463	$ 440,770	$ 525,682
Canada	202	630	1,902
Total long-lived assets	$ 383,665	$ 441,400	$ 527,584

The Company's goodwill and intangible assets as of December 31, 2020, 2021 and 2022 relate to its United States operations, and its subsidiaries, Clean Energy Cryogenics and NG Advantage (see Note 4).

Note 21 —Concentrations

During the years ended December 31, 2020, 2021 and 2022, three, zero, and one supplier(s), respectively, each accounted for 10% or more of the Company's natural gas expense relating to CNG and LNG purchases.

During the years ended December 31, 2020, 2021 and 2022, no single customer accounted for 10% or more of the Company's total revenue.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Our management carried out an evaluation, with the participation of our Chief Executive Officer and Chief Financial Officer (our principal executive and principal financial officers, respectively) of the effectiveness of our disclosure controls and procedures as of December 31, 2022, the end of the period covered by this report. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of December 31, 2022.

Changes in Internal Control Over Financial Reporting

We regularly review and evaluate our internal control over financial reporting, and from time to time we may make changes to our processes and systems to improve controls or increase efficiencies. Such changes may include, among others, implementing new and more efficient systems, consolidating activities, and migrating processes.

There were no changes in our internal control over financial reporting that occurred during the quarter ended December 31, 2022 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) for our Company. Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, assessed the effectiveness of our internal control over financial reporting as of December 31, 2022. In making this assessment, our management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in *Internal Control—Integrated Framework (2013)*. Based on this assessment, our management concluded that, as of December 31, 2022, our internal control over financial reporting was effective. Our independent registered public accounting firm, KPMG LLP, has issued an attestation report on our internal control over financial reporting, which is included in Item 8. "Financial Statements and Supplementary Data" of this report.

Inherent Limitations of Disclosure Controls and Procedures and Internal Control Over Financial Reporting

In designing our disclosure controls and procedures and internal control over financial reporting, management recognizes that any controls and procedures, no matter how well-designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of our controls and procedures must reflect the fact that there are resource constraints, and management necessarily applies its judgment in evaluating the benefits of possible controls and procedures relative to their costs. Because of these inherent limitations, our disclosure and internal controls may not prevent or detect all instances of fraud, misstatements or other control issues. In addition, projections of any evaluation of the effectiveness of disclosure or internal controls to future periods are subject to risks, including, among others, that controls may become inadequate because of changes in conditions or that compliance with policies or procedures may deteriorate.

Item 9B. Other Information.

CLNE PlasmaFlow Holdings, LLC 2023 Equity Plan

Effective February 23, 2023, the Compensation Committee of our Board of Directors, and our subsidiary Clean Energy, as the sole member and manager of CLNE PlasmaFlow Holdings, LLC ("CPFH"), adopted and approved the CLNE PlasmaFlow Holdings, LLC 2023 Equity Incentive Plan (the "CPFH Plan"). The CPFH Plan is administered by Clean Energy, as the manager, and provides for the granting of incentive equity awards in the form of non-voting common units of CPFH (either as capital interests or profits interests) and options to acquire non-voting common units of CPFH. Profits interests granted under the CPFH Plan may provide for preferential ("catch-up") allocations of profits and/or gains, relative to the allocation of such profits and gains to units of CPFH, generally. Awards of non-voting common units may be awarded to employees, officers, advisors and consultants of CPFH or a parent or subsidiary entity. Awards of options to acquire non-voting common units may be awarded to employees, officers, advisors and consultants of CPFH or a subsidiary entity. Up to 1,666,667 non-voting common units have been authorized for issuance under the CPFH Plan. No award under the CPFH Plan is or will be exercisable for, convertible into, or exchangeable for any of the Company's common stock or other equity securities. Awards granted under the CPFH Plan may contain such terms and conditions as may be determined by the manager, including vesting conditions tied to continued employment or service and/or achievement of performance goals. The manager may also provide in award agreements that vesting and other conditions may be waived or accelerated upon the occurrence of events such as upon termination of employment or service, including, without limitation, termination due to death or disability. The CPFH Plan provides that, unless provided otherwise in an award agreement, if the employment or service of the recipient of an award is terminated by the Company without cause or by the holder for good reason (as those terms are defined in the CPFH Plan) on or within twelve months after a change in control (as that term is defined in the CPFH Plan) of the Company, any then unvested awards would vest in full. The CPFH Plan also provides that, unless provided otherwise in an award agreement, in the event of a change in control of CPFH, any then unvested awards would vest in full on the date of the change in control. The CPFH Plan terminates on February 23, 2033, unless earlier terminated by the manager.

The foregoing description of the terms of the CPFH Plan and award agreements granted thereunder is not complete and is qualified in its entirety by the CPFH Plan and the forms of award agreements thereunder, copies of which are filed herewith as Exhibits 10.30, 10.31, and 10.32.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

We have adopted a written code of ethics that applies to our employees, officers and directors, including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. A current copy of the code is posted under "Corporate Governance" on the Investor Relations section of our website, www.cleanenergyfuels.com. To the extent required by applicable rules adopted by the SEC and the Nasdaq Stock Market LLC, we intend to disclose future amendments to certain provisions of the code, or waivers of such provisions granted to executive officers and directors, in this location on our website at www.cleanenergyfuels.com.

The remaining information required by Item 10 is incorporated by reference to our definitive proxy statement for our 2023 annual meeting of stockholders to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2022.

Item 11. Executive Compensation.

The information required by Item 11 is incorporated by reference to our definitive proxy statement for our 2023 annual meeting of stockholders to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2022.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The information required by Item 12 is incorporated by reference to our definitive proxy statement for our 2023 annual meeting of stockholders to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2022.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

The information required by Item 13 is incorporated by reference to our definitive proxy statement for our 2023 annual meeting of stockholders to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2022.

Item 14. Principal Accountant Fees and Services.

The information required by Item 14 is incorporated by reference to our definitive proxy statement for our 2023 annual meeting of stockholders to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2022.

PART IV

Item 15. Exhibits and Financial Statement Schedules.

(a)(1) **Consolidated Financial Statements**

The following items are filed in Item 8. Financial Statements and Supplementary Data of this report:

Report of Independent Registered Public Accounting Firm
Consolidated Balance Sheets
Consolidated Statements of Operations
Consolidated Statements of Comprehensive Income (Loss)
Consolidated Statements of Stockholders' Equity
Consolidated Statements of Cash Flows
Notes to Consolidated Financial Statements

(a)(2) **Financial Statement Schedules**

The financial statement schedule set forth below is filed as a part of this report. All other schedules have been omitted because they are not required, not applicable, or the required information is otherwise included.

Schedule II - Valuation and Qualifying Accounts

	(In thousands)	
	Allowance for Credit Losses on Accounts Receivables	**Allowance for Credit Losses on Notes Receivables**
Balance as of December 31, 2019	$ 2,412	$ 3,331
Charges (benefit) to operations	796	1,250
Deductions	(1,873)	(476)
Balance as of December 31, 2020	1,335	4,105
Charges (benefit) to operations	77	650
Deductions	(207)	—
Balance as of December 31, 2021	1,205	4,755
Charges (benefit) to operations	571	744
Deductions	(401)	—
Balance as of December 31, 2022	$ 1,375	$ 5,499

(a)(3) **Exhibits**

The information required by this Item 15(a)(3) is set forth on the exhibit index, which immediately precedes the signature page to this report and is incorporated herein by reference.

Item 16. Form 10-K Summary.

We have elected not to provide summary information.

EXHIBIT INDEX

Exhibit Number	Description	Incorporated by Reference	
		Form	Filing Date
3.1	Restated Certificate of Incorporation, as amended by the Certificate of Amendment to the Restated Certificate of Incorporation of the Registrant dated May 28, 2010, as further amended by the Certificate of Amendment to the Restated Certificate of Incorporation of the Registrant dated May 8, 2014.	Filed as Exhibit 3.1 to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2018.	August 7, 2018
3.1.1	Certificate of Amendment to the Restated Certificate of Incorporation of Clean Energy Fuels Corp. dated June 8, 2018.	Filed as Exhibit 3.1.1 to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2018.	August 7, 2018
3.1.2	Certificate of Amendment to Restated Certificate of Incorporation, dated June 14, 2021.	Filed as Exhibit 3.1 to the Current Report on Form 8-K	June 15, 2021
3.2	Amended and Restated Bylaws.	Filed as Exhibit 3.2 to the Current Report on Form 8-K.	February 23, 2011
3.2.1	Amendment No. 1 to Amended and Restated Bylaws.	Filed as Exhibit 3.2.1 to the Current Report on Form 8-K.	February 27, 2014
4.1	Specimen Common Stock Certificate.	Filed as Exhibit 4.1 to the Registration Statement on Form S-1, as amended.	March 27, 2007
4.2	Form of Replacement Note issued by the Registrant.	Filed as Exhibit 4.9 to the Current Report on Form 8-K.	June 18, 2013
4.3	Description of Clean Energy Fuels Corp. Capital Stock.	Filed as Exhibit 4.3 to the Annual Report on Form 10-K for the year ended December 31, 2021.	February 24, 2022
4.4†	Warrant to Purchase Common Stock of Clean Energy Fuels Corp., between Clean Energy Fuels Corp. and Amazon.com NV Investment Holdings LLC, dated as of April 16, 2021.	Filed as Exhibit 4.4 to the Current Report on Form 8-K.	April 19, 2021
10.1+	Form of Indemnification Agreement.	Filed as Exhibit 10.4 to the Registration Statement on Form S-1, as amended.	March 27, 2007
10.2+	2006 Equity Incentive Plan—Form of Notice of Stock Option Grant and Stock Option Agreement.	Filed as Exhibit 99.5 to the Registration Statement on Form S-8.	August 14, 2007

Exhibit Number	Description	Incorporated by Reference	
		Form	Filing Date
10.3††	Ground Lease dated November 3, 2006 among the Registrant, Clean Energy Construction and U.S. Borax, Inc.	Filed as Exhibit 10.3 to the Annual Report on Form 10-K for the year ended December 31, 2021	February 24, 2022
10.4	First Amendment to Ground Lease dated October 28, 2008 among Clean Energy LNG, LLC, Clean Energy Construction and U.S. Borax, Inc.	Filed as Exhibit 10.4 to the Annual Report on Form 10-K for the year ended December 31, 2021	February 24, 2022
10.5+	Amended and Restated 2006 Equity Incentive Plan.	Filed as Exhibit 10.63 to the Annual Report on Form 10-K for the year ended December 31, 2011.	March 12, 2012
10.6+	2006 Equity Incentive Plan - Form of Notice of Stock Option Grant.	Filed as Exhibit 10.104 to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2015.	May 11, 2015
10.7+	Amended and Restated Employment Agreement dated December 31, 2015, between the Registrant and Andrew J. Littlefair.	Filed as Exhibit 10.106 to the Current Report on Form 8-K.	December 31, 2015
10.8+	Amended and Restated Employment Agreement dated December 31, 2015, between the Registrant and Robert M. Vreeland.	Filed as Exhibit 10.107 to the Current Report on Form 8-K.	December 31, 2015
10.9+	Amended and Restated Employment Agreement dated December 31, 2015, between the Registrant and Mitchell W. Pratt.	Filed as Exhibit 10.108 to the Current Report on Form 8-K.	December 31, 2015
10.10+	Amended and Restated Employment Agreement dated December 31, 2015, between the Registrant and Barclay F. Corbus.	Filed as Exhibit 10.109 to the Current Report on Form 8-K.	December 31, 2015
10.11+	Clean Energy Fuels Corp. 2016 Performance Incentive Plan.	Filed as Exhibit 10.114 to the Current Report on Form 8-K.	May 27, 2016
10.12+	Clean Energy Fuels Corp. 2016 Performance Incentive Plan-Form of Notice of Stock Option Grant and Terms and Conditions of Nonqualified Stock Option.	Filed as Exhibit 10.117 to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2016.	August 9, 2016
10.13+	Clean Energy Fuels Corp. 2016 Performance Incentive Plan-Form of Notice of Stock Unit Award and Terms and Conditions of Stock Unit Award.	Filed as Exhibit 10.118 to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2016.	August 9, 2016

Exhibit Number	Description	Incorporated by Reference Form	Filing Date
10.14+	Form of Option Surrender Agreement.	Filed as Exhibit 10.120 to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2017.	May 4, 2017
10.15	Series A Preferred Units Issuance Agreement dated July 14, 2017, by and between Clean Energy and NG Advantage LLC.	Filed as Exhibit 10.122 to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2017.	November 2, 2017
10.16	Stock Purchase Agreement dated May 9, 2018, between the Registrant and Total Market Services, S.A.	Filed as Exhibit 10.125 to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2018.	May 10, 2018
10.17	Voting Agreement dated May 9, 2018, among the Registrant, Total Market Services, S.A., and the directors and officers of the Registrant signatory.	Filed as Exhibit 10.126 to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2018.	May 10, 2018
10.18	Form of Registration Rights Agreement dated June 13, 2018, between the Registrant and Total Market Services, S.A.	Filed as Exhibit 10.127 to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2018.	May 10, 2018
10.19	Credit Support Agreement, dated as of January 2, 2019, by and between the Registrant and Total Holdings USA, Inc.	Filed as Exhibit 10.130 to the Annual Report on Form 10-K for the year ended December 31, 2018.	March 12, 2019
10.20	Amended and Restated 2016 Performance Incentive Plan.	Filed as Exhibit 10.1 to the Current Report on Form 8-K.	May 18, 2020
10.21††	Memorandum of Understanding, dated December 18, 2020, between Clean Energy and BP Products North America Inc.	Filed as Exhibit 10.24 to the Annual Report on Form 10-K for the year ended December 31, 2020.	March 9, 2021
10.22††	USD $50,000,000 Loan Agreement, dated December 18, 2020, between Clean Energy and BP Products North America Inc.	Filed as Exhibit 10.25 to the Annual Report on Form 10-K for the year ended December 31, 2020.	March 9, 2021
10.23††	Joint Venture Agreement, dated March 3, 2021, between Clean Energy Renewable Fuels, LLC and Total Biogas Holdings USA, LLC.	Filed as Exhibit 10.26 to the Annual Report on Form 10-K for the year ended December 31, 2020.	March 9, 2021
10.24††	Limited Liability Company Agreement of CE Renewco, LLC between Clean Energy and BP Products North America Inc.	Filed as Exhibit 10.27 to the Current Report on Form 8-K.	April 15, 2021

Exhibit Number	Description	Incorporated by Reference	
		Form	Filing Date
10.25††	Transaction Agreement, between Clean Energy Fuels Corp. and Amazon.com, Inc., dated as of April 16, 2021.	Filed as Exhibit 10.27 to the Current Report on Form 8-K.	April 19, 2021
10.26+	Clean Energy Fuels Corp. 2022 Employee Stock Purchase Plan.	Filed as Exhibit Annex A to Schedule 14A Definitive Proxy Statement.	April 7, 2022
10.27	Amendment No. 1 to Credit Support Agreement, dated as of March 12, 2021, between Clean Energy Fuels Corp. and Total Holdings USA Inc.	Filed as Exhibit 10.1 to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2022	May 5, 2022
10.28	Senior Secured First Lien Term Loan Credit Agreement dated December 22, 2022, among Clean Energy Fuels Corp, Clean Energy, the lenders from time to time party thereto, and Riverstone Credit Management LLC, as the administrative agent for the lenders and collateral agent for the secured parties.	Filed as Exhibit 10.1 to the Current Report on Form 8-K	December 28, 2022
10.29	Guarantee and Collateral Agreement dated December 22, 2022, among Clean Energy Fuels Corp, Clean Energy, and each of the other Grantors in favor of Riverstone Credit Management LLC, as collateral agent for the secured parties.	Filed as Exhibit 10.2 to the Current Report on Form 8-K	December 28, 2022
10.30*+	CLNE PlasmaFlow Holdings, LLC 2023 Equity Incentive Plan.		
10.31*+	CLNE PlasmaFlow Holdings, LLC 2023 Equity Incentive Plan – Form of Option Award.		
10.32*+	CLNE PlasmaFlow Holdings, LLC 2023 Equity Incentive Plan – Form of Profits Interest Award.		
21.1*	Subsidiaries.		
23.1*	Consent of Independent Registered Public Accounting Firm KPMG LLP.		
24.1*	Power of Attorney (included on the signature page to this report).		

Exhibit Number	Description	Incorporated by Reference	
		Form	Filing Date
31.1*	Certification of Andrew J. Littlefair, President and Chief Executive Officer, pursuant to Rule 13a-14(a) or 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes- Oxley Act of 2002.		
31.2*	Certification of Robert M. Vreeland, Chief Financial Officer, pursuant to Rule 13a-14(a) or 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.		
32.1**	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, executed by Andrew J. Littlefair, President and Chief Executive Officer, and Robert M. Vreeland Chief Financial Officer.		
101*	The following materials from the Registrant's Annual Report on Form 10-K for the year ended December 31, 2022, formatted in iXBRL (Inline eXtensible Business Reporting Language): (i) Consolidated Balance Sheets; (ii) Consolidated Statements of Operations; (iii) Consolidated Statements of Comprehensive Income (Loss); (iv) Consolidated Statements of Stockholders' Equity; (v) Consolidated Statements of Cash Flows; and (vi) Notes to Consolidated Financial Statements.		
104*	Cover Page Interactive Data File (formatted as iXBRL and contained in Exhibit 101)		

\+ Management contract or compensatory plan or arrangement.

† Portions of this exhibit have been omitted pursuant to the grant of a request for confidential treatment and the non-public information has been filed separately with the SEC.

†† Certain portions of this document that constitute confidential information have been redacted in accordance with Item 601(b)(10) of Regulation S-K.

* Filed herewith.

** Furnished herewith.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) 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.

CLEAN ENERGY FUELS CORP.

By: /s/ ANDREW J. LITTLEFAIR
Andrew J. Littlefair
President and Chief Executive Officer

Date: February 28, 2023

POWER OF ATTORNEY

IN WITNESS WHEREOF, each person whose signature appears below constitutes and appoints Andrew J. Littlefair and Robert M. Vreeland as his true and lawful agent, proxy and attorney-in-fact, each acting alone, with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to (i) act on and sign any amendments to this report, with exhibits thereto and other documents in connection therewith, (ii) act on and sign such certificates, instruments, agreements and other documents as may be necessary or appropriate in connection therewith, and in each case file the same with the Securities and Exchange Commission, hereby approving, ratifying and confirming all that such agent, proxy and attorney-in-fact or any of his substitutes may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ ANDREW J. LITTLEFAIR Andrew J. Littlefair	President, Chief Executive Officer (Principal Executive Officer) and Director	February 28, 2023
/s/ ROBERT M. VREELAND Robert M. Vreeland	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	February 28, 2023
/s/ STEPHEN A. SCULLY Stephen A. Scully	Chairman of the Board and Director	February 28, 2023
/s/ LIZABETH ARDISANA Lizabeth Ardisana	Director	February 28, 2023
/s/ JAMES C. MILLER III James C. Miller III	Director	February 28, 2023
/s/ LORRAINE A. PASKETT Lorraine A. Paskett	Director	February 28, 2023
/s/ KARINE BOISSY-ROUSSEAU Karine Boissy-Rousseau	Director	February 28, 2023
/s/ KENNETH M. SOCHA Kenneth M. Socha	Director	February 28, 2023
/s/ VINCENT C. TAORMINA Vincent C. Taormina	Director	February 28, 2023
/s/ PARKER WEIL Parker Weil	Director	February 28, 2023
/s/ LAURENT WOLFFSHEIM Laurent Wolffsheim	Director	February 28, 2023