Clean Energy Fuels Corp.
Form 10-K
March 12, 2019
UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K
(Mark
One)

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

For the fiscal year ended: December 31, 2018
or

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

Commission File Number: 001-33480
CLEAN ENERGY FUELS CORP.
(Exact name of registrant as specified in its charter)

Delaware	33-0968580
(State or other jurisdiction of incorporation or organization)	(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	Name of each exchange on which registered
Common Stock, par value $0.0001 per share	The Nasdaq Stock 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 o No x
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 o No x
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 x No o
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 (§ 229.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes x No o
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant’s knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. o

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 o	Accelerated filer x	Non-accelerated filer o	Smaller reporting company o	Emerging growth company o

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. o

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

The aggregate market value of the voting stock held by non-affiliates of the registrant as of June 29, 2018, the last business day of the registrant’s most recently completed second fiscal quarter, was approximately $689,140,046 (computed by reference to the price at which the registrant's common stock was last sold on such date, as reported by The Nasdaq Global Select Market). Shares of common stock held by the registrant’s officers and directors and beneficial owners of 10% or more of the outstanding shares of the registrant’s common stock have been excluded from the calculation of this amount because such persons may be deemed to be affiliates of the registrant; however, the treatment of these persons as affiliates of the registrant for purposes of the calculation of this amount 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 March 5, 2019, the number of outstanding shares of the registrant’s common stock was 204,618,468.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant’s definitive proxy statement for its 2019 annual meeting of stockholders are incorporated in Part III of this report by reference, to the extent stated therein.

Clean Energy Fuels Corp.
Annual Report on Form 10-K
For the Fiscal Year Ended December 31, 2018
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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This annual report on Form 10-K as well as the other filings we make with the Securities and Exchange Commission (the “SEC”) and other written and oral public statements made by us or on our behalf, contain “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, “believe,” “estimate,” “predict,” “project,” “forecast,” “potential,” “continue,” “ongoing” or the negative of these terms or othe comparable terminology, although the absence of these words 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:

- Future supply, demand, use and prices of crude oil, gasoline, diesel, natural gas and other vehicle fuels, such as electricity, hydrogen, renewable diesel, biodiesel and ethanol;
- Our expectations regarding the market's perception of the benefits of conventional natural gas and renewable natural gas (“RNG”) relative to gasoline and diesel and other alternative vehicle fuels, including with respect to factors such as supply, cost savings, environmental benefits and safety;
- Expected rates and levels of adoption of RNG, compressed natural gas (“CNG”) and liquefied natural gas (“LNG”) as a vehicle fuel, and our ability to capture a significant share of these markets if and when they grow;
- Our expectations regarding the customer and geographic markets that are well-suited for, and show the most promise for adoption of, natural gas as a vehicle fuel;
- Projections regarding natural gas vehicle cost, fuel usage, availability, quality, safety, convenience (to fuel and service), design, performance, and operator perception with respect to these factors, generally and in our key customer markets and relative to comparable vehicles powered by other fuels;
- Our expectations regarding the development, production, cost, availability, performance, sales and marketing and reputation of natural gas engines that are well-suited for the vehicles used in our key customer markets, including heavy-duty trucks and other fleets;
- The willingness of fleets and fleet vehicle operators to adopt natural gas vehicles, particularly in light of operators’ competing general business concerns and potential lack of demand for such adoption from their customers and drivers;
- Our ability to implement our business plans and their level of success, including, among others, our goal of fueling more natural gas heavy-duty trucks and our recently launched Zero Now truck financing program designed to facilitate our achievement of this objective;
- The competitive environment in which we operate, including predictions of increasing competition in the market for vehicle fuels generally, and the nature and impact of competitive developments in this market, including improvements in or perceived advantages of non-natural gas vehicle fuels or engines powered by these fuels;
- The availability and effect on our business of environmental, tax or other government regulations, programs or incentives that promote natural gas or other alternatives as a vehicle fuel, such as, for instance, a federal alternative fuels tax credit (“AFTC”) and the programs under which we generate credits by selling conventional natural gas and RNG as a vehicle fuel, including Renewable Identification Numbers (“RINs” or “RIN Credits”) under the federal Renewable Fuel Standard (“RFS”) Phase 2 and credits under the California and Oregon Low Carbon Fuel Standards (collectively, “LCFS Credits”);
- Potential adoption of government policies or programs or increased publicity or popular sentiment in favor of vehicles or vehicle fuels other than natural gas, including long-standing support for gasoline and diesel-powered vehicles and growing support for electric and hydrogen-powered vehicles;
- The impact of, or potential for changes to, emissions requirements applicable to vehicles powered by gasoline, diesel, natural gas or other vehicle fuels, as well as emissions and other environmental regulations and pressures on crude oil, fueling stations and drilling, production, importing or transportation methods and fueling stations for these fuels;

- Developments in our products and services offering, including any new business activities we may pursue in the future;
- The success and importance of any acquisitions, divestitures, investments or other strategic relationships or transactions;

- The potential impact on our debt instruments and our business of developments regarding LIBOR, including the potential phasing out of this metric;
- General political, regulatory, economic and market conditions;
- Our need for and ability to access additional capital to fund our business or repay our debt, through selling assets or pursuing equity, debt or other types of financing;
- Our expectations regarding our liquidity, including our projected cash balances, expense levels, capital expenditures and other funding requirements;
- Our expectations regarding our operating performance, including trends in our business and our industry that may impact our future results;
- Predictions about the effect on our business of potential operational events, including, among other things, any changes to our management team; any IT or cybersecurity breaches; any equipment defects, malfunctions, failures and misuses; or any severe weather events that effect our station construction or other activities;
- The outcome and impact on our liquidity, performance and reputation of any pending or future government actions, audits or other legal proceedings; and
- The impact of the above factors and other future events on the market price and trading volume of our common stock.

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. 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," our "Company," "we," "us," or "our" in this report re to Clean Energy Fuels Corp., together with its majority and wholly owned subsidiaries.

We own registered or unregistered trademark or service mark rights to Redeem™, NGV Easy Bay™, Clean Energy™, Clean Energy Renewables™, Zero Now, and Clean Energy Cryogenics™. 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

We are the leading provider of natural gas as an alternative fuel for vehicle fleets in the United States and Canada, based on the number of stations operated and the amount of gasoline gallon equivalents ("GGEs") of RNG, CNG and LNG delivered.

Our principal business is supplying RNG, CNG and LNG (RNG can be delivered in the form of CNG or LNG) for light, medium and heavy-duty vehicles and providing operation and maintenance ("O&M") services for public and private vehicle fleet customer stations. As a comprehensive solution provider, we also design, build, operate and maintain fueling stations; sell and service natural gas fueling compressors and other equipment used in CNG stations and LNG stations; offer assessment, design and modification solutions to provide operators with code-compliant service and maintenance facilities for natural gas vehicle fleets; transport and sell CNG and LNG via "virtual" natural gas pipelines and interconnects; procure and sell RNG; sell tradable credits we generate by selling RNG and conventional natural gas as a vehicle fuel, including RIN Credits and LCFS Credits; help our customers acquire and finance natural gas vehicles; and obtain federal, state and local tax credits, grants and incentives. In addition, before March 31, 2017, we produced RNG at our own production facilities (which we sold, along with certain of our other RNG production assets to BP Products North America ("BP"), in a transaction we refer to as the "BP Transaction"), and before December 29, 2017, we manufactured natural gas fueling compressors and other equipment used in CNG stations (which we combined with SAFE S.p.A., the natural gas fueling compressor subsidiary of Landi Renzo S.p.A. ("LR") in a newly formed company, in a transaction we refer to as the "CEC Combination").

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 natural gas vehicle fuel for the foreseeable future. As of December 31, 2018, we serve over 1,000 fleet customers operating over 47,000 natural gas vehicles, and we own, operate or supply approximately 530 natural gas fueling stations in 41 states in the United States and four provinces in Canada. We estimate this number of stations is approximately three times the number of CNG fueling stations operated by our largest competitor in today's market, and we believe our natural gas fueling operations cover more states and provinces than any of our competitors. We believe we are the only company in the United States or Canada that provides both CNG and LNG vehicle fuel on a significant scale.

Market for Natural Gas as a Vehicle Fuel

Natural Gas Vehicles for America ("NGV America") estimates that, as of December 31, 2018, there were approximately 1,750 natural gas fueling stations in the United States and 175,000 natural gas vehicles on American roads.

We believe the following benefits of natural gas fuel may encourage the development of the market for RNG and conventional natural gas as a vehicle fuel in the United States:

Domestic and Plentiful Supply. Technological advances in natural gas drilling and production, including the widespread deployment of horizontal drilling techniques and the use of hydraulic fracturing, have unlocked vast natural gas reserves. The United States has proven, abundant and growing reserves of natural gas, and produces the highest volume of natural gas in the world.

Less Expensive. Due to the abundance of natural gas, the cost of natural gas in the United States is less than the cost of crude oil on an energy equivalent basis. Based on projections from the U.S. Energy Information Administration, we believe natural gas will remain cheaper than gasoline and diesel for the foreseeable future. In addition, because the price of the natural gas commodity makes up a smaller portion of the cost of a GGE of CNG or LNG relative to the commodity portion of the cost of a GGE of diesel or gasoline, the price of a GGE of CNG or LNG is less sensitive to increases in the underlying commodity cost.

Cleaner. Natural gas contains less carbon than any other fossil fuel and, as a result, produces fewer carbon dioxide emissions when burned. The California Air Resources Board ("CARB") has concluded that a vehicle fueled by natural gas has fewer greenhouse gas emissions than a comparable vehicle fueled by gasoline or diesel, on a well-to-wheel basis. Additionally, a study from Argonne National Laboratory, a research laboratory operated by the University of Chicago for the U.S. Department of Energy, indicates that natural gas vehicles produce between 13% and 21% fewer

greenhouse gas emissions than comparable gasoline- and diesel -fueled vehicles.
We believe RNG vehicle fuel has enhanced environmental benefits relative to gasoline and diesel vehicle fuels. For natural gas vehicles that run on RNG we estimate, based on CARB data, that the greenhouse gas emissions produced are at least 70% less than comparable gasoline- and diesel -fueled vehicles, depending on the source of the RNG. We believe the RNG we sell for use

as a vehicle fuel, which is distributed under the brand name Redeem, is the first commercially available RNG vehicle fuel made from organic waste.

Further, natural gas engines now commercially available for heavy-duty, regional-haul, refuse, transit and vocational applications have been certified to the CARB and U.S. Environmental Protection Agency ("EPA") optional low NOx emission standard of 0.02 g/bhp-hr. This means that these engines emit 90% less smog-forming nitrogen oxides (also known as "NOx") than the existing regulatory standards, making them the lowest certified ultra-low NOx emission engines in North America. We therefore believe vehicles equipped with ultra-low NOx engines that are fueled with RNG are the cleanest commercially available vehicles in North America (in terms of greenhouse gas emissions and NOx).

We believe the relative environmental benefits of natural gas as a vehicle fuel could become increasingly important if, as we expect, air quality regulations become increasingly stringent, new regulations mandating low carbon fuels are enacted and fleet operators expand their initiatives to lower greenhouse gas emissions and increase fuel diversity.

Safer. As reported by NGV America, CNG and LNG are relatively safer than gasoline and diesel because they dissipate into the air when spilled or in the event of a vehicle accident. When released, CNG and LNG are also less combustible than gasoline or diesel because they ignite only at relatively high temperatures. The fuel tanks and systems used in natural gas vehicles are subjected to a number of federally required safety tests, such as fire, environmental hazard, burst pressure and crash testing, according to the U.S. Department of Transportation National Highway Traffic Safety Administration. CNG and LNG are stored in above-ground tanks and therefore will not contaminate soil or groundwater in the event of a spill or leak.

Natural Gas Vehicles

Natural gas vehicles use internal combustion engines similar to those used in gasoline- or diesel -powered vehicles, and the acceleration and other performance characteristics of natural gas vehicles are also similar to those of gasoline- or diesel -powered vehicles of the same weight and engine class. Natural gas vehicles, whether they run on CNG or LNG, are refueled using a hose and nozzle that makes an airtight seal with the vehicle's fuel tank.

Natural gas vehicles have engines specially tuned to run on natural gas fuels, which have higher octane content than gasoline or diesel, and fuel tanks and lines specially designed to hold CNG and LNG and deliver it to the vehicle's engine. These special features, including principally the fuel tanks that hold CNG and LNG, cause natural gas vehicles to typically cost more than comparable gasoline- or diesel-powered vehicles. Additionally, for heavy-duty vehicles, spark -ignited natural gas vehicles generally operate more quietly than comparable diesel-powered vehicles. Due to improvements in diesel engine technology, natural gas vehicles may be somewhat less efficient than diesel vehicles in terms of miles per gallon, depending upon the application.

Virtually any car, truck, bus or other vehicle is capable of being manufactured or modified to run on natural gas. Many types and models of heavy-, medium- and light- duty natural gas vehicles and engines are available in the United States and Canada, including, among others, long-haul tractors, refuse trucks, regional tractors, transit buses, ready-mix trucks, delivery trucks, vocational work trucks, school buses, shuttles, passenger sedans, pickup trucks and cargo and passenger vans. We expect additional types and models of natural gas vehicles to become available if adoption of RNG and conventional natural gas as a vehicle fuel becomes more widespread in the United States.

Our 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.

CNG Sales. CNG is natural gas that is compressed and dispensed in gaseous form. CNG is typically delivered by obtaining natural gas from local utilities or third-party marketers and then compressing and storing it at a fueling station and dispensing it directly into a vehicle. Some of the natural gas we obtain from third parties for CNG sales is purchased under take-or-pay contracts that require us to purchase minimum volumes of natural gas.

We sell CNG for use as a vehicle fuel through fueling stations located on our customers' properties and through our network of public access fueling stations. Our CNG vehicle fuel sales are made primarily through contracts with our customers. Under many of these contracts, pricing is determined on an index-plus basis, which is calculated by adding a margin and delivery cost to the local index or utility price for natural gas. As a result, CNG vehicle fuel sales determined by an index-plus methodology increase or decrease as a result of an increase or decrease in the cost of natural gas, including transportation charges, utility costs and other fees. The remainder of our CNG vehicle fuel sales are made 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. NG Advantage transports CNG to industrial and institutional energy users that do not have direct access to natural gas pipelines. NG Advantage also transports CNG between pipelines for customers that desire to take advantage of commodity price differences. NG Advantage uses a fleet of 103 high-capacity tube trailers to transport CNG and we anticipate that NG Advantage will need to purchase or lease additional trailers and equipment in the future in support of its operations and customer contracts.

LNG Production and Sales. LNG is natural gas that is cooled at a liquefaction facility to approximately -260 degrees Fahrenheit until it condenses into a liquid. We obtain LNG from our own liquefaction plants and from third -party suppliers. We own and operate LNG liquefaction plants near Boron, California and Houston, Texas, which we call the “Boron Plant” and the “Pickens Plant” respectively. The Boron Plant can produce 60.0 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 35.0 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 2018, we purchased 24.8% of our LNG from third-party suppliers and we produced the remainder of our LNG at our plants.

We sell LNG for use as a vehicle fuel on a bulk basis to fleet customers, who often own and operate their fueling stations, and through our network of public access fueling stations. We deliver LNG via our fleet of 75 tanker trailers to fueling stations, where it is stored and then dispensed in liquid form into vehicles. We contract with third parties to provide tractors and drivers. The need to liquefy and transport LNG generally causes LNG to cost more than CNG.

We sell LNG through supply contracts that are priced on an index-plus basis, such that LNG sales under these contracts increase or decrease as a result of an increase or decrease in the cost of natural gas. We also sell LNG vehicle fuel 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 oil fields, and for utility, industrial, marine and rail applications.

RNG Sales. RNG can be delivered as CNG or LNG. It is produced from organic waste at landfills, animal waste digesters, wastewater treatment plants and other locations. RNG production plants are connected to natural gas pipelines, which allow RNG to be transported to vehicle fueling stations where it can be compressed and dispensed as CNG, and to LNG liquefaction facilities where it is converted to LNG. We purchase RNG from third -party producers, and we sell that RNG for vehicle fuel use through our fueling infrastructure under the brand name Redeem.

O&M Services. We perform O&M services for CNG and LNG fueling stations that we do not own. For these services, we generally charge a fixed or a per-gallon fee based on the volume of fuel dispensed at the station. We have an operations team that performs preventive maintenance and is available to respond to service requests.

Station Construction and Engineering. We design and construct fueling stations and facility modifications and sell or lease some of these stations to our customers. We charge construction or 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 450 natural gas fueling stations. We use a combination of custom designed and off-the-shelf equipment to build fueling stations. Equipment for a CNG station typically consists of dryers, compressors, dispensers and storage tanks; equipment for a LNG station typically consists of storage tanks and dispensing equipment. Many of our fueling stations have separate public access areas for retail customers, which generally have the look, feel and dispensing rates of gasoline and diesel fueling stations. We also offer assessment, design and modification solutions to provide operators with code-compliant service and maintenance facilities for natural gas vehicle fleets. For example, our NGV Easy Bay product is a natural gas vapor leak barrier developed specifically for natural gas vehicle facilities.

Sales of RINs and LCFS Credits. We generate RIN Credits when we sell RNG for use as a vehicle fuel in the United States, and we generate LCFS Credits when we sell RNG and conventional natural gas for use as a vehicle fuel in California and Oregon. We can sell these credits to third parties who need the RINs and LCFS Credits to comply with federal and state emissions compliance requirements. Generally, the amount of RINs and LCFS Credits we generate increases as we sell higher volumes of natural gas as a vehicle fuel; however, the amount of 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, 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.

Vehicle Acquisition and Finance. We offer vehicle finance services, including loans and leases, to help our customers acquire natural gas vehicles. As appropriate, we apply for and receive federal, state and local incentives associated with natural gas vehicle purchases and pass these benefits through to our customers. We may also secure vehicles to place with customers and/or pay deposits with respect to these vehicles before receiving a firm order from our customers, which we may be required to purchase if our customers fail to purchase the vehicle as anticipated.

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 natural gas vehicle conversions and purchases, natural gas fueling station construction and natural gas vehicle fuel sales.

Former Activities. Before March 31, 2017, we produced at our own production plants a portion of the RNG that we sold. On March 31, 2017 we completed the BP Transaction, in which we sold to BP certain assets related to this RNG production business, including two RNG production facilities, a 50% ownership interest in joint ventures formed to develop two new RNG production facilities, and third-party RNG supply contracts.

Before December 29, 2017, we, through our former subsidiary IMW Industries Ltd. (formerly known as Clean Energy Compression Corp.) ("CEC"), manufactured natural gas fueling compressors and other equipment used in CNG stations. On December 29, 2017 we completed the CEC Combination, in which we combined CEC with SAFE S.p.A, the natural gas fueling compressor subsidiary of LR, in a new company known as "SAFE&CEC S.r.l." 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. We and LR own 49% and 51%, respectively, of SAFE&CEC S.r.l.

Customer Markets

We serve customers in a variety of markets, including trucking, airports, refuse, public transit, industrial and institutional energy users and government fleets. We believe these customer markets are well-suited for the adoption of natural gas vehicle fuel 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.

Trucking. We believe heavy-duty trucking represents the greatest opportunity for natural gas to be used as a vehicle fuel in the United States, and as of December 31, 2018, we fuel over 3,000 heavy-duty trucks. Because these high-mileage vehicles consume substantial amounts of fuel, they can derive significant benefits from the lower cost of natural gas. We are focused on fueling more natural gas heavy-duty trucks, and many well-known shippers, manufacturers, retailers and other truck fleet operators have started to adopt natural gas fueled trucks to move their freight. Such companies include Honda, Frito-Lay, FedEx, Anheuser-Busch, Verizon, Bimbo, The Home Depot, AT&T, Colgate-Palmolive, Costco Wholesale, Lowes, Pepsi, UPS, MillerCoors, HP, Unilever, Starbucks, Kraft, Kroger, P&G, Hertz and Owens Corning.

Zero Now. To help facilitate the transition of trucking fleets to natural gas, we have launched the Zero Now truck financing program, which is intended to increase the deployment of the commercially available ultra-low NOx natural gas heavy-duty trucks in the United States and encourage these operators to fuel their trucks at our stations. The Zero Now program generally involves the following:

- One or more truck leasing or finance companies will lease or sell ultra-low NOx natural gas 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 natural gas truck over and above the diesel-equivalent truck; and
- The fleet operators participating in the program will enter into fueling agreements with us, under which the operators will agree to purchase from us, and we will agree to supply, minimum monthly volumes of natural gas fuel at fixed prices (lower than diesel prices) in order to operate the trucks leased or purchased in the program and allow us to recoup our payment of the incremental cost of the natural gas trucks.

In order to implement the Zero Now program, we have entered into the following agreements:

- In January 2019, we entered into a term credit agreement with Société Générale ("SG"), as lender, under which we are permitted to draw, from time to time, through the beginning of January 2022, up to an aggregate of $100.0 million in order to satisfy our payment obligations for the incremental cost of natural gas trucks under the truck lease or sale agreements described above;
- In January 2019, we entered into a credit support agreement with Total Holdings USA Inc. ("THUSA"), a wholly owned subsidiary of TOTAL S.A. ("TOTAL"), (which indirectly through another of its subsidiaries, holds approximately 25% of our outstanding common stock), pursuant to which THUSA has guaranteed our obligations under the term credit agreement with SG. In consideration for such guaranty, we have 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; and

- In October 2018, we entered into commodity swap arrangements with Total Gas & Power North America, an affiliate of TOTAL and THUSA, with the intention to manage diesel price fluctuation risks related to the natural gas fuel

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supply commitments we expect to make in our anticipated fueling agreements with fleet operators that participate in the Zero Now program. The swap arrangements cover five million diesel gallons of natural gas fuel volume annually from April 2019 through June 2024.

For more information about the Zero Now program and the related agreements, see “Item 1A. Risk Factors” and the disclosure in Item 9B of this report.

In addition, we are supporting the growth of the natural gas heavy-duty truck market through our negotiation of favorable CNG and LNG tank pricing from manufacturers, which we are passing along to our customers, and our network of natural gas 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 Flying J Travel Centers, one of the largest truck fueling operators in the United States.

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 natural gas. To assist in this effort, airports are contracting with service providers to design, build and operate natural gas fueling stations in strategic locations on their properties.

As of December 31, 2018, we serve customers at 39 airports, including Atlanta Hartsfield Jackson International, Baltimore Washington International, Dallas-Ft. Worth International, Denver International, Dulles International (Washington D.C.), George Bush International (Houston), Las Vegas, Logan International (Boston), LaGuardia (New York City), John F. Kennedy International (New York City), Los Angeles International, Newark International, Oakland International, Orlando, Phoenix Sky Harbor International, San Francisco International, San Diego International, SeaTac International (Seattle) and Tampa International.

Refuse. According to INFORM, there are nearly 200,000 refuse trucks in the United States that collect and haul refuse and recyclables, which collectively consume approximately two billion gallons of fuel per year. We estimate that approximately 55% of new refuse trucks in 2018 operate on natural gas, up from approximately 3% of new refuse trucks in 2008. Refuse haulers are increasingly adopting trucks that run on CNG to realize operational savings and to address their customers' demands for reduced emissions.

As of December 31, 2018, we fuel over 12,000 refuse vehicles for customers including Waste Management and Republic Services, as well as other waste haulers such as Atlas Disposal, Burrtec, Recology, South San Francisco Scavenger, Waste Connections and Waste Pro, among others. We also provide vehicle fueling services to municipal refuse fleets, including fleets in Dallas, Los Angeles, San Antonio and New York City, among other locations.

Public Transit. According to the American Public Transportation Association, there are over 71,000 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 1.5 billion gallons of fuel per year. Many transit agencies have been early adopters of natural gas vehicles, and over 25% of existing transit buses and over 35% of new transit buses operate on natural gas.

As of December 31, 2018, we fuel close to 9,000 transit vehicles for customers including Los Angeles County Metropolitan Transit Authority, 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, as well as public transit customers in British Columbia.

Industrial and Institutional Customers. NG Advantage uses its virtual natural gas pipelines and interconnects to serve a number of customers that do not have direct access to natural gas pipelines or desire to take advantage of commodity price differences. We also transport LNG to customers via virtual natural gas pipelines.

Government Fleets. In 2016, 2017 and 2018, contracts with government entities, such as municipal transit fleets, accounted for approximately 16%, 19% and 22% of our revenue, respectively.

Our representative government fleet customers include the California Department of Transportation, State of New York, State of Colorado, City of New York, City of Denver, City and County of Los Angeles, City of Newport Beach, South Coast Air Quality Management District (Southern California region), City and County of San Francisco, City of Oakland, City and County of Dallas, City of Phoenix, The University of California, and Oklahoma State University.

Competition

The market for vehicle fuels is highly competitive. We believe the biggest competition for CNG and LNG use as a vehicle fuel is gasoline and diesel because the vast majority of 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.

A number of established businesses are in the market for natural gas 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. If the alternative vehicle fuel market grows in the future, then the number and type of participants in this market and their level of capital and other commitments to alternative vehicle fuel programs could increase. We believe there are approximately 20 competitors in the market for natural gas vehicle fuels in the U.S. and Canada, including:

- Providers of CNG fuel infrastructure and fueling services, including Love’s Trillium, Gain Clean Fuels, TruStar Energy, AmpCNG and EVO CNG;
- Fuel station owners, such as Kwik Trip, a company that owns CNG fueling stations in the Midwestern United States;
- Applied LNG Technology, Stabilis and Prometheus Energy, each of which distributes LNG; and
- Utilities and their affiliates in several states, including California, Georgia, Michigan, New Jersey, North Carolina, Utah and Washington, which own and operate public access CNG stations that compete with our stations.

We also face high levels of competition with respect to our other business activities. For instance, we compete with many third parties for the rights to procure RNG from producers and for customers to purchase the RNG that we sell. 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, including Xpress Natural Gas, OsComp Systems and Irving Ltd.

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; and recognition of the brand. We believe we compare favorably with our competitors on the basis of 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.

We expect competition to increase in the vehicle fuels markets generally. In addition, if the demand for natural gas vehicle fuel increases, then we expect competition in the market for natural gas vehicle fuel would also increase.

Government Regulation and Environmental Matters

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 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. 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.

Construction and Operation of CNG and LNG Stations. To construct a CNG or LNG fueling station, we must satisfy permitting and other requirements and either we or a third -party contractor must be licensed as a general engineering contractor. Each CNG and LNG fueling station must be constructed in accordance with federal, state and local regulations pertaining to station design, environmental health, accidental release prevention, above-ground storage tanks and hazardous waste and other materials. For fueling stations we operate, we are also required to register with certain state agencies as a retailer/wholesaler of CNG and

LNG. We also may benefit from any grant programs or similar government incentives that may be available for the construction of natural gas fueling stations.

Transfer of LNG. Federal safety standards require each transfer of LNG to be conducted in accordance with specific written safety procedures. These procedures must require that qualified personnel be in attendance during all LNG transfer operations, and these procedures must be implemented, and copies of the procedures must be available or displayed, at each LNG transfer location.

Construction and Operation of LNG Liquefaction Plants. To build and operate LNG liquefaction plants, we must apply for facility permits or licenses that address many aspects of plant operations, including storm water and wastewater discharges, waste handling and air emissions related to production activities and equipment operation. The construction of LNG plants must also be approved by local planning boards and fire departments.

Vehicle Finance. State agencies generally require the registration of finance lenders. For example, in California, pursuant to the California Finance Lenders Law, one of our subsidiaries is required to be registered as a finance lender with the California Department of Corporations.

Generation and Sale of RIN Credits and LCFS Credits. In February 2010, the EPA finalized the RFS (which was established by the Energy Policy Act of 1992/2005), which creates RINs that can be generated by the production and use of RNG in the transportation sector and sold to fuel providers that are not compliant under the RFS. In addition, CARB and comparable agencies in Oregon have adopted the Low Carbon Fuel Standard, which encourages low carbon “compliant” transportation fuels (including CNG, LNG and RNG) in the California and Oregon marketplace by allowing producers of these fuels to generate LCFS Credits that can be sold to noncompliant regulated parties.

Sale of Natural Gas Vehicle Fuel: AFTC. Under separate pieces of U.S. federal legislation, we have been eligible to receive the AFTC, an alternative fuels tax credit, for our natural gas vehicle fuel sales made between October 1, 2006 and December 31, 2017. The AFTC credit was equal to $0.50 per gasoline gallon equivalent of CNG that we sold as vehicle fuel, $0.50 per liquid gallon of LNG that we sold as vehicle fuel through 2015, and $0.50 per diesel gallon equivalent of LNG that we sold as vehicle fuel in 2016 and 2017. Based on the service relationship with our customers, either we or our customers claim the credit. On February 9, 2018, AFTC was retroactively extended from January 1, 2017 to December 31, 2017, and AFTC revenue for the 2017 calendar year was recognized and collected in 2018. AFTC is not available, and may not be reinstated, for vehicle fuel sales after December 31, 2017.

Sale of Natural Gas Vehicle Fuel, Operation of Fueling Stations and Production of LNG: Greenhouse Gas Emissions Regulation. California has enacted laws and regulations that require specified greenhouse gas emissions reductions, and the federal government and several other state governments are considering similar measures. These regulations, if and when adopted and implemented, could affect several areas of our operations, including our sales of conventional and renewable natural gas and the operation of our CNG and LNG fueling stations and our LNG production plants.

California’s emissions laws require statewide reductions of greenhouse gas emissions to 1990 levels by 2020, 40% below 1990 levels by 2030, and 80% below 1990 levels by 2050. As of January 1, 2015, California’s AB 32 law began regulating the greenhouse gas emissions from transportation fuels, including the emissions associated with the CNG and LNG vehicle fuel we sell in the state.

Under AB 32, the regulated party with respect to CNG vehicle fuel use is the utility that owns the pipe through which the fossil fuel natural gas is sold. We anticipate that, over time, as the utilities’ costs increase to comply with this law, we or, to the extent we pass these costs through to our customers, our CNG customers will be required to pay more for CNG vehicle fuel to cover the increased AB 32 compliance costs of the utility. The amount of these costs that we or our CNG customers will be required to pay will be determined by the amount a utility spends to buy any carbon credits needed to comply with AB 32 and the amount of natural gas we or our customers buy through the utility’s pipeline. With respect to LNG vehicle fuel use, the LNG vehicle fuel provider is the regulated party under AB 32. As a result, we will incur increased costs to comply with AB 32, and the amount of the increase will be based on how much LNG vehicle fuel we sell that is regulated, CARB’s requirements relating to the regulation of LNG vehicle fuel, any applicable regulatory changes and the cost of any carbon credits we purchase to comply with AB 32. We expect to try to pass the costs we incur to comply with this law through to our LNG customers. To the extent we are not able to pass the increased costs of CNG and LNG vehicle fuel as a result of AB 32 through to our customers, we could experience increased direct expenses and reduced margins.

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 works closely with federal, state and local government agencies to provide education about the value of natural gas as a vehicle fuel and to keep abreast of proposed and newly adopted regulations that affect our industry.

Employees

As of December 31, 2018, we employed 401 people. We have not experienced any work stoppages and none of our employees is subject to collective bargaining agreements. We believe our employee relations are good.

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, 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.

Corporate Information

We were incorporated under the laws of the State of Delaware in 2001. We have completed, and we anticipate continuing to pursue, acquisitions, investments, divestitures, joint ventures and other partnerships as we become aware of opportunities that we believe can increase our competitive advantages, expand our product offerings, take advantage of industry developments and trends, enhance our market position or provide other benefits, including streamlining operations and reducing our costs. Recent significant transactions of this nature include the BP Transaction and the CEC Combination.

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.

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

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

In 2016, 2017 and 2018, we incurred pre-tax losses. During 2016 and 2018 our losses were substantially decreased by $26.6 million and $26.7 million of AFTC revenue, respectively. We may continue to incur losses, the amount of our losses may increase, and we may never achieve or sustain profitability, any of which would adversely affect our business, prospects and financial condition and may cause the price of our common stock to fall. In addition, to try to achieve or sustain profitability, we may 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 natural gas fueling compressor manufacturing business (which we subsequently combined with another company's natural gas fueling compressor manufacturing business in the CEC Combination), our closure of certain fueling stations, our determination that certain assets were impaired as a result of the foregoing, and other actions. Any similar actions in the future could also have adverse consequences, including material negative effects on our financial condition, our results of operations and the trading price of our common stock.

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Our success is dependent on the willingness of fleets and other consumers to adopt natural gas as a vehicle fuel, 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 natural gas as a vehicle fuel. The market for natural gas as a vehicle fuel has experienced slow, volatile and unpredictable growth in many sectors. For example, 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 and more limited than we anticipated. Also, other important fleet markets, including airports, refuse and public transit, have experienced fluctuations in their natural gas adoption, including slower volume and customer growth in 2018 that could continue in future periods. Moreover, adoption of and demand for the different types of natural gas vehicle fuel, including CNG, LNG and RNG (which can be delivered in the form of CNG or LNG), are subject to significant fluctuations, including decreased LNG volumes in some markets in recent periods that may continue in the future and may not be sufficiently offset by any increase in demand for RNG or CNG. If the market for natural gas as a vehicle fuel 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, including a general decline or a decline in one type of natural gas that is not offset by an equal or greater increase in demand for another type of natural gas, our business, prospects, financial condition and operating results would be harmed.

Factors that may influence the adoption of natural gas as a vehicle fuel, many of which are beyond our control, include, among others:

- Increases, decreases or volatility in the supply, demand, use and prices of crude oil, gasoline, diesel, natural gas and other vehicle fuels, such as electricity, hydrogen, renewable diesel, biodiesel and ethanol;
- Perceptions about the benefits of renewable and conventional natural gas relative to gasoline and diesel and other alternative vehicle fuels, including with respect to factors such as supply, cost savings, environmental benefits and safety;
- Natural gas vehicle cost, fuel usage, availability, quality, safety, convenience (to fuel and service), design, performance, and 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 natural gas engines that are well-suited for the vehicles used in our key customer markets, including heavy-duty trucks and other fleets;
- Inertia among fleets and fleet vehicle operators, who may be unable or unwilling to prioritize converting a vehicle fleet to natural gas over an operator’s other general business concerns, particularly if the operator lacks demand for the conversion from its customers or drivers;
- Increasing competition in the market for vehicle fuels generally, and the nature and impact of competitive developments in this market, including improvements in or perceived advantages of non-natural gas vehicle fuels or engines powered by these fuels;
- The availability and effect of environmental, tax or other government regulations, programs or incentives that promote natural gas or other alternatives as a vehicle fuel, including certain programs under which we generate credits by selling conventional and renewable natural gas as a vehicle fuel;
- Adoption of government policies or programs or increased publicity or popular sentiment in favor of vehicles or vehicle fuels other than natural gas, including long-standing support for gasoline and diesel-powered vehicles and growing support for electric and hydrogen-powered vehicles;
- The impact of, or potential for changes to, emissions requirements applicable to vehicles powered by gasoline, diesel, natural gas or other vehicle fuels, as well as emissions and other environmental regulations and pressures on crude oil, fueling stations and drilling, production, importing and transportation methods for these fuels; and
- The other risks discussed in these risk factors.

Our Zero Now heavy-duty truck financing initiative subjects us to material risks, and if this program is not successful, our financial results and business could be materially adversely affected.

One of our key strategic objectives is to fuel more natural gas heavy-duty trucks. As part of our efforts to achieve this goal, we have launched the Zero Now truck financing program, which is intended to facilitate and increase the deployment of natural gas heavy-duty trucks in the United States and encourage these operators to fuel their trucks at our stations. The Zero Now program is unique and complex and subjects us to a variety of risks. See the disclosure under “Customer Markets - Trucking” in Item 1.

Business and the disclosure in Item 9B of this report for information about the structure of the program and certain agreements we have established in connection with its launch.

The Zero Now program may not be successful for a variety of reasons, including continued slow or limited adoption of natural gas trucks by fleet operators, as discussed in these risks factors above, or the occurrence of any of the other risks described in these risk factors. For example, some operators have communicated to us that their primary reluctance to convert to natural gas trucks stems from experience or reputation of unsatisfactory performance by prior models of heavy-duty truck engines, actual or perceived insufficiencies in the financial incentives to convert, lack of demand for the conversion from customers and drivers, and prioritization of other competing business concerns. If a sufficient number of truck operators do not participate in the Zero Now program, then it will not achieve its intended benefits and we will have expended substantial resources on an initiative that does not produce results.

In addition, the structure and terms of the program subject us to certain additional risks. For example, the term credit agreement we have established to implement the program permits us to incur substantial additional debt, and the related credit support agreement obligates us to make regular payments in amounts that will vary depending on the outstanding principal under the term credit agreement. These commitments are subject to, and will amplify, the risks associated with our currently outstanding indebtedness, as discussed in these risk factors. In addition, the amounts owed under the term credit agreement and the credit support agreement use LIBOR as a benchmark for establishing the rate at which interest accrues. LIBOR is the subject of recent national, international and other regulatory guidance and proposals for reform. These reforms and other pressures may cause LIBOR to disappear entirely or to perform differently than in the past. The consequences of these developments are uncertain, but could include an increase in the cost of this indebtedness. Further, the commodity swap arrangements we established with an affiliate of TOTAL and THUSA in connection with launching the program introduce additional risks related to volatility in crude oil prices. These arrangements are designed to protect us from fluctuations in the price of crude oil; however, we may be subject to payment obligations if truck operators participating in the program do not use all of the fuel volume covered by the arrangements, due to insufficient operator participation in the program or failure by these operators to use enough natural gas fuel, unless the excess fuel volume is fully and timely sold to our other customers. Any obligation to make payments under our commodity swap arrangements would increase our operating expenses and decrease our available cash flow, and any efforts to sell additional gallons to our other customers in order to avoid such payment obligations could result in lower margins and revenues.

Moreover, even if the Zero Now program achieves its intended goal of facilitating growth in the U.S. heavy-duty truck market, such growth may not positively affect our results for a variety of reasons. For example, if trucks purchased or financed in the program do not meet the minimum fuel purchase obligations under their supply agreements with us for any reason, including an operator experiencing lower-than-anticipated fuel demand, choosing not to fuel at our stations or failing to comply with its payment obligations under its supply agreement, then the program would not result in the intended growth in our fuel sales volume and consequent increase in our revenues. Although we have built ANGH, our nationwide network of natural gas truck-friendly fueling stations, some operators may choose to fuel their natural gas vehicles elsewhere due to lack of access or convenience, fuel prices or other factors. In that event, we would remain obligated to make payments under the debt agreements we have established in connection with the Zero Now program, which are based on the cost of the trucks purchased or financed in the program and not the amount of fuel volume we actually sell. As a result, we could become subject to significant payments under these debt agreements without a corresponding increase in revenues, in which case our performance and liquidity could be materially adversely affected.

We must effectively manage these risks in order to obtain the anticipated benefits from our Zero Now truck financing program and achieve our objective of fueling additional natural gas heavy-duty trucks. If we are not successful in meeting these objectives, our business, financial condition and operating results would be materially and adversely affected.

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

Gasoline and diesel are today's most prevalent vehicle fuels. Prices for crude oil, which is the commodity used to make gasoline and diesel, have been low in recent years, due in part to over-production and increased supply without a corresponding increase in demand. If the prices of crude oil, gasoline and diesel continue to be low or decline further, or if the price of natural gas increases without corresponding increases in the prices of crude oil, gasoline and diesel, then market adoption of natural gas as a vehicle fuel could be slowed or limited. Further, any of these circumstances could decrease the market's perception of a need for alternative vehicle fuels generally, which could cause the prospects for and success of our industry and our business to materially suffer. In addition, under these pricing conditions, we may not be able to offer our customers an attractive price advantage for CNG and LNG and maintain an acceptable margin on our sales. Any such failure could result in an inability to attract new customers or a loss of demand from existing customers, or could directly and negatively impact our results of operations if we are forced to reduce the prices at which we sell natural gas to try to avoid such an effect. Conversely, if prices of gasoline and diesel increase or the price of natural gas decreases, we may not be able to capture a material portion of any increase in the demand for natural gas vehicle fuel that could result from favorable pricing conditions, due to increased competition from new entrants in the natural gas vehicle fuels market, expanded programs by existing competitors, or other factors.

Pricing conditions may also exacerbate the cost differential between natural gas vehicles and gasoline or diesel-powered vehicles, which may lead operators to delay or refrain from purchasing or converting to natural gas vehicles. Generally, natural gas vehicles cost more initially than gasoline or diesel-powered vehicles, because the components needed for a vehicle to use natural gas add to the vehicle's base cost. Operators then seek to recover the additional base cost over time, through the lower cost to fuel a natural gas vehicle. Operators may, however, perceive an inability to timely recover these additional initial costs if CNG and LNG fuel 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.

Additionally, the prices of natural gas, crude oil, gasoline and diesel have been volatile in recent years, and this volatility may continue. 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. As a result, these fluctuations in natural gas prices can have a significant and adverse effect on our operating results.

Factors that may cause fluctuations in gasoline, diesel and natural gas prices include, among others, changes in supply and availability of crude oil 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 importing techniques and methods, economic and political conditions, transportation costs and the price of foreign imports.

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

Natural gas 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. Although we are dependent on these manufacturers in order to succeed in our target markets, we have no influence over their activities. For example, Cummins Westport is the only natural gas engine manufacturer for the heavy-duty truck market in the United States, and this and other original equipment manufacturers currently produce a relatively small number of natural gas engines and vehicles for the U.S. and Canadian markets. These manufacturers may not decide to expand or maintain, or may decide to discontinue or curtail, their natural gas engine or vehicle product lines. The limited production of natural gas engines and vehicles increases their cost and limits their availability, which restricts their large-scale adoption, and also reduces their resale value, which may contribute to operator reluctance to convert their vehicles to natural gas. In addition, some operators have communicated to us that prior models of the natural gas engines for heavy-duty trucks 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 or not to convert their fleets to natural gas. The success of our business strategies and initiatives depends on sufficient availability and adoption of high-performing natural gas vehicles, and any production failures by the third-party manufacturers of these vehicles and their engines could harm our results of operations, business and prospects.

If there are improvements in or perceived advantages of non-natural gas vehicle fuels or engines powered by these fuels, demand for natural gas vehicles may decline.

Use of electric heavy-duty trucks, buses and refuse trucks, which are key customer markets for our business, or the perception that electric vehicles providing satisfactory performance at an acceptable cost may soon be widely available for these or other applications, could reduce demand for natural gas vehicles generally and in these key markets. In addition, hydrogen, renewable diesel and other alternative fuels in development may prove to be, or may be perceived to be, cleaner, more cost-effective, more readily available or otherwise more beneficial alternatives to gasoline and diesel than conventional or renewable natural gas. Further, technological advances in the production, delivery and use of gasoline, diesel or other alternative vehicle fuels, or the failure of natural gas vehicle fuel technology to advance at an equal pace, could slow or limit adoption of natural gas vehicles. For example, advances in gasoline and diesel engine technology, including efficiency improvements and further development of hybrid engines, may offer a more cost-effective way for operators to use a cleaner vehicle fuel, which could reduce the likelihood that fleet customers convert their vehicles to natural gas.

Our business is influenced by environmental, tax and other government regulations, programs and incentives that promote natural gas or other alternatives as a vehicle fuel, and their adoption, modification or repeal could negatively impact 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 RNG, CNG and LNG as a vehicle fuel. These include the AFTC tax credit under which we have generated revenue for our natural gas vehicle fuel sales made through the end of 2017, but which is not available for vehicle fuel sales made after that date, and various government programs that make grant funds available for the purchase of natural gas vehicles and construction of natural gas fueling stations. 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 RINs and LCFS Credits by selling RNG, CNG and LNG as a vehicle fuel.

These programs and regulations, which have the effect of encouraging the use of RNG, CNG or LNG 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 other than natural gas, including lawmakers, regulators, policymakers, environmental or advocacy organizations or other powerful groups, many of which have substantially greater resources and influence than we have, may invest significant time and money in efforts to delay, repeal or otherwise negatively influence regulations and programs that promote natural gas. Further, changes in federal, state or local political, social or economic conditions could result in the modification or repeal of these programs or regulations. Any failure to adopt, delay in implementing, expiration, repeal or modification of these programs and regulations, or the adoption of any programs and regulations that encourage the use of other alternative fuels or alternative vehicles over natural gas, could harm our operating results 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 of these or similar measures on our business and natural gas vehicle adoption in general remains uncertain, the apparent focus by these groups on zero-emission vehicles over vehicles operating on natural gas could adversely affect the market for natural gas vehicles and our business and prospects.

We face increasing competition from a variety of businesses, 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. We believe the biggest competition for CNG and LNG use as a vehicle fuel is gasoline and diesel because the vast majority of 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. We also face high levels of competition with respect to our other business activities, including our procurement and sale of RNG and our transport and sale of CNG through the virtual natural gas pipelines and interconnects of our subsidiary, NG Advantage.

A number of established businesses are in the market for natural gas 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. If the alternative vehicle fuel market grows in the future, then the number and type of participants in this market and their level of capital and other commitments to alternative vehicle fuel programs could increase. 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.

We expect competition to increase in the vehicle fuels market generally. In addition, if the demand for natural gas vehicle fuel increases, then we expect competition in the market for natural gas vehicle fuel would 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.

We may not generate sufficient cash flow from our business to pay our debt.

We have material indebtedness, and we are permitted to incur significant additional indebtedness under the agreements we established in connection with our Zero Now truck financing program.

Our payments of amounts owed under our various debt instruments and the CSA (as defined in Item 9B of this report) 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. For instance, we are permitted to issue up to 14.0 million shares of our common stock to repay part of the outstanding principal amount of certain of our outstanding convertible notes. Any repayment of our debt with equity, however, would dilute the ownership interests of our existing stockholders. Additionally, because the agreements governing much of our existing indebtedness contain minimal restrictions on our ability to incur additional debt and do not require us to maintain financial ratios or specified levels of net worth or liquidity, we may seek capital from other sources to service our debt, such as selling assets, restructuring or refinancing our existing debt or obtaining additional equity or debt financing. Our ability to engage in any of these activities, if we decide to do so, would depend on the capital markets and the state of our industry, business and financial condition at the time, and could also subject us to significant risks, which are discussed in these risk factors. Moreover, we may not be able to obtain any additional capital we may pursue on desirable terms, at a desirable time or at all. Any failure to pay our debts when due could result in a default on our debt obligations. In addition, certain of our debt agreements contain restrictive covenants, and any failure by us to comply with these covenants could also cause us to be in default under these agreements.

In the event of any default on our debt obligations, the holders of the indebtedness could, among other things, elect to declare all amounts owed immediately due and payable, and for any amounts owed under our term credit agreement that are paid by THUSA pursuant to its guaranty rather than by us, THUSA would be permitted to take direct possession of funds paid by fleet operators under any fuel supply agreements we establish in connection with our Zero Now truck financing program. Any such declaration or possession of funds 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.

Our outstanding and permitted 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.

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

We require capital to make principal and interest payments on our indebtedness, and to pay for capital expenditures, our other operating expenses, and any mergers, acquisitions or strategic investments, transactions or relationships we may pursue. 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, such as our issuance of a substantial number of shares of our common stock to TOTAL in June 2018, 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 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.

Compliance with greenhouse gas emissions regulations that affect our operations may prove costly and negatively affect our performance and financial condition.

California has enacted laws and regulations that require specified greenhouse gas emissions reductions, and the federal government and several other state governments are considering similar measures. These regulations, if and when adopted and implemented, could impact several areas of our operations, including our sales of conventional and renewable natural gas and the operation of our CNG and LNG fueling stations and our LNG production plants. For instance, since 2015 California’s AB 32 law, which regulates greenhouse gas emissions from transportation fuels, including emissions associated with the CNG and LNG vehicle fuel we sell, imposes increased compliance costs on utilities, suppliers and/or users of CNG and LNG fuel. See the discussion under “Government Regulation and

Environmental Matters - Sale of Natural Gas Vehicle Fuel, Operation of Fueling Stations and Production of LNG: Greenhouse Gas Emissions Regulation" in Item 1. Business for information about the implementation of AB 32.
The increased costs of CNG and LNG vehicle fuel as a result of AB 32 could diminish the attractiveness of these fuels for existing and prospective customers in California, which could reduce our customer base and fuel sales in one of our key geographic markets. Additionally, to the extent we are not able to pass these increased costs through to our customers, we could experience increased expenses and reduced margins. Any of these outcomes could cause our performance to suffer, impair our ability to fulfill customer contracts and reduce our cash available for other aspects of our business. Moreover, if similar laws or regulations are

adopted and implemented by other states or by the federal government, or if existing laws are amended to make them more stringent, any compliance costs associated with the new or amended laws could amplify these effects. Further, any such new or more stringent laws or regulations could require us to undertake or incur significant additional capital expenditures or other costs to, among other things, buy emissions or other environmental credits or invest in costly new emissions prevention technologies. 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 contemplated by our existing customer agreements or our budgets and cost estimates.

In addition, any failure by us to comply with existing or any future emissions laws or regulations could result in monetary penalties or a variety of other 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.

Our RNG business may not be successful.

Our RNG business consists of purchasing RNG from third-party producers, including BP, and reselling this RNG through our natural gas fueling infrastructure as Redeem, our RNG vehicle fuel.

The success of our RNG business depends on our ability to secure, on acceptable terms, a sufficient supply of RNG from BP and other third parties; to sell this RNG in adequate volumes and at prices that are attractive to customers and produce acceptable margins for us; and to sell, at favorable prices, credits we may generate under applicable federal or state programs from our sale of RNG as a vehicle fuel, including RINs and LCFS Credits. If we are not successful at one or more of these activities, our RNG business could fail and our performance and financial condition could be materially harmed.

Our ability to maintain an adequate supply of RNG may be subject to risks affecting RNG production. Projects that produce pipeline-quality RNG often experience unpredictable production levels or other difficulties due to a variety of factors, including, among others, problems with equipment, severe weather, construction delays, technological difficulties, high operating costs, limited availability or unfavorable composition of collected feedstock gas, and plant shutdowns caused by upgrades, expansion or required maintenance. In addition, increasing demand for RNG 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. If any of our RNG suppliers experience these or other difficulties in their RNG production processes, or if competition for RNG supply materially 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 RINs and LCFS Credits depends on a number of factors, including the markets for RNG as a vehicle fuel and for these credits. The market for RNG as a vehicle fuel is subject to the same fluctuations and unpredictability that affect the market for natural gas vehicle fuel generally, which is discussed in these risk factors. 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. 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. 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 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. Moreover, in the absence of federal and state programs that support the RNG vehicle fuel market, including allowing the generation and sale of RINs, LCFS Credits or other credits, 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.

NG Advantage may not be successful.

NG Advantage’s business consists of transporting and selling CNG for non-vehicle purposes via virtual natural gas pipelines and interconnects. It transports CNG to industrial and institutional energy users that do not have direct access to natural gas pipelines. NG Advantage also transports CNG between pipelines for customers that desire to take advantage of commodity price differences. NG Advantage faces unique risks, in addition to the other risks discussed in these risk factors:

- It has a history of net losses and has incurred substantial indebtedness;

- NG Advantage will need to raise additional capital, which may not be available or may only be available on onerous terms;

- It has considerable obligations under its arrangements with BP and other customers, and if NG Advantage fails to perform under such arrangements it is subject to significant liquidated damages;

- The labor market for truck drivers in very competitive, which may make it difficult for NG Advantage to meet its delivery obligations;

- NG Advantage often transports CNG in trailers over long distances and the trailers may be involved in accidents or roll-overs; and

- NG Advantage has been targeted by environmental groups who seek to disrupt its activities.

If NG Advantage fails to manage these risks and the other risks described in these risk factors, its business, financial condition, results of operations, prospects and reputation will be harmed.

Our station construction activities subject us to a number of business and operational risks.
As part of our business activities, we design and construct natural gas 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 any further station closures could result in substantial additional costs and non-cash asset impairments or other charges, and could also harm our reputation and reduce our potential customer base.
We also face a number of 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, challenges obtaining and retaining required permits and approvals or local resistance, 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 that are built on these sites. 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 were to 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 RNG, CNG and LNG station construction, maintenance and fuel sale contracts with various government bodies, which accounted for material portions of our revenue in 2016, 2017

and 2018. 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 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. The occurrence of any of these events could have a material adverse effect on our results of operations and financial condition.

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.

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 natural gas vehicles or operation of natural gas vehicle fueling stations could result in sudden releases of pressure, which could cause explosions or other damage, or the venting of potent greenhouse gases, the emission of which is regulated by some state regulatory agencies and may in the future be regulated by federal and/or additional state regulators. These safety and environmental risks could result in uncontrollable flows of natural gas, 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 in excess of policy limits, or if environmental damage causes us to violate applicable greenhouse gas 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 the natural gas vehicle fuel business could harm our industry generally by negatively affecting perceptions about, and adoption levels of, natural gas as a vehicle fuel.

Our business is subject to a variety of government regulations, which may restrict our operations and result in costs and penalties.

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 and have become more stringent over time. Any changes to existing regulations or adoption of new regulations may result in significant additional expense to us or our customers. 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 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 March 2017 we completed the BP Transaction, in December 2017 we completed the CEC Combination, and in October 2018 and January 2019 we established arrangements with THUSA and others to launch the Zero Now truck financing program. 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:

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- Difficulties integrating the operations, personnel, contracts, service providers and technologies of an acquired company or partner;
- Diversion of financial and management resources from existing operations or alternative acquisition, investment, strategic or other opportunities;
- Failure to realize the anticipated synergies or other benefits of a transaction or relationship;

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- Failure to identify all of the operating problems, liabilities, shortcomings or other challenges associated with a company or asset we may partner with, invest in or acquire, including issues related to regulatory compliance practices, revenue recognition or other accounting practices, intellectual property rights, employee, customer or vendor relationships, or differing business strategies, approaches, cultures or goals;
- Risks of entering new customer or geographic markets in which we may have limited or no experience, including, among others, challenges satisfying differing customer demands and preferences and complying with differing laws and regulations, as well as risks related to political and economic instability in some regions, trade restrictions or barriers and currency exchange or repatriation uncertainties;
- 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;
- Risks associated with any joint venture or other collaboration relationship we may pursue, including as a result of our relinquishing of some degree of control over the assets, technologies or businesses that are the subject of the joint venture or collaboration, or as a result of our partners having business goals and interests that are not aligned with ours or being unable or unwilling to fulfill their obligations in the relationship;
- Incurrence of substantial costs or debt or equity dilution in order to fund an acquisition, investment or other transaction or relationship, and any inability to generate sufficient revenue from the transaction or relationship to offset such costs;
- Possible write-offs or impairment charges relating to any businesses we partner with, invest in or acquire; and
- The occurrence of many of the risks described above if we fail to accurately predict trends in our key markets, which could lead us to neglect opportunities that ultimately capitalize on these trends or, conversely, pursue transactions that do not best serve our markets or customers over the long term.

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 natural gas vehicle fuel sales, station construction sales, sales of RINs and LCFS Credits and recognition of government credits, grants and incentives, such as AFTC (for example, we received no AFTC revenue in 2017, and we received all of the AFTC revenue associated with our vehicle fuel sales made in 2017 during the first quarter of 2018); fluctuations in commodity, station construction and labor costs and natural gas prices; variations in the fair value of certain of our derivative instruments that are recorded in revenue; 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 the BP Transaction, but were also negatively affected by significant charges in connection with our closure of certain fueling stations, the decreased operating performance of our former natural gas 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 regularly, 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, and investors in our securities should not rely on the results of any 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 have provided to the public or the estimates and projections of the investment community, which could negatively affect the price of our common stock.

We depend on key people to generate and oversee our strategies and operate our business, and our business could be harmed if we are unable to retain these key people.

We believe our future success is dependent on the contributions of certain key people, including our executive officers and directors. In many cases, we believe these individuals' knowledge of our business and experience in our industry would be difficult to replace. As a result, and due to the high levels of competition for talent in our industry, we may incur significant costs to try to retain these key people. All of our U.S. employees, however, including our management team, are permitted to terminate their employment relationships with us at any time, and any of our directors could resign at any time or fail to be re-elected by our stockholders on an annual basis. If we are unable to retain our key people, or if these individuals leave our Company and we are unable to attract and successfully integrate quality replacements in a timely manner and on reasonable terms, our business, operating results and financial condition could be harmed.

Natural gas purchase and sale commitments may exceed demand or supply, as applicable, which could cause our costs relative to our revenue to increase.

We are a party to one long-term natural gas purchase agreement with a take-or-pay commitment, and we may enter into additional similar contracts in the future. These take-or-pay commitments require us to pay for the natural gas we have agreed to purchase, irrespective of whether we sell the gas. If the market for natural gas as a vehicle fuel declines or fails to develop as we anticipate, if we lose natural gas vehicle fueling customers, or if demand under any existing or future sales contract diminishes, these take-or-pay commitments may exceed our natural gas demand. In addition, we are involved in various firm commitment natural gas supply arrangements, and we may establish additional similar arrangements in the future. These arrangements require us to supply certain volumes of natural gas over specified periods of time, and subject us to deficiency payments or other penalties if we are unable to deliver the committed volumes as and when required. If we fail to generate sufficient demand for our take-or-pay purchase commitments or satisfy our firm supply commitments, our supply costs or operating expenses could increase without a corresponding increase in revenue, which could negatively affect our margins, performance and liquidity.

We provide financing to fleet customers for natural gas vehicles, which exposes our business to credit risks.

We directly lend to certain qualifying customers a portion, and occasionally all, of the purchase price of natural gas vehicles they agree to buy. This direct financing is in addition to our funding of the incremental cost of natural gas heavy-duty trucks purchased or leased in our Zero Now truck financing program, as discussed under “Customer Markets - Trucking” in Item 1. Business. These financing activities involve a number of risks, including general credit risks associated with equipment finance relationships. For example, financed equipment often consists mostly of vehicles, which are mobile and easily damaged, lost or stolen. In addition, the borrower may default on payments, enter bankruptcy proceedings or liquidate. The materialization of any of these risks could harm our vehicle finance business and our operations and liquidity.

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.

Increased global IT security threats and more sophisticated and targeted computer crime pose a risk to our systems, networks, products, and services.

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 cyberattacks 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, and any such measures we have implemented or may implement in the future could be inadequate or could fail, especially because cyberattack techniques are increasingly sophisticated, change frequently and are often not recognized until launched. 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 cyberattack could occur and persist for an extended period of time without detection, and an investigation of any successful cyberattack would likely require significant time, costs and other resources to complete. The occurrence of any of these risks could materially harm our business, reputation and performance.

Global climate change may in the future increase the frequency and severity of weather events and the losses resulting therefrom, which could have a material adverse effect on our business and the markets in which we operate.

Over the past several years, changing weather patterns and climatic conditions, such as global warming, have added to the unpredictability and frequency of natural disasters in certain parts of the world and have created additional uncertainty as to future trends. There is a growing consensus today that climate change increases the frequency and severity of extreme weather events and, in recent years, the frequency of major weather events appears to have increased globally. We cannot predict whether or to what extent natural disasters may occur or increase, nor can we predict the effect such events will have on our operations or the geographic markets in which we operate; however, any increased frequency or severity of these events could increase their overall negative impact on economic conditions in these regions and could also singularly affect our operations if our fueling stations, our LNG plants or our customers' operations are damaged or otherwise subject to limited operations as a result of such an event. The occurrence of any of these risks could negatively affect our business, performance and liquidity, and could also cause the price of our common stock to decline.

Risks Related to Our Common Stock

A significant portion of our common stock is beneficially owned by a single stockholder whose interests may differ from yours and who is able to exert significant influence over our corporate decisions, including a change of control.

Following our issuance and sale of our common stock to TOTAL in June 2018, TOTAL holds approximately 25% of our outstanding shares of common stock and the largest ownership position of our Company. In addition, TOTAL 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. TOTAL or other large stockholders may be able to influence or control matters requiring approval by our stockholders, including the election of directors and mergers, acquisitions or other extraordinary transactions. These stockholders, however, may have interests that differ from yours and may vote or otherwise act in ways with which you 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 you and other stockholders may not find favorable or at a time when you and 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, restricted stock units and convertible notes may be eligible for sale in the public market, to the extent permitted by Rule 144 and the provisions of the applicable stock option, restricted stock unit and convertible note agreements or if such shares have been registered under the Securities Act. 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.

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 factors that may influence the adoption of natural gas as a vehicle fuel, as discussed in these risk factors;
- Our ability to implement our business plans and initiatives and their anticipated, perceived or actual level of success;
- Failure to meet or exceed any financial guidance we have provided or may provide to the public or the estimates and projections of the investment community;
- The market's perception of the success and importance of any of our acquisitions, divestitures, investments or other strategic relationships or transactions;
- Changes in political, regulatory, economic and market conditions;
- Changes to our management, including officer or director departures, replacements or other changes;
- Our issuance of additional shares of our common stock (or securities convertible into or exchangeable for our common stock);
- A change in the trading volume of our common stock; and
- The other risks described in these risk factors.

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, potential impairments to our assets or goodwill or 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 lead to 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 2021.

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.

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.

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 53 holders of record of our common stock as of March 5, 2019. We believe there are approximately 52,588 additional beneficial owners as of such date whose shares of our common stock are held on their behalf by brokerage firms or other agents.

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 on each of these indices on December 31, 2013 (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 as us 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. Selected Financial Data.

The following selected historical consolidated financial data should be read together with Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations and our consolidated financial statements and the related notes included in this report, which describe, among other things, factors that could materially affect the comparability of the data reflected below. Additionally, see Item 1A. Risk Factors and Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations for discussions of material uncertainties that might cause the data reflected below not to be indicative of our future financial condition or results of operations.

The consolidated statements of operations data for the years ended December 31, 2016, 2017 and 2018 and the consolidated balance sheet data as of December 31, 2017 and 2018 are derived from our audited consolidated financial statements included in this report. The consolidated statements of operations data for the years ended December 31, 2014 and 2015 and the consolidated balance sheet data as of December 31, 2014, 2015 and 2016 are derived from our audited consolidated financial statements that are not included in this report.

	Year Ended December 31,				
	2014	2015	2016	2017	2018
	(In thousands, except share data)				
Statement of Operations Data:					
Total revenue [(1)]	$428,940	$384,320	$402,656	$341,599	$346,419
Operating income (loss)	(54,364)	(41,623)	(17,637)	(134,447)	3,895
Net loss	(90,859)	(135,458)	(13,724)	(81,391)	(9,183)
Basic and diluted loss per share	$(0.96)	$(1.47)	$(0.10)	$(0.53)	$(0.02)

(1) Total revenue includes the following amounts:

	Year Ended December 31,				
(In thousands)	2014	2015	2016	2017	2018
Alternative fuels tax credits (AFTC)	$28,359	$30,986	$26,638	$ —	$26,729

	December 31,				
	2014	2015	2016	2017	2018
Balance Sheet Data:					
Cash and cash equivalents and short-term investments	$214,927	$146,668	$109,837	$177,543	95,490
Restricted cash, short-term	6,012	4,240	6,996	1,127	780
Restricted cash, long-term	—	—	—	—	4,000
Working capital	293,428	82,773	172,542	101,597	145,347
Total assets	1,160,409	1,000,528	897,257	791,912	699,082
Total debt inclusive of capital and financing lease obligations [(1)]	570,670	567,150	312,376	260,087	84,184
Total Clean Energy Fuels Corp. stockholders' equity	437,426	302,552	468,865	426,990	507,998

(1) 2016, 2017, and 2018 amounts include debt issuance costs as a deduction from the carrying amount of the related liability.

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.

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 the leading provider of natural gas as an alternative fuel for vehicle fleets in the United States and Canada, based on the number of stations operated and the amount of GGEs of RNG, CNG and LNG delivered.

Our principal business is supplying RNG, CNG and LNG (RNG can be delivered in the form of CNG or LNG) for light, medium and heavy-duty vehicles and providing O&M services for public and private vehicle fleet customer stations. As a comprehensive solution provider, we also design, build, operate and maintain fueling stations; sell and service natural gas fueling compressors and other equipment used in CNG stations and LNG stations; offer assessment, design and modification solutions to provide operators with code-compliant service and maintenance facilities for natural gas vehicle fleets; transport and sell CNG and LNG via "virtual" natural gas pipelines and interconnects; procure and sell RNG; sell tradable credits we generate by selling RNG and conventional natural gas as a vehicle fuel, including RIN Credits and LCFS Credits; help our customers acquire and finance natural gas vehicles; and obtain federal, state and local tax credits, grants and incentives. In addition, before March 31, 2017, we produced RNG at our own production facilities (which we sold, along with certain of our other RNG production assets, in the BP Transaction), and before December 29, 2017, we manufactured natural gas fueling compressors and other equipment used in CNG stations (which we combined with another company's natural gas fueling compressor manufacturing business in a newly formed joint venture, in the CEC Combination).

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 natural gas vehicle fuel for the foreseeable future. As of December 31, 2018, we serve over 1,000 fleet customers operating over 47,000 natural gas vehicles, and we own, operate or supply approximately 530 natural gas fueling stations in 41 states in the United States and four provinces in Canada.

Performance Overview

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

Sources of Revenue

The following table represents our sources of revenue:

	Year Ended December 31,		
Revenue (in millions)	2016	2017	2018
Volume -related [(1)]	$283.9	$264.9	$286.7
Compressor sales [(2)]	27.3	23.5	—
Station construction sales	64.9	51.9	25.5
AFTC [(3)]	26.6	—	26.7
Other [(4)]	—	1.3	7.5
Total	$402.7	$341.6	$346.4

(1) Our volume-related revenue primarily consists of sales of RNG, CNG and LNG fuel, performance of O&M services, and sales of RINs and LCFS Credits in addition to changes in fair value of our derivative instruments. More information about our volume of fuel and O&M services delivered in the periods is included below under "Key Operating Data," and more information about our derivative instruments, which consist of commodity swap and fueling contracts, is included below under "2018-2019 Developments." The following table summarizes our volume-related revenue in the periods:

	Year Ended December 31,		
Revenue (in millions)	2016	2017	2018
Fuel Sales and Performance of O&M Services	$234.9	$240.8	$249.0
Change in Fair Value of Derivative Instruments	—	—	10.3
RIN Credits [(a)]	29.0	21.6	16.4
LCFS Credits [(a)] [(b)]	20.0	2.5	11.0
Total Volume -related Revenue	$283.9	$264.9	$286.7

a. Revenue from sales of RINs and LCFS Credits decreased after the first quarter of 2017 due to the effects of the BP Transaction. See "Key Trends" below for more information.

b.

We recognized no revenue from sales of LCFS Credits during the third and fourth quarters of 2017 because (i) the majority of the LCFS Credits we had generated were sold in the BP Transaction and (ii) we could not sell our remaining LCFS Credits due to temporary restrictions imposed on our credit account pending completion of an ongoing administrative review by CARB, which was completed in November 2017. See "Key Trends" below for more information.

(2) We completed the CEC Combination on December 29, 2017 (see Note 4). As a result, no revenue for compressor sales has been or will be received or recorded after that date.

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(3) Represents the AFTC alternative fuels tax credit, which expired on December 31, 2016, but subsequent to December 31, 2017, was reinstated for vehicle fuel sales made in 2017. See “2018-2019 Developments” below for more information.

(4) Represents sales of used natural gas heavy -duty trucks we purchased in 2017 and 2018.

Key Operating Data

In evaluating our operating performance, our management focuses primarily on: (1) the amount of RNG, CNG and LNG gasoline gallon equivalents delivered (which we define as (i) the volume of gasoline gallon equivalents we sell to our customers as fuel, plus (ii) the volume of gasoline gallon equivalents dispensed at facilities we do not own but where we provide O&M services on a per-gallon or fixed fee basis, plus (iii) our proportionate share of the gasoline gallon equivalents sold as CNG by our joint venture with Mansfield Ventures, LLC called Mansfield Clean Energy Partners, LLC (“MCEP”), plus (iv) for periods before completion of the BP Transaction, our proportionate share (as applicable) of the gasoline gallon equivalents of RNG produced and sold as pipeline quality natural gas by our former RNG production facilities, which we sold in the BP Transaction), (2) our station construction cost of sales, (3) our gross margin (which we define as revenue minus cost of sales), and (4) net loss attributable to us. The following tables present our key operating data for the years ended December 31, 2016, 2017, and 2018:

	Year Ended December 31,		
Gasoline gallon equivalent delivered (in millions)	2016	2017	2018
CNG [1]	259.2	283.4	299.5
LNG	66.8	66.1	66.0
RNG [2]	3.0	1.9	—
Total	329.0	351.4	365.5

	Year Ended December 31,		
Gasoline gallon equivalent delivered (in millions)	2016	2017	2018
O&M services	176.6	199.5	206.1
Fuel [1]	128.5	127.3	133.6
Fuel and O&M services [3]	23.9	24.6	25.8
Total	329.0	351.4	365.5

	Year Ended December 31,		
Other operating data (in millions)	2016	2017	2018
Station construction cost of sales	$57.0	$47.0	$25.1
Gross margin [4] [5] [6]	$147.1	$85.8	$133.5
Net loss attributable to Clean Energy Fuels. Corp [4]	$(12.2)	$(79.2)	$(3.8)

(1) As noted above, amounts include our proportionate share of the GGEs sold as CNG by our joint venture MCEP. GGEs sold by this joint venture were 0.5 million, 0.5 million and 0.5 million for the years ended December 31, 2016, 2017 and 2018, respectively.

(2) Represents RNG sold as non-vehicle fuel. RNG sold as vehicle fuel, is sold under the brand name Redeem™ and is included in this table in the CNG or LNG amounts as applicable based on the form in which it was sold. We sold 58.6 million, 78.5 million and 110.1 million GGEs of Redeem for the years ended December 31, 2016, 2017 and 2018, respectively.

(3) Represents gasoline gallon equivalents at stations where we provide both fuel and O&M services.

(4) Includes the following amounts of AFTC revenue: $26.6 million, $0.0 million and $26.7 million for the years ended December 31, 2016, 2017 and 2018, respectively.

(5) For the year ended December 31, 2017, gross margin includes an inventory valuation provision of $13.2 million. See Note 3 for more information regarding the inventory valuation provision.

(6) For the year ended December 31, 2018, gross margin includes an unrealized gain from the change in fair value of commodity swap contracts of $10.3 million. See Note 8 for more information regarding the commodity swap contracts.

2018-2019 Developments

Zero Now Truck Financing Program. We have launched the Zero Now truck financing program, which is intended to facilitate and increase the deployment of commercially available ultra-low NOx natural gas heavy-duty trucks in the United States and encourage these operators to fuel their trucks at our stations. The Zero Now program is unique and complex, and has involved our entry into various arrangements in order to launch the program, including a term credit agreement for delayed draw loans of up to $100.0 million; a credit support agreement with THUSA, a wholly owned subsidiary of TOTAL, under which THUSA has guaranteed our obligations under the term credit agreement in exchange for a quarterly fee; and commodity swap arrangements with an affiliate of THUSA and TOTAL covering five million diesel gallons of natural gas fuel volume annually from April 2019 through June 2024, which are intended to manage diesel price fluctuation risks related to the natural gas fuel supply commitments we expect to make in our anticipated fueling agreements with fleet operators that participate in the Zero Now program. See the disclosure under “Customer Markets-Trucking” in Item 1. Business and the disclosure in Item 9B of this report for information about these agreements and the structure of the program.

Debt Repurchase. In December 2018, we purchased from the holders thereof all outstanding 7.5% Convertible Notes due July 2019, having an aggregate outstanding principal amount of $50.0 million, for a cash purchase price of $50.5 million. Upon such purchase, all such notes were surrendered and canceled in full and we have no further obligations under these notes. As a result of the early retirement of these notes we expect to save $1.7 million in interest expense in 2019. See Note 13 for more information about our outstanding debt.

Expanded BP RNG Supply Agreement. In October 2018, our supply agreement with BP was amended to extend the term and add additional RNG supply. We share with BP in the RINs and LCFS Credits generated from the increased RNG supply sold through our vehicle fueling infrastructure and to other customers.

Full Cash Repayment of 5.25% Notes. On October 1, 2018, we paid to the holders of our 5.25% Convertible Senior Notes due October 2018, in cash, all amounts then owed under the notes, totaling an aggregate of $110.5 million in principal amount plus $2.9 million in accrued and unpaid interest. Upon such payment, all such notes were surrendered and canceled in full and we have no further obligations under these notes. See Note 13 for more information about this debt repayment.

Total Private Placement. On May 9, 2018, we entered into a stock purchase agreement with Total Marketing Services, S.A. (“Total”), a wholly owned subsidiary of TOTAL, for the sale and issuance to Total of up to 50,856,296 shares of our common stock for a per share purchase price of $1.64 and an aggregate purchase price of $83.4 million, all in a private placement (the “Total Private Placement”). The Total Private Placement closed on June 13, 2018, upon the satisfaction of all conditions to closing. We have used, and expect to continue to use, the net proceeds from the Total Private Placement for working capital and general corporate purposes, which may include executing our business plans, pursuing opportunities for further growth, and retiring a portion of our outstanding indebtedness.

The agreements related to the Total Private Placement also contain representations, warranties and covenants made by us and Total regarding, among other matters, certain director designation rights we have granted to Total (along with undertakings by certain of our stockholders, including all of our directors and executive officers, to vote their shares in favor of such director designees in future elections of directors), certain registration rights we have granted to Total for the shares that were issued and sold, certain limitations on Total’s purchase of additional securities of our Company without the approval of our board of directors, and various other matters that are customary for transactions of this nature.

AFTC. The AFTC, which had previously expired on December 31, 2016, was reinstated on February 9, 2018 to apply to vehicle fuel sales made from January 1, 2017 through December 31, 2017. As a result, all AFTC revenue for vehicle fuel we sold in the 2017 calendar year, which totaled $25.2 million, was recognized and collected during the year ended December 31, 2018. The AFTC credit for 2017 was equal to $0.50 per gasoline gallon equivalent of CNG that we sold as vehicle fuel, and $0.50 per diesel gallon of LNG that we sold as vehicle fuel. In addition, during the year ended December 31, 2018, the Internal Revenue Service approved, and we recognized as revenue, $1.5 million of AFTC credit claims related to prior years. AFTC is not currently available, and may not be reinstated, for vehicle fuel sales made after December 31, 2017.

Debt Level and Debt Compliance

As of December 31, 2018, we had total indebtedness of $84.4 million in principal amount, of which approximately $5.5 million is expected to become due in 2019. Certain of the agreements governing our outstanding debt, which are discussed in Note 13, have certain non-financial covenants with which we must comply. As of December 31, 2018, we were in compliance with all of these covenants.

Business Risks and Uncertainties

Our business and prospects are exposed to numerous risks and uncertainties. See “Item 1A. Risk Factors” of this report for more information.

Key Trends

Market for Natural Gas as a Vehicle Fuel

CNG and LNG are generally less expensive than gasoline and diesel on an energy equivalent basis. Additionally, according to studies conducted by CARB and the Argonne National Laboratory, CNG and LNG are cleaner than gasoline and diesel fuel based on the greenhouse gas emissions produced by vehicles operated by these fuels. According to the U.S. Energy Information Administration, demand for natural gas fuels in the United States has increased in recent years and is expected to continue to increase. We believe this historical and expected future growth in demand is attributable primarily to the higher prices of gasoline and diesel relative to CNG and LNG, the increasingly stringent environmental regulations affecting vehicle fleets and the plentiful and domestic supply of natural gas.

The market for natural gas as a vehicle fuel, however, is a relatively new and developing market. As a result, it is challenging to accurately predict natural gas vehicle fuel demand, 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 natural gas vehicles fuel market has led to slow, volatile or unpredictable growth in many sectors. For example, to date, adoption and deployment of natural gas vehicles, in general and in certain of our key customer markets, including heavy-duty trucking, have been slower and more limited than we anticipated. Also, other important markets, including airports, refuse and public transit, have experienced fluctuations in their natural gas adoption, including slower volume and customer growth in 2018 that could continue in future periods. Moreover, adoption of and demand for the different types of natural gas vehicle fuel, including RNG, CNG and LNG, are subject to significant fluctuations, including decreased LNG volumes in some markets in recent periods that may continue in the future and may not be sufficiently offset by any increase in demand for RNG or CNG. We believe these market conditions have contributed to our lower revenue levels in recent periods.

We believe the slow growth and unpredictability of the market for natural gas vehicle fuels has been caused by a number of factors, including the following:

- Since approximately mid-2014, the prices of oil, gasoline, diesel and natural gas have been lower and more volatile, and these trends may continue. We believe these conditions have contributed to slower and more limited growth in the demand for natural gas as a vehicle fuel because the price advantage of natural gas compared to diesel and gasoline has decreased, and we expect adoption of natural gas as a vehicle fuel and growth in our customer base and revenue will continue to be negatively affected while oil and diesel prices remain low. In addition, these pricing conditions have led us to reduce the prices we charge some of our customers for CNG and LNG, which has reduced our profit margins.
- In recent years, 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, 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. Further, there is continued and long-standing support among many of these groups for gasoline and diesel-powered vehicles. If these groups continue to invest time and money in efforts to promote non-natural gas fuels or suppress support for natural gas, then publicity or popular sentiment for non-natural gas vehicle fuels could increase in our key customer markets, which could decrease the growth potential for natural gas as a vehicle fuel, and government policies and programs in favor of non-natural gas vehicle fuels could be adopted in place of existing or new programs that promote natural gas, which could reduce the benefits we receive from these programs.
- We believe the lack of substantial growth in the heavy-duty trucking market has been driven in large part by factors outside of our control. For instance, some heavy-duty truck operators have communicated to us that their primary reluctance to convert to natural gas trucks stems from experience or reputation of unsatisfactory performance by prior models of heavy-duty truck engines, actual or perceived insufficiencies in the financial incentives to convert, lack of demand for the conversion from customers and drivers, prioritization of other competing business concerns and improvements in diesel engine technology. If these conditions continue, then the growth levels in this market will

continue to be low. Although we have launched our Zero Now truck financing program in an effort to combat certain of these operator concerns, this program may not be successful for a variety of reasons, in which case our volumes and revenue would not increase. Moreover, the structure of the program, which involves increasing our debt by potentially material amounts, paying certain interest and other fees (which will vary in amount but will be owed by us regardless of the level of success of the program), and possibly owing amounts under the commodity swap arrangements we established in connection with the program, could negatively affect our liquidity.

To the extent these or other factors have contributed to curtailed demand or slowed growth in the market for natural gas as a vehicle fuel, we believe they have also contributed to decreases in compressor sales (before the CEC Combination) and station construction activity in certain periods, as the success of these activities is dependent on the success of the natural gas vehicle fuels market generally. Moreover, we believe these factors have materially contributed to the volatility and overall decline 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, public transit, industrial and institutional energy users and government fleets, are well-suited for the adoption of natural gas vehicle fuel 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 greenhouse gas emissions associated with our Redeem vehicle fuel will result in increased demand for this fuel, resulting in our continued delivery of increasing volumes of Redeem 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 dirty diesel vehicles. If these projections materialize, we believe there will be growth in the consumption of natural gas as a vehicle fuel 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 revenue, compressor and other equipment sales (before the CEC Combination), station construction sales, and AFTC revenue. Our revenue can vary between periods due to a variety of factors, including, among others, the amount and timing of natural gas vehicle fuel sales, station construction sales, sales of RINs and LCFS Credits, compressor and other equipment sales (before the CEC Combination), and recognition of government credits, grants and incentives, such as AFTC. In addition, our volume-related revenue may be subject to increased fluctuations after we entered into certain commodity swap arrangements in October 2018, because the changes in fair value of these and certain other derivative instruments, including anticipated fueling contracts under our Zero Now truck financing program, are included in volume-related revenue.

Our cost of sales can also vary between periods due to a variety of factors, including fluctuations in commodity, station construction and labor costs, natural gas prices and compressor equipment costs (before the CEC Combination), 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. For example, our results for 2016 and 2017 were positively affected by gains related to repurchases and retirements of our outstanding convertible debt at a discount, and our results for 2017 were also positively affected by a gain related to the BP Transaction, but our results for 2017 were negatively affected by significant charges in connection with our closure of certain fueling stations, the decreased operating performance of our former natural gas 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 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.

In the third and fourth quarters of 2017, we took actions we believe will better align our activities and assets with current and anticipated market demand. These actions included a workforce reduction and other measures to reduce overhead costs, which resulted in cash severance costs and certain non-cash stock-based compensation charges; our decision to close certain of our natural gas fueling stations by the end of 2017, which resulted in an impairment of these station assets and certain other cash and non-cash charges; our determination that the assets of CEC, our former subsidiary, were impaired, which resulted in a non-cash charge; and our contribution of CEC to a newly formed joint venture in the CEC Combination. These actions affected our performance in 2017 as a result of the cash expenses and non-cash impairment and other charges, which could be repeated if we decide to implement similar measures in the future but may otherwise limit the comparability of our 2017 results. In addition, these actions will affect our future performance and financial condition. For instance, our fueling station closures and the CEC Combination have decreased our aggregate revenue and cost levels, and we expect these lower levels to continue. In addition, our workforce reduction and other measures to reduce overhead costs have contributed to decreased expenses, particularly selling, general and administrative expenses, and we expect these lower expense levels will also continue. These actions also led us to record asset impairment and other cash and non-cash charges in 2017, and we may determine to record this type of asset or goodwill impairment in future periods due to similar or other events or factors. For example, a sustained decline in our stock price and the resulting decline of our market capitalization or periods of general volatility in our market capitalization, as we have experienced in recent periods, could cause our goodwill to become impaired, which could result in material charges and adversely affect our results of operations.

See "Results of Operations" below for more information about our performance in 2016, 2017 and 2018.

Volume. The amount of RNG, CNG and LNG we delivered increased by 11.1% from 2016 to 2018.

In particular, the amount of RNG we sell for vehicle fuel, which is delivered in the form of CNG or LNG and is distributed under the brand name Redeem, has experienced rapid growth in recent years, increasing by 87.9% from 2016 to 2018. We believe this demand for Redeem is largely attributable to the lower greenhouse gas emissions that it produces relative to gasoline and diesel fuel. To the extent demand for RNG continues to increase, we expect our recently expanded supply agreement with BP, discussed under "2018-2019 Developments" above, could increase our volume-related 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.

RINs and LCFS 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.

Although we continue to record revenue from sales of RINs and LCFS Credits generated from our continued sales of Redeem RNG vehicle fuel and CNG and LNG, the amount of revenue we receive from sales of these credits decreased in 2017 and 2018 compared to 2016 as a result of our sale of our former RNG production facilities and other related assets in the BP Transaction. This decrease has adversely affected our results of operations, in particular our volume-related revenue, and reduced our effective price per gallon (discussed under "Results of Operations" below). In addition, we recognized no revenue from sales of LCFS Credits during the third and fourth quarters of 2017 because CARB had restricted our ability to sell and transfer LCFS Credits pending completion of an administrative review. We were, however, required to settle preexisting contractual obligations to transfer LCFS Credits to third parties by making cash payments totaling $7.0 million, the equivalent value of the LCFS Credits we would have otherwise transferred to satisfy our obligations. In November 2017, CARB invalidated certain LCFS Credits we had generated in prior periods and released the restriction on our ability to sell and transfer LCFS Credits.

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. 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. 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 natural gas 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 may increase above the natural gas 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 natural gas hedging policy pursuant to which we only 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 natural gas 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 the our Zero Now truck financing program, we executed two commodity swap contracts with Total Gas & Power North America, an affiliate of TOTAL 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 expect to make in our anticipated fueling agreements with fleet operators that participate in the Zero Now program.

Critical Accounting Policies

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 (“US GAAP”). The preparation of consolidated financial statements in conformity with US 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. In order 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 revenue primarily consists of sales of RNG, CNG and LNG fuel, O&M services and RINs and LCFS Credits in addition to changes in fair value of our derivative instruments.

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

We recognize fuel and O&M services revenue in the amount to which we have the right to invoice. We have a right to consideration based on the amount of gasoline gallon equivalents of natural gas dispensed by the customer and current pricing conditions, which are typically billed to the customer 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.

Changes in fair value of derivative instruments relates to our commodity swap and customer fueling contracts. 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 anticipated customer fueling contracts under our Zero Now truck financing program.

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 revenue over time as we perform under our 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 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 is 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.

Impairment of Goodwill and Long-Lived Assets

Goodwill represents the excess of costs incurred over the fair value of the net assets of acquired businesses. We assess our goodwill using either a qualitative or quantitative approach to determine whether it is more likely than not that the fair value of our reporting unit is less than its carrying value. We are 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. We determined that we are a single reporting unit for the purpose of goodwill impairment tests. We perform the impairment test annually on October 1, or more frequently if facts and circumstances warrant a review.

The qualitative goodwill assessment includes the 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. If the recent negative volatility of our market capitalization is sustained, we may perform impairment tests more frequently and it is possible that our goodwill could become impaired, which could result in a material charge and adversely affect our results of operations.

We review the carrying value of our 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.

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.

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 to be sustained 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 assets disposed and liabilities extinguished related to business divestitures and impairment of long-lived assets, as well as the valuation of commodity swaps and warrants, all of which requires significant judgment.

Recently Adopted Accounting Changes and Recently Issued and Adopted Accounting Standards.

See Note 1 for information about recently adopted accounting changes and recently issued accounting standards, including our expected adoption in the first quarter of 2019 of ASU 2016-02 related to leases, which will require most leases to be recognized on the balance sheet which will increase the reported assets and liabilities.

Results of Operations

The discussions below compare our results of operations in 2018, 2017 and 2016. Historical results are not indicative of the results to be expected in the current period or any future period.

2018 Compared to 2017

The table below presents, for each period, each line item of our statement of operations data 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, 2017	Year Ended December 31, 2018
Statement of Operations Data:		
Revenue:		
Product revenue	84.1 %	88.9 %
Service revenue	15.9	11.1
Total revenue	100.0	100.0
Operating expenses:		
Cost of sales (exclusive of depreciation and amortization shown separately below):		
Product cost of sales	63.4	56.1
Service cost of sales	7.7	5.3
Inventory valuation provision	3.9	—
Change in fair value of derivative warrants	0.0	0.2
Selling, general and administrative	28.0	22.3
Depreciation and amortization	16.6	15.0
Asset impairments and other charges	19.9	—
Total operating expenses	139.5	98.9
Operating income (loss)	(39.5)	1.1
Interest expense	(5.2)	(4.6)
Interest income	0.4	0.8
Other income (expense), net	0.0	(0.2)
Loss from equity method investments	0.0	(0.8)
Gain from extinguishment of debt, net	0.9	—
Gain from sale of certain assets of subsidiary	20.7	1.4
Loss from formation of equity method investment	(1.9)	(0.3)
Loss before income taxes	(24.6)	(2.6)
Income tax benefit (expense)	0.6	(0.1)
Net loss	(24.0)	(2.7)
Loss from noncontrolling interest	0.6	1.6
Net loss attributable to Clean Energy Fuels Corp.	(23.4)%	(1.1)%

Revenue. Revenue increased by $4.8 million to $346.4 million for 2018, from $341.6 million for 2017. This increase was primarily due to the addition of AFTC revenue and the change in fair value of our commodity swap contracts entered into in connection with our Zero Now truck financing program, as well as revenue from higher volumes. These increases was partially offset by the absence of compressor revenue and lower station construction sales.

Volume -related revenue increased by $21.8 million between periods, attributable in part to an increase in gallons delivered due to growth in CNG volume partially offset by a decrease in LNG volume resulting from the non-renewal of two contracts and a decrease in RNG volume for non-vehicle fuel that were included in contracts sold in the BP Transaction. The increase in volume -related revenue was also attributable to increased revenue from sales of LCFS Credits because we temporarily stopped selling these credits in certain periods in 2017 due to restrictions imposed on our LCFS Credit account (see “Key Trends” for more information), and a $10.3 million unrealized gain from the change in fair value of our commodity swap contracts entered into in 2018 in order to implement our Zero Now program (see Note 8 for more information).

Our effective price per gallon charged was $0.76 for 2018 and 2017, excluding the $10.3 million change in fair value of derivative instruments discussed above. Our effective price per gallon is defined as revenue generated from selling RNG, CNG, LNG, and any related RINs and LCFS Credits and providing O&M services to our vehicle fleet customers at stations we do not own and for which we receive a per-gallon or fixed fee, all divided by the total GGEs delivered less GGEs delivered by non-consolidated entities, such as entities that are accounted for under the equity method.

Station construction sales decreased by $26.4 million between periods, principally due to fewer full station and station upgrade projects in process.

Compressor revenue decreased by $23.5 million between periods due to completion of the CEC Combination in December 2017 (see Note 4).

AFTC revenue increased by $26.7 million between periods due to the absence of AFTC in 2017 and our recognition in 2018 of AFTC revenue for all of the vehicle fuel we sold in 2017.

Cost of sales. Cost of sales decreased by $42.9 million to $212.9 million for 2018, from $255.8 million for 2017. This decrease was primarily due to a $27.2 million decrease in compressor manufacturing costs due to completion of the CEC Combination in December 2017 (see Note 4), a $21.9 million decrease in station construction costs due to lower station construction sales, and a $13.2 million inventory valuation provision recorded in 2017 (see Note 3 for more information). This decrease was partially offset by an $8.0 million increase in gas commodity costs due to the increase in gallons delivered and a $7.0 million increase in costs to purchase used heavy -duty trucks that we sold to our customers.

Our effective cost per gallon was $0.49 per gallon for 2018 and 2017. Our effective cost per gallon is defined as the total costs associated with delivering natural gas, including gas commodity costs, transportation fees, liquefaction charges, and other site operating costs, plus the total cost of providing O&M services at stations that we do not own and for which we receive a per-gallon or fixed fee, including direct technician labor, indirect supervisor and management labor, repair parts and other direct maintenance costs, all divided by the total GGEs delivered less GGEs delivered by non-consolidated entities, such as entities that are accounted for under the equity method.

Change in fair value of derivative warrants. Change in fair value of derivative warrants, all of which have been issued by our subsidiary, NG Advantage, increased to $0.5 million of expense in 2018, from an immaterial amount of income in 2017, primarily due to the majority of the warrants being in-the-money during 2018.

Selling, general and administrative. Selling, general and administrative expenses decreased by $18.5 million to $77.2 million for 2018, from $95.7 million for 2017. This decrease was primarily driven by continued cost reduction efforts and reduced administrative costs due to completion of the BP Transaction and the CEC Combination in 2017 (see Note 4).

Depreciation and amortization. Depreciation and amortization decreased by $4.7 million to $51.9 million for 2018, from $56.6 million for 2017, primarily due to the sale of our two former RNG production facilities in the BP Transaction in 2017, in addition to asset impairments related to our station closures and former compressor manufacturing business recorded during the third quarter of 2017.

Asset impairments and other charges. During 2017, we recorded asset impairments and other cash and non-cash charges totaling $67.9 million related to our station closures, our former compressor manufacturing business, our workforce reduction and other steps taken to reduce overhead costs, and certain payments we made as a result of temporary restrictions imposed on our LCFS Credit account. See Note 3 for more information. We recorded no comparable charge in 2018.

Interest expense. Interest expense decreased by $1.8 million to $15.9 million for 2018, from $17.8 million for 2017. This decrease was primarily due to a reduction of outstanding indebtedness between periods.

Other income (expense), net. Other income (expense), net, decreased by $0.7 million, to $(0.6) million for 2018, from $0.1 million for 2017, primarily due to an increase in losses on disposal of assets.

Loss from equity method investments. Loss from equity method investments increased by $2.6 million between periods, which was attributable to completion of the CEC Combination in December 2017.

Gain from extinguishment of debt, net. In 2017, we recorded a gain of $3.2 million related to the extinguishment of debt. We recorded no comparable gain in 2018.

Gain from sale of certain assets of subsidiary. In 2018, we recorded a gain of $4.8 million as a result of the satisfaction of certain performance criteria related to the assets sold in the BP Transaction. In 2017, we recorded a gain of $70.7 million due to completion of the BP Transaction. See Note 4 for more information.

Loss from formation of equity method investment. In 2018, we recorded a loss of $1.2 million related to costs incurred in satisfaction of commitments made in connection with the CEC Combination, compared to a loss of $6.5 million in 2017 due to completion of the CEC Combination.

Income tax benefit (expense). Income tax benefit (expense) decreased by $2.2 million to $(0.3) million for 2018, from $1.9 million for 2017. The change was primarily due to a decrease in the deferred tax benefit due to completion of the reduction of goodwill amortization following the BP Transaction.

Loss from noncontrolling interest. In 2018, we recorded a $5.4 million loss for the noncontrolling interest in the net loss of NG Advantage, compared to a $2.2 million loss for 2017. The noncontrolling interest in NG Advantage represents a 46.7% and 37.0% minority interest that was held by third parties during 2017 and 2018, respectively.

2017 Compared to 2016

The table below presents, for each period, each line item of our statement of operations data 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,	
	2016	2017
Statement of Operations Data:		
Revenue:		
Product revenues	87.2 %	84.1 %
Service revenues	12.8	15.9
Total revenues	100.0	100.0
Operating expenses:		
Cost of sales (exclusive of depreciation and amortization shown separately below):		
Product cost of sales	57.1	63.4
Service cost of sales	6.4	7.7
Inventory valuation provision	—	3.9
Change in fair value of derivative warrants	0.0	0.0
Selling, general and administrative	26.2	28.0
Depreciation and amortization	14.7	16.6
Asset impairments and other charges	—	19.9
Total operating expenses	104.4	139.5
Operating loss	(4.4)	(39.5)
Interest expense	(7.3)	(5.2)
Interest income	0.2	0.4
Other income (expense), net	(0.1)	0.0
Loss from equity method investments	0.0	0.0
Gain from extinguishment of debt, net	8.5	0.9
Gain from sale of certain assets of subsidiary	—	20.7
Loss from formation of equity method investment	—	(1.9)
Loss before income taxes	(3.1)	(24.6)
Income tax benefit (expense)	(0.3)	0.6
Net loss	(3.4)	(24.0)
Loss from noncontrolling interest	0.4	0.6
Net loss attributable to Clean Energy Fuels Corp.	(3.0)%	(23.4)%

Revenue. Revenue decreased by $61.1 million to $341.6 million for 2017, from $402.7 million for 2016. This decrease was primarily due to the absence of AFTC revenue recorded in 2017, as well as lower volume -related revenue, compressor revenue and station construction sales.

Volume -related revenue decreased by $19.0 million between periods primarily due to reduced revenue received from sales of RINs and LCFS Credits due in large part to the effects of the BP Transaction (see Note 3 for more information) as well as the restrictions imposed on our LCFS Credit account by CARB (see “Key Trends” for more information). The decrease in volume -related revenue between periods was partially offset by an increase of 22.4 million gallons delivered.

Our effective price per gallon charged was $0.76 for 2017, a $0.10 per gallon decrease from $0.86 per gallon for 2016. The decrease in our effective price per gallon between periods was primarily due to lower revenue from sales of RINs and LCFS Credits.

Station construction sales decreased by $13.0 million between periods, principally due to fewer large, full -station projects and station upgrade projects.

Compressor revenue decreased by $3.8 million between periods due to lower compressor sales, which we believe was primarily due to continued low global demand.

AFTC revenue decreased by $26.6 million between periods due to the absence of AFTC revenue recorded in 2017.

Cost of sales. Cost of sales increased by $0.2 million to $255.8 million for 2017, from $255.6 million for 2016. This increase was primarily due to a $13.2 million inventory valuation provision recorded in 2017, comprised of $7.8 million related to station construction inventory and $5.4 million related to compressor inventory (see Note 3 for more information). This increase was partially offset by a $10.0 million decrease in station construction costs due to lower station construction sales, and a $1.4 million decrease in compressor costs due to lower compressor sales.

Our effective cost per gallon decreased by $0.03 per gallon between periods, to $0.49 per gallon for 2017 from $0.52 for 2016, excluding the $7.8 million inventory valuation provision discussed above. The decrease in our effective cost per gallon was primarily due to the sale of our two former RNG production facilities in the BP Transaction, resulting in no cost of sales to operate these facilities in the last nine months of 2017.

Selling, general and administrative. Selling, general and administrative expenses decreased by $9.8 million to $95.7 million for 2017, from $105.5 million for 2016. This decrease was primarily driven by continued cost reduction efforts and reduced administrative costs due to completion of the BP Transaction in 2017.

Depreciation and amortization. Depreciation and amortization decreased by $2.7 million to $56.6 million for 2017, from $59.3 million for 2016, primarily due to the sale of our two former RNG production facilities in the BP Transaction.

Asset impairments and other charges. During 2017, we recorded asset impairments and other cash and non-cash charges totaling $67.9 million related to our station closures, our former compressor manufacturing business, our workforce reduction and other steps taken to reduce overhead costs, and certain payments we made as a result of temporary restrictions imposed on our LCFS Credit account. See Note 3 for more information. We recorded no comparable charges in 2016.

Interest expense. Interest expense decreased by $11.8 million to $17.8 million for 2017, from $29.6 million for 2016. This decrease was primarily due to a reduction of outstanding indebtedness between periods.

Other income (expense), net. Other income (expense), net, increased by $0.4 million, to $0.1 million for 2017, from $(0.3) million for 2016. This increase was primarily due to a $0.7 million decrease in losses from asset disposals, partially offset by a $0.4 million increase in the loss from foreign currency transactions not in our subsidiaries' functional currency.

Gain from extinguishment of debt, net. Gain from extinguishment of debt, net decreased by $31.1 million to $3.2 million for 2017, from $34.3 million for 2016. This decrease was primarily due to our repurchase of a lower principal amount of debt at higher prices in 2017 compared to 2016.

Gain from sale of certain assets of subsidiary. In 2017, we recorded a gain of $70.7 million related to completion of the BP Transaction. We recorded no comparable gain in 2016.

Loss from formation of equity method investment. In 2017, we recorded a loss of $6.5 million related to completion of the CEC Combination. There was no comparable transaction in 2016.

Income tax benefit (expense). Income tax benefit increased by $3.2 million to $1.9 million for 2017, from $(1.3) million for 2016. The increase in income tax benefit was primarily due to the deferred tax benefit attributable to the reduction of goodwill amortization following the BP Transaction.

Loss from noncontrolling interest. In 2017, we recorded a $2.2 million loss for the noncontrolling interest in the net loss of NG Advantage, compared to a $1.6 million loss for 2016. The noncontrolling interest in NG Advantage represents a 46.7% minority interest that was held by third parties during 2016 and 2017.

Seasonality and Inflation

To some extent, we experience seasonality in our results of operations. Some of our customers tend to consume more natural gas vehicle fuel in the summer months, when buses and other fleet vehicles use more fuel to power their air conditioning systems. 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 increase 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, which could be influenced by the potential phasing out of LIBOR for certain of our debt instruments that tie interest rates to this metric; the amount and timing of any 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 the amount and timing of our billing, collections and liability payments and the other factors that impact our operating results, as discussed under “Key Trends-Our Performance” above.

Cash Flows

Operating Activities. Cash provided by operating activities was $38.0 million in 2018, compared to $4.3 million used in operating activities in 2017. The increase in cash provided by operating activities was primarily attributable to the AFTC revenue collected in June 2018, in addition to changes in working capital resulting from the timing of receipts and payments of cash.

Cash used in operating activities was $4.3 million in 2017, compared to $46.3 million provided by operating activities in 2016. The increase in cash used in operating activities was primarily due to a reduction in operating results resulting from the absence of AFTC collected during 2017 and decreased sales of RINs and LCFS Credits, as well as our payment of one-time transaction fees related to the BP Transaction and CEC Combination. These operating outflows were partially offset by payments received by NG Advantage related to an arrangement with BP as one of its customers.

Investing Activities. Cash provided by investing activities was $54.4 million in 2018, compared to $40.7 million in 2017. Cash provided by investing activities for 2018 consisted primarily of maturities and sales of short-term investments, net of purchases. Cash provided by investing activities for 2017 consisted primarily of cash received upon completion of the BP Transaction, partially offset by purchases of short-term investments, net of maturities and sales. The increase in cash provided by investing activities was also attributable to a decrease in purchases of property and equipment between periods.

Cash provided by investing activities was $40.7 million in 2017, compared to $3.7 million in 2016. The increase in cash provided by investing activities was primarily attributable to cash received, net of cash transferred, in connection with the BP Transaction (see Note 4 for more information). These investing cash inflows were partially offset by incremental purchases of short-term investments, net of maturities, and an increase in purchases of equipment, primarily related to deposits by NG Advantage for CNG trailers and equipment.

Financing Activities. Cash used in financing activities was $95.2 million in 2018, compared to $43.2 million in 2017. Cash used in financing activities for the for year ended December 31, 2018 consisted primarily of our repayment of debt instruments and capital lease obligations, partially offset by cash proceeds, net of fees, from our issuance of stock in the Total Private Placement. Cash used in financing activities for the year ended December 31, 2017 consisted primarily of our repayment of borrowings under a revolving line of credit and our repayment of capital lease obligations and debt instruments, partially offset by cash proceeds from our issuance of stock in the ATM Program, as discussed below. The increase in cash used in financing activities was primarily due to larger debt repayments between periods.

Cash used in financing activities was $43.2 million in 2017, compared to $55.7 million in 2016. The decrease in cash used in financing activities was primarily due to a decrease in cash used in debt repurchases, net of borrowings, partially offset by a decrease in cash provided by the ATM Program, net of fees, which was terminated in May 2017, and payments in 2017 of a portion of the cash consideration we received for the sale of assets in the BP Transaction to former equity holders of our subsidiary whose assets were sold.

Capital Expenditures 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; debt repayments and repurchases; purchases of CNG tanker trailers and natural gas heavy-duty trucks; maintenance 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 natural gas vehicles for our customers; any investments in other entities; any mergers or acquisitions; 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 $18.5 million in capital expenditures in 2019. These capital expenditures primarily relate to the construction of CNG fueling stations, IT software and equipment and LNG plant maintenance costs.

In addition, NG Advantage may spend as much as $28.0 million to purchase additional CNG trailers and equipment in support of its operations and customer contracts; NG Advantage intends to seek financing from third parties for these capital expenditures.

We had total indebtedness of approximately $84.4 million in principal amount as of December 31, 2018, of which approximately $5.5 million, $55.3 million, $4.8 million, $4.6 million, $2.5 million and $4.7 million is expected to become due in 2019, 2020, 2021, 2022, 2023 and thereafter, respectively. We expect our total interest payment obligations relating to our indebtedness to be approximately $6.1 million for the year ending December 31, 2019. In addition, in connection with implementing our Zero Now truck financing program, we have entered into agreements that permit us to incur a material amount of additional debt on a delayed draw basis and obligate us to make interest and other fee payments that vary in amount based on the outstanding principal of this debt and certain other factors; none of this potential debt nor the related interest and other payments are included in the foregoing estimates. As of December 31, 2018, we are permitted to issue up to 14.0 million shares of common stock to repay a portion of the principal amount of our outstanding convertible notes. 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 pursue alternatives, such as refinancing or debt or equity offerings, to increase our cash management flexibility.

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.

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 addition, our revolving credit facility with PlainsCapital Bank (“Plains”), as described below, provides us with an additional source of cash that we could use for general corporate and a variety of other purposes. As of December 31, 2018, we had total cash and cash equivalents and short-term investments of $95.5 million, compared to $177.5 million as of December 31, 2017.

We expect cash provided by our operating activities to fluctuate depending on our operating results, which can be affected by the amount and timing of natural gas vehicle fuel sales, station construction sales, sales of RINs and LCFS Credits and recognition of government credits, grants and incentives, such as AFTC; fluctuations in commodity, station construction and labor costs and natural gas prices; and the amount and timing of our billing, collections and liability payments, as well as the other factors described in this MD&A and Item 1A. Risk Factors of this report.

In October 2018 and January 2019, we entered into agreements to implement our Zero Now truck financing program, which permit us to incur up to an additional $100.0 million of indebtedness through the beginning of January 2022, obligate us to make certain interest and other fee payments in connection with this debt and THUSA’s related guaranty (which payments will vary in amount but will be owed by us regardless of the revenue we may receive from the program), and subject us to potential additional payments in connection with related commodity swap arrangements. We are permitted to use any proceeds we receive under these agreements solely to fund the incremental cost of trucks purchased or financed by operators that participate in the Zero Now program. See “Recent Developments” and “Key Trends” above and Note 21 and Item 9B of this report for more information.

On June 13, 2018, we completed the Total Private Placement and received $83.4 million of gross cash proceeds from the transaction. See “Recent Developments” above and Note 14 for more information.

On March 31, 2017, we completed the BP Transaction. The net proceeds to us from the BP Transaction were approximately $142.2 million. See Note 4 for more information.

In November 2015, we commenced an “at-the-market” offering program (the “ATM Program”), under which we were entitled to issue and sell, from time to time through or to a sales agent, shares of our common stock having an aggregate offering price of up to $200.0 million. From the commencement of the ATM Program until our termination thereof on May 31, 2017, we received aggregate net proceeds of $117.9 million from sales of our common stock in the program.

The following table summarizes the activity under the ATM Program for the periods presented:

(in millions)	Year ended December 31, 2016	Year ended December 31, 2017	Inception through May 31, 2017
Gross proceeds	$ 103.6	$ 10.8	$ 121.3
Fees and issuance costs	2.6	0.3	3.4
Net proceeds	$ 101.0	$ 10.5	$ 117.9
Shares issued	31.1	3.8	36.4

On February 29, 2016, we entered into a loan and security agreement with, and issued a related promissory note to, Plains, pursuant to which Plains agreed to lend us up to $50.0 million on a revolving basis with a maturity date of September 30, 2019 (the "Credit Facility"). Simultaneously, we drew $50.0 million under the Credit Facility, which we repaid in full on August 31, 2016. On December 22, 2016, we drew $23.5 million under the Credit Facility, which we repaid in full on March 31, 2017. As a result, we had no amounts outstanding and $50.0 million of availability under the Credit Facility as of December 31, 2018.

See Note 13 for more information about the Credit Facility with Plains and our other outstanding debt.

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 or other expenses that we cannot fund through cash on-hand, cash provided by our operations or other sources.

The timing and necessity of any future capital raise would depend on various factors, including our rate and volume of natural gas sales and other volume-related activity, 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.

We may seek to raise additional capital through one or more sources, including, among others, selling assets, obtaining new or restructuring existing debt, obtaining equity capital, 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 natural gas 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.

Contractual Obligations

The table below represents the scheduled maturities of our contractual obligations as of December 31, 2018. This table excludes certain potential contractual obligations 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, capital lease, and financing lease obligations [a]	$98,815	$11,623	$65,555	$ 16,861	$4,776
Operating lease commitments [b]	31,906	6,340	7,643	4,709	13,214
Long-term take-or-pay contract [c]	977	429	548	—	—
Long-term supply contract [d]	74,668	16,480	40,541	17,647	—
Construction contracts [e]	4,319	4,319	—	—	—
Total	$210,685	$39,191	$114,287	$ 39,217	$17,990

(a) Consists of long-term debt, capital lease, and financing lease obligations to finance acquisitions and equipment purchases, including future interest payments.

(b) Consists of various space and ground leases for our Boron, California LNG plant, office spaces and fueling stations as well as leases for equipment.
(c) Represents our estimates for one long-term natural gas purchase contract with a take-or-pay commitment.
(d) Represents our estimates for one long-term natural gas supply contract for our subsidiary NG Advantage, which entered into an arrangement with BP for the supply, sale and transportation of CNG over a five-year period.
(e) Consists of our obligations to fund various fueling station construction projects, net of amounts funded through December 31, 2018 and excluding contractual commitments related to station sales contracts.

Off-Balance Sheet Arrangements

As of December 31, 2018, 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 $29.9 million;
- One long-term natural gas purchase contract with a take-or-pay commitment, the amount of which is shown under "Contractual Obligations" above;
- One long-term natural gas supply contract with a fixed supply commitment, the amount of which is shown under "Contractual Obligations" above, along with a guaranty agreement; and
- Operating leases where we are the lessee, under which we are committed to make aggregate payments as shown under "Contractual Obligations" above.

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.

We have one long-term natural gas purchase contract with a take-or-pay commitment, which requires us to purchase minimum volumes of natural gas at index based prices and expires in December 2020.

NG Advantage has entered into an arrangement with BP for the supply, sale and reservation of a specified volume of CNG transportation capacity over a five-year period, or until March 2022. In connection with the arrangement, on February 28, 2018, we entered into a guaranty agreement with NG Advantage and BP in which we guarantee, in an amount up to $30.0 million plus related fees, NG Advantage's payment obligations to the customer in the event of a default by NG Advantage under the supply arrangement. Our guaranty is in effect until thirty days following our notice to BP of termination.

We have entered into operating lease arrangements for certain equipment and for our office and field operating locations in the ordinary course of our business. The terms of our leases expire at various dates through 2038. Additionally, in November 2006, we entered into a ground lease for 36 acres on which we built our Boron, California LNG liquefaction plant. The lease is for an initial term of 30 years and requires payments of $0.2 million per year, plus up to $0.1 million per year for each 30 million gallons of production capacity utilized, subject to adjustment based on consumer price index changes. We must also pay a royalty to the landlord for each gallon of LNG produced at the facility, as well as a fee for certain other services the landlord provides.

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 and risks related to foreign currency exchange 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 $72.8 million, $83.3 million and $94.9 million of our cost of sales in 2016, 2017 and 2018, respectively.

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In October 2018, in support of our Zero Now truck financing program, we entered into two commodity swap contracts with Total Gas & Power North America, an affiliate of TOTAL 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 expect to make in our anticipated fueling agreements with fleet operators that participate in the Zero Now 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, 2018, we would expect a corresponding fluctuation in the fair value of our commodity swap contracts of approximately $6.3 million.

Foreign Currency Exchange Rate Risk

Before completion of the CEC Combination on December 29, 2017, we had foreign operations that exposed us to foreign currency exchange gains and losses. Since the functional currency of those foreign subsidiaries is their local currency, the currency effects of translating the financial statements of the foreign subsidiaries, which operate in local currency environments, are included in the accumulated other comprehensive loss component of consolidated equity in our consolidated financial statements and do not impact earnings.

Foreign currency transaction gains and losses not in these subsidiaries' functional currency, however, do impact earnings, but these amounts were not material for 2018. In this period, our primary exposure to foreign currency exchange rates related to our other Canadian operations that had certain outstanding accounts receivable and accounts payable denominated in the U.S. dollar, which were not hedged.

We have prepared 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, 2018, we would expect a corresponding fluctuation in the value of the assets and liabilities of approximately $0.3 million.

Item 8. Financial Statements and Supplementary Data.

The following tables set forth our quarterly consolidated statements of operations data for the eight quarters ended December 31, 2018. The information for each quarter is unaudited and we have prepared the information on the same basis as the audited consolidated financial statements included in this report. This information includes all adjustments that management considers necessary for the fair presentation of such data, which include only normal recurring adjustments. See Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations of this report for descriptions of the effects of any unusual or infrequently occurring items recognized in any of the periods covered by the below quarterly data. The quarterly data should be read together with our consolidated financial statements and related notes included in this report. The results of operations for any one quarter are not necessarily indicative of results to be expected in the current period or any future period.

	(In thousands, except per share data, Unaudited)			
	Three Months Ended			
	March 31, 2017	June 30, 2017	September 30, 2017	December 31, 2017
Revenue:				
Product revenue	$76,229	$67,849	$ 67,669	$ 75,545
Service revenue	13,262	13,167	14,123	13,755
Total revenue	89,491	81,016	81,792	89,300
Operating expenses:				
Cost of sales (exclusive of depreciation and amortization shown separately below):				
Product cost of sales	54,597	50,825	52,884	58,107
Service cost of sales	6,264	6,519	7,283	6,192
Inventory valuation provision	—	—	13,158	—
Change in fair value of derivative warrants	11	(44)	(6)	(7)
Selling, general and administrative	23,762	23,348	24,804	23,801
Depreciation and amortization	15,317	14,336	14,104	12,857
Asset impairments and other charges	—	—	60,666	7,268
Total operating expenses	99,951	94,984	172,893	108,218
Operating loss	(10,460)	(13,968)	(91,101)	(18,918)
Interest expense	(4,911)	(4,285)	(4,270)	(4,285)
Interest income	192	499	465	341
Other income (expense), net	(167)	135	4	167
Income (loss) from equity method investments	(36)	(34)	(30)	(31)
Gain from extinguishment of debt	3,195	—	—	—
Gain (loss) from sale of certain assets of subsidiary	70,648	(762)	—	772
Loss from formation of equity method investment	—	—	—	(6,465)
Income (loss) before income taxes	58,461	(18,415)	(94,932)	(28,419)
Income tax benefit (expense)	2,263	(124)	44	(269)
Net income (loss)	60,724	(18,539)	(94,888)	(28,688)
Loss attributable to noncontrolling interest	335	731	747	341
Net income (loss) attributable to Clean Energy Fuels Corp.	$61,059	$(17,808)	$ (94,141)	$ (28,347)
Basic income (loss) per share	$0.41	$(0.12)	$ (0.62)	$ (0.19)
Diluted income (loss) per share	$0.40	$(0.12)	$ (0.62)	$ (0.19)

	Three Months Ended			
	March 31, 2018	June 30, 2018	September 30, 2018	December 31, 2018
Revenue:				
Product revenue	$92,251	$61,120	$ 67,441	$ 87,027
Service revenue	10,152	9,347	9,879	9,202
Total revenue	102,403	70,467	77,320	96,229
Operating expenses:				
Cost of sales (exclusive of depreciation and amortization shown separately below):				
Product cost of sales	50,199	41,396	48,063	54,851
Service cost of sales	4,597	4,255	4,743	4,820
Change in fair value of derivative warrants	(21)	(71)	(9)	644
Selling, general and administrative	18,858	19,939	18,405	20,005
Depreciation and amortization	12,801	13,332	13,363	12,354
Total operating expenses	86,434	78,851	84,565	92,674
Operating income (loss)	15,969	(8,384)	(7,245)	3,555
Interest expense	(4,503)	(4,527)	(4,096)	(2,798)
Interest income	575	489	1,129	664
Other income (expense), net	(12)	79	(193)	(440)
Income (loss) from equity method investments	(1,468)	(729)	(542)	16
Gain from sale of certain assets of subsidiary	—	—	—	4,782
Loss from formation of equity method investment	—	—	(1,163)	—
Income (loss) before income taxes	10,561	(13,072)	(12,110)	5,779
Income tax expense	(88)	(89)	(89)	(75)
Net income (loss)	10,473	(13,161)	(12,199)	5,704
Loss attributable to noncontrolling interest	1,749	1,186	1,300	1,158
Net income (loss) attributable to Clean Energy Fuels Corp.	$12,222	$(11,975)	$ (10,899)	$ 6,862
Basic income (loss) per share	$0.08	$(0.07)	$ (0.05)	$ 0.03
Diluted income (loss) per share	$0.08	$(0.07)	$ (0.05)	$ 0.03

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Report of Independent Registered Public Accounting Firm

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

Opinions on the Consolidated Financial Statements and Internal Control Over Financial Reporting

We have audited the accompanying consolidated balance sheets of Clean Energy Fuels Corp. and subsidiaries (the "Company") as of December 31, 2017 and 2018, 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, 2018, and the related notes and financial statement schedule II (collectively, the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2018, 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 consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2018, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2018, in conformity with U.S. generally accepted accounting principles. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, 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 consolidated financial statements and an opinion on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("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 audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements 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. 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 audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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

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

Irvine, California

March 12, 2019

CLEAN ENERGY FUELS CORP. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(In thousands, except share and per share data)

	December 31, 2017	December 31, 2018
Assets		
Current assets:		
Cash, cash equivalents and current portion of restricted cash	$37,208	$30,624
Short-term investments	141,462	65,646
Accounts receivable, net of allowance for doubtful accounts of $1,276 and $1,919 as of December 31, 2017 and 2018, respectively	63,961	68,865
Other receivables	19,235	15,544
Inventory	35,238	34,975
Prepaid expenses and other current assets	7,793	8,444
Derivative assets, related party	—	1,508
Total current assets	304,897	225,606
Land, property and equipment, net	367,305	350,568
Long-term portion of restricted cash	—	4,000
Notes receivable and other long-term assets, net	21,397	17,470
Long-term portion of derivative assets, related party	—	8,824
Investments in other entities	30,395	26,079
Goodwill	64,328	64,328
Intangible assets, net	3,590	2,207
Total assets	$791,912	$699,082
Liabilities and Stockholders' Equity		
Current liabilities:		
Current portion of debt and capital lease obligations	$139,699	$5,405
Accounts payable	17,901	19,024
Accrued liabilities	42,268	48,469
Deferred revenue	3,432	7,361
Total current liabilities	203,300	80,259
Long-term portion of debt, capital lease and financing lease obligations	120,388	78,779
Other long-term liabilities	18,566	15,035
Total liabilities	342,254	174,073
Commitments and contingencies (Note 16)		
Stockholders' equity:		
Preferred stock, $0.0001 par value. Authorized 1,000,000 shares; issued and outstanding no shares	—	—
Common stock, $0.0001 par value. Authorized 224,000,000 shares and 304,000,000 shares as of December 31, 2017 and 2018, respectively; issued and outstanding 151,650,969 shares and 203,599,892 shares as of December 31, 2017 and 2018, respectively	15	20
Additional paid-in capital	1,111,432	1,198,769
Accumulated deficit	(683,570)	(688,653)
Accumulated other comprehensive loss	(887)	(2,138)
Total Clean Energy Fuels Corp. stockholders' equity	426,990	507,998
Noncontrolling interest in subsidiary	22,668	17,011
Total stockholders' equity	449,658	525,009
Total liabilities and stockholders' equity	$791,912	$699,082

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)

	Years Ended December 31, 2016	2017	2018
Revenue:			
Product revenue	$351,038	$287,292	$307,839
Service revenue	51,618	54,307	38,580
Total revenue	402,656	341,599	346,419
Operating expenses:			
Cost of sales (exclusive of depreciation and amortization shown separately below):			
Product cost of sales	229,958	216,413	194,509
Service cost of sales	25,592	26,258	18,415
Inventory valuation provision	—	13,158	—
Change in fair value of derivative warrants	(22)	(46)	543
Selling, general and administrative	105,503	95,715	77,207
Depreciation and amortization	59,262	56,614	51,850
Asset impairments and other charges	—	67,934	—
Total operating expenses	420,293	476,046	342,524
Operating income (loss)	(17,637)	(134,447)	3,895
Interest expense	(29,595)	(17,751)	(15,924)
Interest income	827	1,497	2,857
Other income (expense), net	(306)	139	(566)
Loss from equity method investments	(22)	(131)	(2,723)
Gain from extinguishment of debt, net	34,348	3,195	—
Gain from sale of certain assets of subsidiary	—	70,658	4,782
Loss from formation of equity method investment	—	(6,465)	(1,163)
Loss before income taxes	(12,385)	(83,305)	(8,842)
Income tax benefit (expense)	(1,339)	1,914	(341)
Net loss	(13,724)	(81,391)	(9,183)
Loss attributable to noncontrolling interest	1,571	2,154	5,393
Net loss attributable to Clean Energy Fuels Corp.	$(12,153)	$(79,237)	$(3,790)
Loss per share:			
Basic and diluted	$(0.10)	$(0.53)	$(0.02)
Weighted-average common shares outstanding:			
Basic and diluted	119,395,423	150,430,239	180,655,435

See accompanying notes to consolidated financial statements.

CLEAN ENERGY FUELS CORP. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(In thousands)

	Year Ended December 31, 2016			Years Ended December 31, 2017			Year Ended December 31, 2018		
	Clean Energy Fuels Corp.	Noncontrolling Interest	Total	Clean Energy Fuels Corp.	Noncontrolling Interest	Total	Clean Energy Fuels Corp.	Noncontrolling Interest	Total
Net loss	$(12,153)	$(1,571)	$(13,724)	$(79,237)	$(2,154)	$(81,391)	$(3,790)	$(5,393)	$(9,183)
Other comprehensive income (loss), net of tax:									
Foreign currency translation adjustments net of $0 tax in 2016, 2017 and 2018	1,567	—	1,567	(113)	—	(113)	(1,305)	—	(1,305)
Foreign currency adjustments on intra-entity long-term investments, net of $0 tax in 2016, 2017 and 2018	1,652	—	1,652	—	—	—	—	—	—
Unrealized gains on available-for-sale securities, net of $0 tax in 2016, 2017 and 2018	79	—	79	189	—	189	54	—	54
Release of foreign currency translation adjustments on contribution of subsidiary into equity method investment	—	—	—	16,712	—	16,712	—	—	—
Total other comprehensive income (loss)	3,298	—	3,298	16,788	—	16,788	(1,251)	—	(1,251)
Comprehensive loss	$(8,855)	$(1,571)	$(10,426)	$(62,449)	$(2,154)	$(64,603)	$(5,041)	$(5,393)	$(10,434)

See accompanying notes to consolidated financial statements.

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CLEAN ENERGY FUELS CORP. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In thousands, except share data)

	Common stock				Accumulated		
	Shares	Amount	Additional Paid-In Capital	Accumulated Deficit	Other Comprehensive Income (Loss)	Noncontrolling Interest in Subsidiary	Total Stockholders' Equity
Balance, December 31, 2015	92,382,717	$ 9	$ 915,199	$ (591,683)	$ (20,973)	$ 26,393	$ 328,945
Issuance of common stock, net of offering costs	32,889,517	4	101,116	—	—	—	101,120
Issuance of common stock in connection with debt extinguishment	20,265,829	2	65,954				65,956
Stock-based compensation	—	—	8,092	—	—	—	8,092
Net loss	—	—	—	(12,153)	—	(1,571)	(13,724)
Other comprehensive income	—	—	—	—	3,298	—	3,298
Balance, December 31, 2016	145,538,063	15	1,090,361	(603,836)	(17,675)	24,822	493,687
Cumulative effect of adopting ASU 2016-09 and ASU 2016-16 (Note 1)	—	—	194	(497)	—	—	(303)
Balance, January 1, 2017	145,538,063	15	1,090,555	(604,333)	(17,675)	24,822	493,384
Issuance of common stock, net of offering costs	6,112,906	—	12,454	—	—	—	12,454
Stock-based compensation	—	—	8,423	—	—	—	8,423
Net loss	—	—	—	(79,237)	—	(2,154)	(81,391)
Other comprehensive income	—	—	—	—	16,788	—	16,788
Balance, December 31, 2017	151,650,969	15	1,111,432	(683,570)	(887)	22,668	449,658
Cumulative effect of adopting ASU 2014-09 (Note 1)	—	—	—	(1,293)	—	—	(1,293)
Balance, January 1, 2018	151,650,969	15	1,111,432	(684,863)	(887)	22,668	448,365
Issuance of common stock, net of offering costs	51,948,923	5	81,766	—	—	—	81,771
Stock-based compensation	—	—	5,307	—	—	—	5,307
Net loss	—	—	—	(3,790)	—	(5,393)	(9,183)
Other comprehensive loss	—	—	—	—	(1,251)	—	(1,251)
Increase in ownership in subsidiary	—	—	264	—	—	(264)	—
Balance, December 31, 2018	203,599,892	$ 20	$ 1,198,769	$ (688,653)	$ (2,138)	$ 17,011	$ 525,009

See accompanying notes to consolidated financial statements.

CLEAN ENERGY FUELS CORP. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Years Ended December 31,		
	2016	2017	2018
Cash flows from operating activities:			
Net loss	$(13,724)	$(81,391)	$(9,183)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:			
Depreciation and amortization	59,262	56,614	51,850
Provision for doubtful accounts, notes and inventory	4,374	19,835	1,857
Stock-based compensation expense	8,092	8,123	5,307
Change in fair value of derivative instruments	(22)	(46)	(9,788)
Amortization of discount and debt issuance cost	1,527	847	(1,220)
Loss on disposal of property and equipment	2,264	3,105	2,554
Gain on extinguishment of debt, net	(34,348)	(3,195)	—
Gain from sale of certain assets of subsidiary	—	(70,658)	(4,782)
Asset impairments and other charges	—	58,061	—
Loss from formation of equity method investment	—	6,465	1,163
Loss from equity method investments	22	131	2,723
Changes in operating assets and liabilities, net of assets and liabilities acquired and disposed:			
Accounts and other receivables	30,171	6,881	(6,360)
Inventory	(1,520)	963	(1,065)
Prepaid expenses and other assets	469	6,753	1,547
Accounts payable	(660)	(8,964)	679
Deferred revenue	(3,479)	9,268	30
Accrued expenses and other	(6,140)	(17,109)	2,670
Net cash provided by (used in) operating activities	46,288	(4,317)	37,982
Cash flows from investing activities:			
Purchases of short-term investments	(137,023)	(340,194)	(348,091)
Maturities and sales of short-term investments	165,695	272,220	425,804
Purchases of and deposits on property and equipment	(23,640)	(36,307)	(25,263)
Loans made to customers	(2,816)	(894)	—
Payments on and proceeds from sales of loans receivable	842	1,102	518
Cash received from sale of certain assets of subsidiary, net of cash transferred	—	149,088	871
Cash contributed in formation of equity method investment	—	(2,404)	—
Investments in other entities	(833)	(1,928)	—
Capital from equity method investment	3,031	—	—
Acquisitions, net of cash acquired	(1,550)	—	—
Proceeds from disposal of property and equipment	—	—	530
Net cash provided by investing activities	3,706	40,683	54,369
Cash flows from financing activities:			
Issuances of common stock	103,591	10,767	83,438
Fees paid for issuances of common stock, debt prepayment and debt issuance costs	(2,387)	(638)	(1,004)
Proceeds from debt instruments and financing lease	7,412	9,765	17,243
Proceeds from revolving line of credit	73,508	312	—
Repayments of borrowing under revolving line of credit	(50,027)	(23,812)	—
Repayments of capital lease obligations and debt instruments	(187,824)	(30,707)	(194,886)

Payments to holders of stock options in subsidiaries	—	(8,850)	—
Net cash used in financing activities	(55,727)	(43,163)	(95,209)
Effect of exchange rates on cash and cash equivalents	884	890	274
Net decrease in cash, cash equivalents and restricted cash	(4,849)	(5,907)	(2,584)
Cash, cash equivalents and restricted cash, beginning of year	47,964	43,115	37,208
Cash, cash equivalents and restricted cash, end of year	$43,115	$37,208	$34,624
Supplemental disclosure of cash flow information:			
Income taxes paid	$1,012	$344	$257
Interest paid, net of $447, $103 and $244 capitalized, respectively	$29,774	$17,048	$16,751

See accompanying notes to consolidated financial statements.

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CLEAN ENERGY FUELS CORP. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(In thousands, except share and per share data)

Note 1—Summary of Significant Accounting Policies

The Company

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 natural gas as an alternative fuel for vehicle fleets and related natural gas fueling solutions to its customers, primarily in the United States and Canada.

The Company's principal business is supplying renewable natural gas ("RNG"), compressed natural gas ("CNG") and liquefied natural gas ("LNG") (RNG can be delivered in the form of CNG or LNG) for light, medium and heavy-duty vehicles and providing operation and maintenance ("O&M") services for public and private vehicle fleet customer stations. As a comprehensive solution provider, the Company also designs, builds, operates and maintains fueling stations; sells and services natural gas fueling compressors and other equipment used in CNG stations and LNG stations; offers assessment, design and modification solutions to provide operators with code-compliant service and maintenance facilities for natural gas vehicle fleets; transports and sells CNG and LNG via "virtual" natural gas pipelines and interconnects; procures and sells RNG; sells tradable credits it generates by selling RNG and conventional natural gas 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"); helps its customers acquire and finance natural gas vehicles; and obtains federal, state and local credits, grants and incentives. In addition, for all periods presented before March 31, 2017, the Company produced RNG at its own production facilities, and for all periods presented before December 29, 2017, the Company manufactured natural gas fueling compressors and other equipment used in CNG stations. See Note 4 for more information.

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 loss and cash flows in accordance with accounting principles generally accepted in the United States of America ("US GAAP"). All intercompany accounts and transactions have been eliminated in consolidation.

Reclassifications

During the year ended December 31, 2018, the Company adopted Accounting Standards Update ("ASU") No. 2016-18, Statement of Cash Flows (Topic 230): Restricted Cash. The new standard requires restricted cash and restricted cash equivalents to be included as components of total cash and cash equivalents as presented on the statement of cash flows. As a result, the Company chose to also conform this classification on the accompanying consolidated balance sheets. This resulted in prior period restricted cash of $1,127 as of December 31, 2017 being reclassified into a single line item with cash and cash equivalents to conform to the presentation as of December 31, 2018. In addition, certain prior period amounts have been reclassified in the accompanying consolidated statements of operations and cash flows to conform to the current period presentation. These reclassifications had no material impact on the Company's consolidated financial position, results of operations, or cash flows as previously reported.

Use of Estimates

The preparation of consolidated financial statements in conformity with US 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 and stock-based compensation expense.

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.

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CLEAN ENERGY FUELS CORP. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)
(In thousands, except share and per share data)

Inventories consisted of the following as of December 31, 2017 and 2018:

	2017	2018
Raw materials and spare parts (1)	$35,145	$34,890
Finished goods	93	85
Total inventory	$35,238	$34,975

(1) During the year ended December 31, 2017, $19,394 in station parts were reclassified from construction in progress within "Land, property, and equipment, net" into "Inventory" in the accompanying consolidated balance sheets because they will primarily be used for stations to be sold. See Note 3 for more information.

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 expects to make in its anticipated 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 8 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 grant funding to assist in the financing of natural gas fueling station construction. The Company records the grant proceeds as a reduction of the cost of the respective asset. Total grant proceeds received were approximately $3,295, $4,360, and $653 for the years ended December 31, 2016, 2017 and 2018, respectively.

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, 2016 and 2018. In the third quarter of the year ended December 31, 2017, the Company recorded asset impairment charges of $32,274 related to its then-subsidiary, IMW Industries Ltd. ("IMW") (formerly known as Clean Energy Compression Corp.) ("CEC") and $20,384 related to certain station closures (see Note 3 for more information).

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 from one to eight years for customer relationships, one to ten years for acquired contracts, two to ten years for trademarks and trade names, and three years for non-compete agreements.

(In thousands, except share and per share data)

The Company’s intangible assets as of December 31, 2017 and 2018 were as follows:

	2017	2018
Customer relationships	$5,376	$5,376
Acquired contracts	4,384	4,384
Trademark and trade names	2,700	2,700
Non-compete agreements	860	860
Total intangible assets	13,320	13,320
Less accumulated amortization	(9,730)	(11,113)
Net intangible assets	$3,590	$2,207

Amortization expense for intangible assets was $5,794, $5,065, and $1,383 for the years ended December 31, 2016, 2017 and 2018, respectively. Estimated amortization expense for the five years and thereafter succeeding the year ended December 31, 2018 is approximately $973, $765, $469, $0, and $0, respectively.

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 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, 2016 and 2018, the Company utilized the qualitative and quantitative approaches respectively, and concluded there were no indicators of impairment to goodwill.

During the third quarter of the year ended December 31, 2017, as a result of the asset impairment charges recorded for intangible assets and stations (described previously and in Note 3), the Company determined that sufficient indicators of potential impairment existed to require an interim goodwill test of its one reporting unit prior to the annual test performed in the fourth quarter of 2017. The goodwill test was performed by computing the fair value of the reporting unit and comparing it to the carrying value using a quantitative assessment. Based on the results of the goodwill test, the Company concluded that it is more likely than not that the fair value of its reporting unit exceeds its carrying amount and thus no impairment existed. The annual impairment test was subsequently performed on October 1 using the quantitative assessment and the Company concluded no impairment existed.

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CLEAN ENERGY FUELS CORP. AND SUBSIDIARIES
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The following table summarizes the activity related to the carrying amount of goodwill:

Balance as of December 31, 2016	$93,018
Goodwill reduced during the year [1]	(30,154)
Foreign currency translation adjustment	1,464
Balance as of December 31, 2017	$64,328
Balance as of December 31, 2018	$64,328

(1) The Company reduced its goodwill balance by $26,576 when it sold certain assets of its subsidiary, Clean Energy Renewable Fuels ("Renewables"), on March 31, 2017, and by $3,578 when it contributed CEC to SAFE&CEC S.r.l. on December 29, 2017 (all described in Note 4).

Alternative Fuels Tax Credit

Under separate pieces of U.S. federal legislation, the Company has been eligible to receive a federal alternative fuels tax credit ("AFTC") for its natural gas vehicle fuel sales made between October 1, 2006 and December 31, 2017. The AFTC, which had previously expired on December 31, 2016, was reinstated on February 9, 2018 to apply to vehicle fuel sales made from January 1, 2017 through December 31, 2017. The AFTC credit is equal to $0.50 per gasoline gallon equivalent 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 2016 and 2017.

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.

As a result of the most recent legislation authorizing AFTC being signed into law on February 9, 2018, all AFTC revenue for vehicle fuel the Company sold in the 2017 calendar year, totaling $25,248, has been recognized and collected during the year ended December 31, 2018. In addition, during the year ended December 31, 2018, the Internal Revenue Service ("IRS") approved, and the Company recognized as revenue, $1,481 of AFTC credit claims related to prior years. AFTC revenue recognized for years ended December 31, 2016 and 2017 was $26,638 and $0, respectively. AFTC is not currently available, and may not be reinstated, for vehicle fuel sales made after December 31, 2017.

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 $15, $311 and $885 for the years ended December 31, 2016, 2017 and 2018, respectively.

Stock-Based Compensation

The Company recognizes compensation expense for all stock based payment arrangements over the requisite service period of the award. For 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 awards, stock price volatility and risk free interest rates. 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.

In March 2016, the FASB issued ASU 2016-09, Compensation – Stock Compensation (Topic 718): Improvements to Employee Share-Based Payments Accounting which simplified the accounting for share-based payment transactions. The Company adopted the standard as of January 1, 2017 and in connection with the adoption, elected to recognize forfeitures when they occur. This election was implemented under the modified retrospective approach with a cumulative effect of an increase in accumulated deficit of $194, net of tax. This adjustment represents the cumulative additional compensation expense that would have been amortized through the date of adoption

CLEAN ENERGY FUELS CORP. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)
(In thousands, except share and per share data)

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 to be sustained 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.
In October 2016, the FASB issued ASU 2016-16, Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory. Under the new standard, the selling (transferring) entity is required to recognize a current tax expense or benefit upon transfer of the asset. Similarly, the purchasing (receiving) entity is required to recognize a deferred tax asset or liability, as well as the related deferred tax benefit or expense, upon purchase or receipt of the asset. The Company early adopted the standard as of January 1, 2017. This election was implemented under the modified retrospective approach, resulting in a $303 increase in accumulated deficit representing the cumulative recognition of the income tax consequences of intra-entity transfers of assets other than inventory that occurred before the adoption date
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.
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)	2016	2017	2018
Stock options	11,467,796	8,613,854	8,699,677
Convertibles notes	16,573,799	14,991,521	3,164,557
Restricted stock units	2,072,304	1,832,575	2,279,601

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 as 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 the years ended December 31, 2016, 2017 and 2018, foreign exchange transaction gains and (losses) were included in "Other income (expense)" in the accompanying consolidated statements of operations and were $132, $(246) and $(18), respectively.

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, 2016, 2017 and 2018 was comprised of the Company's foreign currency translation adjustments and unrealized gains (loss) 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 Changes and Recently Issued Accounting Standards

Recently Adopted Accounting Changes

In February 2018, the FASB issued ASU 2018-02, Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income, which allows for a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act (the "TCJA"). This update is effective for fiscal years beginning after December 15, 2018, which for the Company is the first quarter of 2019, with early adoption permitted. The Company elected to early adopt this ASU during the year ended December 31, 2018, which did not have any impact on the accompanying consolidated financial statements or related disclosures. The Company did not elect to reclassify the stranded tax effects of the TCJA because there were none.

In December 2016, the FASB issued ASU 2016-18, Statement of Cash Flows (Topic 230): Restricted Cash. The new standard requires restricted cash and restricted cash equivalents to be included as components of total cash and cash equivalents as presented on the statement of cash flows. This pronouncement is effective for reporting periods beginning after December 15, 2017, which for the Company is the first quarter of 2018. The Company adopted this standard on a retrospective basis, and adoption did not have a material impact on the Company's consolidated financial statements or related disclosures. As a result of including restricted cash with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts presented in the accompanying consolidated statement of cash flows, net cash flows increased (decreased) by $2,756 and $(5,869) for the years ended December 31, 2016 and 2017, respectively.

In September 2016, the FASB issued ASU 2016-15, Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Payments. The new standard provides clarification as to the classification of certain transactions as operating, investing or financing activities. This pronouncement is effective for reporting periods beginning after December 15, 2017, which for the Company is the first quarter of 2018. The Company adopted this standard on a retrospective basis, and adoption did not have a material impact on the accompanying consolidated financial statements and related disclosures for year ended December 31, 2016 and had no impact for the years ended December 31, 2017 and 2018, respectively.

In May 2014, the FASB issued ASU 2014-09, Revenue from Contracts with Customers (Topic 606) (“ASC 606”), which amends the guidance in former Accounting Standards Codification Topic 605, Revenue Recognition, to provide a single, comprehensive revenue recognition model for all contracts with customers. The new standard requires an entity to recognize revenue in a manner that depicts the transfer of promised goods or services to customers in amounts that reflect the consideration to which an entity expects to be entitled in exchange for those goods or services. The new standard also requires entities to enhance disclosures about the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers. The standard is effective for fiscal years beginning after December 15, 2017, which for the Company was the first quarter of 2018.

(In thousands, except share and per share data)

The Company adopted this standard using the modified retrospective method and recognized the cumulative effect of initially applying ASC 606 as an adjustment to "Accumulated deficit" in the accompanying consolidated balance sheet as of January 1, 2018. Results for reporting periods beginning after January 1, 2018 are presented under ASC 606, while prior period amounts are not adjusted. This adoption did not have a material impact to the Company's consolidated financial statements.

The ASC 606 adoption adjustments are as follows, and relate to significant financing components resulting from an advance payment by a customer of the Company's subsidiary, NG Advantage LLC ("NG Advantage") and an extended payment term to a station construction customer:

	Balance as of December 31, 2017	Adjustments Due to ASC 606	Balance as of January 1, 2018
Notes receivable and other long-term assets, net	$21,397	$ (963)	$20,434
Deferred revenue	$3,432	$ 330	$3,762
Accumulated deficit	$(683,570)	$ (1,293)	$(684,863)

The ASC 606 adoption adjustments on the accompanying consolidated balance sheet as of December 31, 2018 are as follows:

	As of December 31, 2018		
	Balance before ASC 606 Adoption	Effect of Change	As Reported
Notes receivable and other long-term assets, net	$18,359	$(889)	$17,470
Deferred revenue	$6,346	$1,015	$7,361
Accumulated deficit	$(686,749)	$(1,904)	$(688,653)

The impact on the accompanying consolidated statements of operations for the year ended December 31, 2018 was immaterial.

Recently Issued Accounting Standards

In June 2016, the FASB issued ASU No. 2016-13, Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments. The new standard amends the impairment model to utilize an expected loss methodology in place of the currently used incurred loss methodology, which will result in the more timely recognition of losses. This pronouncement is effective for reporting periods beginning after December 15, 2019, which for the Company is the first quarter of 2020. The Company will evaluate the impact this ASU will have on its consolidated financial statements and related disclosures.

In February 2016, the FASB issued ASU 2016-02, Leases (Topic 842). The new standard requires most leases to be recognized on the balance sheet which will increase reported assets and liabilities. Lessor accounting remains substantially similar to current guidance. The new standard is effective for annual and interim periods in fiscal years beginning after December 15, 2018, which for the Company is the first quarter of 2019. The Company is in the process of evaluating the impact of the adoption of Topic 842 on the Company's consolidated financial position and results of operations based on the Company's leases presently in effect and plans to use the modified retrospective method upon adoption. The Company anticipates this standard will have a material impact on its consolidated balance sheet. The primary impact will be to record right-of-use ("ROU") assets and lease liabilities for existing operating leases on the consolidated balance sheets. Currently, the Company estimates the adoption of the standard will result in the recognition of additional ROU assets and lease liabilities that are not anticipated to be greater than the Company's future minimum lease payments (see Note 16), as of January 1, 2019. The Company does not expect the adoption to have a material impact on its consolidated statements of operations or its consolidated statements of cash flows. The Company's analysis and evaluation of the new standard will continue through its effective date in the first quarter of 2019, including continuing to monitor any potential changes in the standard proposed by the FASB.

(In thousands, except share and per share data)

Note 2—Revenue from Contracts with Customers

Revenue Recognition Overview

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. In order 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 table below presents the Company's revenue disaggregated by revenue source. 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.

	Years Ended December 31,		
	2016	2017	2018
Volume -related	$283,814	$264,880	$286,684
Station construction sales	64,942	51,854	25,501
AFTC	26,638	—	26,729
Compressor sales	27,262	23,527	—
Other	—	1,338	7,505
Total revenue	$402,656	$341,599	$346,419

Volume -Related

The Company's volume -related revenue primarily consists of sales of RNG, CNG and LNG fuel, O&M services and RINs and LCFS Credits in addition to changes in fair value of the Company's derivative instruments associated with providing natural gas to customers under fueling contracts.

Fuel and O&M services are sold pursuant to contractual commitments over defined goods -and -service delivery periods. These contracts typically include a stand -ready obligation to supply natural gas and/or provide O&M services daily 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 fuel and O&M services 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 of natural gas dispensed by the customer and current pricing conditions, which are typically billed to the customer 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 and O&M 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.

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.

The changes in fair value of derivative instruments relate to the Company's commodity swap and customer fueling contracts. The contracts are measured at fair value with changes in the 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 anticipated customer fueling contracts under the Company’s Zero Now truck financing program. See Note 8 for more information about these derivative instruments. For the year ended December 31, 2018, changes in the fair value of commodity swaps amounted to a gain of $10,332 since inception of these arrangements in October 2018.

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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 as discussed above. 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 is 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.

AFTC

See Note 1 for more information about AFTC, which is not recognized as revenue until the period the credit is authorized through federal legislation.

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CLEAN ENERGY FUELS CORP. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)
(In thousands, except share and per share data)

Compressor Sales
The Company completed the CEC Combination (as defined in Note 4) during the year ended December 31, 2017 and no longer generates revenue from compressor sales.
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.
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, 2018, the aggregate amount of the transaction price allocated to remaining performance obligations was $10,493, 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, 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, 2018, these capitalized costs incurred to fulfill contracts were $9,066 with accumulated depreciation of $4,851 and related amortization of $2,030 for the year ended December 31, 2018.
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, 2018, were not materially impacted by any factors outside the normal course of business.
As of January 1, 2018 and December 31, 2018, respectively, the Company's contract balances were as follows:

	January 1, 2018	December 31, 2018
Receivables, net	$63,961	$ 68,865
Contract Assets - Current	$1,603	$ 656
Contract Assets - Noncurrent	4,083	3,825
Contract Assets - Total	$5,686	$ 4,481
Contract Liabilities - Current	$1,991	5,513
Contract Liabilities - Noncurrent	13,413	9,844
Contract Liabilities - Total	$15,404	$ 15,357

Receivables, Net
"Receivables, net" in the accompanying consolidated balance sheets include amounts billed and currently due from customers. The amounts due are stated at their net estimated realizable value. The Company maintains an allowance

for doubtful accounts to provide for the estimated amount of receivables that will not be collected. The allowance is based upon an assessment of customer creditworthiness, historical payment experience, and the age of outstanding receivables.

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 “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 in advance of its performance obligations primarily from a customer of NG Advantage. Billings in excess of revenue recognized of $1,092 and $2,006 and advance payments of $899 and $3,507 are classified as current as of January 1, 2018 and December 31, 2018, respectively. Deferred revenue is classified as current or noncurrent based on when the revenue is expected to be recognized. The current portion and noncurrent portion of deferred revenue are included in “Deferred revenue” and “Other long -term liabilities,” respectively, in the accompanying consolidated balance sheets.

The increase in the contract liabilities balance for the year ended December 31, 2018 is primarily driven by billings in excess of revenue recognized, offset by $2,721 of revenue recognized related to the Company’s contract liability balances as of January 1, 2018.

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CLEAN ENERGY FUELS CORP. AND SUBSIDIARIES
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(In thousands, except share and per share data)

Note 3—Asset Impairments, Other Charges, and Inventory Valuation Provision

In light of continuing low oil prices and the current state of natural gas vehicle adoption, among other factors, during the third quarter of the year ended December 31, 2017, the Company undertook an evaluation of its operations with the intent of minimizing and eliminating assets it believed were underperforming. As a result of this evaluation, the Company identified certain of its fueling stations where the current and projected natural gas volume and profitability levels were not expected to be sufficient to support the Company's investment in the fueling station assets, and the Company decided to close these stations. The Company also reduced its workforce and took other steps to reduce overhead costs as a result of this evaluation, in an effort to lower its operating expenses going forward. In addition, this evaluation resulted in a strategic shift in how the Company viewed its natural gas compressor manufacturing business, operated by CEC. In an effort to increase the scale and reach and improve the financial prospects of the Company's investment in this business, the Company entered into an investment agreement with a strategic partner in November 2017, pursuant to which both parties combined their respective natural gas compressor manufacturing businesses (see Note 4 for more information). As a result of these decisions and the steps taken to implement them, the Company incurred, during the year ended December 31, 2017 and on a pre-tax basis, aggregate cash and non-cash charges related to asset impairments and other charges, and a non-cash inventory valuation charge. In addition, the Company incurred a cash charge for payments made as a result of temporary restrictions on its LCFS Credits account during the fourth quarter of 2017.

The following table summarizes these charges:

	Year Ended December 31, 2017
Workforce reduction and related charges	$ 3,057
CEC asset impairments	32,274
Station closures and related charges	25,557
LCFS Credits charge	7,046
Total asset impairments and other charges	$ 67,934
Inventory valuation provision	13,158
Total charges	$ 81,092

Workforce Reduction and Related Charges

As a result of the workforce reduction, severance costs of $2,757 were incurred in connection with employee terminations and $300 in stock-based compensation expense was incurred for the associated acceleration of certain stock awards.

Impairments of Long-Lived Assets

CEC: Asset Impairment Charges

Due to the continued low global demand for compressors, and the decision to position CEC's compressor manufacturing business for industry consolidation with a potential strategic partner, the Company's management determined that an impairment indicator was present for the long-lived assets of CEC. Recoverability was tested using future cash flow projections based on management's long-term estimates of market conditions. Based on the results of this test, the sum of the undiscounted future cash flows was less than the carrying value of the CEC asset group. As a result, these long-lived assets were written down to their respective fair values, resulting in an impairment charge of $32,274. Fair value was based on expected future cash flows using Level 3 inputs. The cash flows are those expected to be generated by market participants, discounted at an appropriate rate for the risks inherent in those cash flow projections.

Station Closures and Related Charges

During the third quarter of the year ended December 31, 2017, the Company decided to close 42 fueling stations by December 31, 2017, which were performing below management’s expectations based on volume and profitability levels. As a result, these station assets, which had an aggregate carrying value of $23,270, were written down to their respective fair values of $2,886