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FORM 10-K

TECOGEN INC. - TGEN

Filed: March 21, 2018 (period: December 31, 2017)

Annual report with a comprehensive overview of the company

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

FORM 10-K

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

For the fiscal year ended December 31, 2017
or

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

Commission file number 001-36103

TECOGEN INC.

(Exact name of Registrant as specified in its charter)

Delaware 04-3536131
(State or Other Jurisdiction of Incorporation or Organization) (IRS Employer Identification No.)

45 First Avenue
Waltham, Massachusetts 02451
(Address of Principal Executive Offices) (Zip Code)

Registrant's Telephone Number, Including Area Code: (781) 466-6400

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

<u>Title of each class</u>	<u>Name of each exchange on which registered</u>
Common Stock, \$.001 par value	NASDAQ Capital Market

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

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

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

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or an amendment to this Form 10-K.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer", "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one): Large accelerated filer Accelerated filer Non-accelerated filer Smaller reporting company

Emerging growth company

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

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

As of June 30, 2017, the last day of the registrant's most recently completed second fiscal quarter, the aggregate market value of the voting and non-voting common equity held by non-affiliates was: \$64,151,541. Solely for purposes of this disclosure, shares of common stock held by executive officers and directors of the registrant as of such date have been excluded because such persons may be deemed to be affiliates. This determination of executive officers and directors as affiliates is not necessarily a conclusive determination for any other purposes.

As of March 21, 2018, 24,803,096 shares of common stock, \$.001 par value per share, of the registrant were issued and outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Certain information required for Part III of this Annual Report on Form 10-K is incorporated by reference from the Tecogen Inc. definitive proxy statement for its 2018 Annual Meeting of Stockholders, which shall be filed with the Securities and Exchange Commission pursuant to Regulation 14A of the Securities Exchange Act of 1934, as amended, within 120 days following the registrant's fiscal year ended December 31, 2017.

CAUTIONARY NOTE CONCERNING FORWARD-LOOKING STATEMENTS

THIS ANNUAL REPORT ON FORM 10-K CONTAINS FORWARD-LOOKING STATEMENTS WITHIN THE MEANING OF THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995 AND OTHER FEDERAL SECURITIES LAWS. THESE FORWARD-LOOKING STATEMENTS ARE BASED ON OUR PRESENT INTENT, BELIEFS OR EXPECTATIONS, AND ARE NOT GUARANTEED TO OCCUR AND MAY NOT OCCUR. ACTUAL RESULTS MAY DIFFER MATERIALLY FROM THOSE CONTAINED IN OR IMPLIED BY OUR FORWARD-LOOKING STATEMENTS AS A RESULT OF VARIOUS FACTORS.

WE GENERALLY IDENTIFY FORWARD-LOOKING STATEMENTS BY TERMINOLOGY SUCH AS “MAY,” “WILL,” “SHOULD,” “EXPECTS,” “PLANS,” “ANTICIPATES,” “COULD,” “INTENDS,” “TARGET,” “PROJECTS,” “CONTEMPLATES,” “BELIEVES,” “ESTIMATES,” “PREDICTS,” “POTENTIAL” OR “CONTINUE” OR THE NEGATIVE OF THESE TERMS OR OTHER SIMILAR WORDS. THESE STATEMENTS ARE ONLY PREDICTIONS. THE OUTCOME OF THE EVENTS DESCRIBED IN THESE FORWARD-LOOKING STATEMENTS, INCLUDING, WITHOUT LIMITATION, OUR ABILITY TO ACHIEVE THE BENEFITS AND SYNERGIES ANTICIPATED FROM THE ACQUISITION OF AMERICAN DG ENERGY, INC. IS SUBJECT TO KNOWN AND UNKNOWN RISKS, UNCERTAINTIES AND OTHER FACTORS THAT MAY CAUSE US, OUR CUSTOMERS’ OR OUR INDUSTRY’S ACTUAL RESULTS, LEVELS OF ACTIVITY, PERFORMANCE OR ACHIEVEMENTS EXPRESSED OR IMPLIED BY THESE FORWARD-LOOKING STATEMENTS TO DIFFER.

THIS REPORT ALSO CONTAINS MARKET DATA RELATED TO OUR BUSINESS AND INDUSTRY. THIS MARKET DATA INCLUDES PROJECTIONS THAT ARE BASED ON A NUMBER OF ASSUMPTIONS. IF THESE ASSUMPTIONS TURN OUT TO BE INCORRECT, ACTUAL RESULTS MAY DIFFER FROM THE PROJECTIONS BASED ON THESE ASSUMPTIONS. AS A RESULT, OUR MARKETS MAY NOT GROW AT THE RATES PROJECTED BY THIS DATA, OR AT ALL. THE FAILURE OF THESE MARKETS TO GROW AT THESE PROJECTED RATES MAY HAVE A MATERIAL ADVERSE EFFECT ON OUR BUSINESS, RESULTS OF OPERATIONS, FINANCIAL CONDITION AND THE MARKET PRICE OF OUR COMMON STOCK.

SEE “ITEM 1A. RISK FACTORS,” “ITEM 7. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS” AND “ITEM 1. BUSINESS,” AS WELL AS OTHER SECTIONS IN THIS REPORT, THAT DISCUSS SOME OF THE FACTORS THAT COULD CONTRIBUTE TO THESE DIFFERENCES. THE FORWARD-LOOKING STATEMENTS MADE IN THIS ANNUAL REPORT ON FORM 10-K RELATE ONLY TO EVENTS AS OF THE DATE OF WHICH THE STATEMENTS ARE MADE. EXCEPT AS REQUIRED BY LAW, WE UNDERTAKE NO OBLIGATION TO UPDATE OR RELEASE ANY FORWARD-LOOKING STATEMENTS AS A RESULT OF NEW INFORMATION, FUTURE EVENTS OR OTHERWISE.

**ANNUAL REPORT ON FORM 10-K
FOR THE FISCAL YEAR ENDED DECEMBER 31, 2017**

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Item 1. Business**The Company**

Tecogen® Inc. ("Tecogen,") was incorporated in the State of Delaware on September 15, 2000. Tecogen designs, manufactures, markets, and maintains high efficiency, ultra-clean cogeneration products including natural gas engine-driven combined heat and power, air conditioning systems, and water heaters for residential, commercial, recreational and industrial use. Tecogen is known for cost efficient, environmentally friendly and reliable products for distributed power generation that, through patented technology, nearly eliminate criteria pollutants and significantly reduce a customer's carbon footprint.

Tecogen has two wholly-owned subsidiaries, namely, American DG Energy, Inc. ("ADGE"), a Delaware corporation formed in July 2001 and acquired by Tecogen in May 2017 pursuant to the Merger described below, and Ultra Technologies, Inc. ("Ultra Technologies"), a Delaware corporation formed in November 2017. ADGE also owns 51% of American DG New York, LLC ("ADGNY"), a joint venture. Both ADGE and ADGNY distribute, own, and operate clean, on-site energy systems that produce electricity, hot water, heat and cooling. ADGE's business model is to own the equipment that it installs at customer's facilities and to sell the energy produced by these systems to the customer on a long-term contractual basis. Ultra Technologies was organized to continue to develop and commercialize Tecogen's patented technology, Ultra®, for the automotive market. See "Our Products - Ultra Low-Emissions Technology" below for a more in depth discussion of the Ultra emissions opportunity. Tecogen, together with its wholly-owned consolidated subsidiaries, is hereinafter referred to as the "Company," "Tecogen," "we," "our," or "us."

The Company's operations are comprised of two business segments. Our Products and Services segment designs, manufactures and sells industrial and commercial cogeneration systems as described above. Our Energy Production segment sells energy in the form of electricity, heat, hot water and cooling to our customers under long-term sales agreements.

Recent Developments

On May 18, 2017, holders of approximately 71% of the ADGE's outstanding common stock approved the proposed acquisition of American DG Energy Inc. (the "Merger") and holders of approximately 55% of the outstanding stock of Tecogen approved the issuance of Tecogen shares in the Merger. Consequently, that day Tecogen completed its acquisition, by means of a stock-for-stock merger, of 100% of the outstanding common shares of ADGE. As a result, ADGE became a wholly-owned subsidiary of Tecogen. Pursuant to the Merger Agreement, at the effective time of the Merger, each outstanding share of ADGE common stock, \$.001 par value per share, was automatically converted into the right to receive 0.092 shares of common stock, \$.001 par value per share, of Tecogen (the "Exchange Ratio"), with cash paid in lieu of any fractional shares. As a result of the Merger, Tecogen issued approximately 4,662,937 shares of Tecogen common stock at \$4.02 per share. This price was based on the closing price of Tecogen's common stock on May 18, 2017, the closing date of the Merger. The aggregate value of the consideration to be paid in connection with the Merger to former holders of ADGE common stock was approximately \$18.9 million. Upon consummation of the Merger, ADGE stock options and other equity awards were converted into stock options and equity awards with respect to Tecogen common stock, after giving effect to the Exchange Ratio. See Note 4 - Acquisition of American DG Energy, Inc. of the Notes to the Consolidated Financial Statements for further information and Item 3. Legal Proceedings for information regarding litigation related to the Merger.

In May 2016, Tecogen entered into a joint venture agreement, (the "JV Agreement") with Tedom a.s., a European combined heat and power product manufacturer incorporated in the Czech Republic ("Tedom") and Tedom's subsidiary, Tedom USA, Inc., a Delaware corporation. Pursuant to the JV Agreement, the parties formed TTcogen LLC, a Delaware limited liability company ("TTcogen"), and entered into a limited liability company operating agreement (the "LLC Agreement"), through which the joint venture is operated. TTcogen offered Tedom's line of Combined Heat and Power ("CHP") products to the United States via Tecogen's nationwide sales and service network consisting of 27 CHP modules ranging in size from 35 kW up to 4 MW and fully capable of running on a variety of fuel feedstocks (including natural gas, propane, and biofuel). On September 22, 2017, the Company exercised its rights under the JV Agreement to terminate the joint venture and to begin the process of winding up TTcogen. Currently the Company and Tedom are working together to wind-up TTcogen as provided for in the JV Agreement and the LLC Agreement, and the Company will continue to market, sell, and service the Tedom 35kW CHP equipment on an exclusive basis in certain territories.

On October 28, 2017, all the shareholders of the joint venture company organized by the Company and a group of European strategic investors, Ultra Emissions Technologies, Ltd. ("Ultratek"), including the Company, unanimously voted to terminate the joint venture. Ultratek was organized to develop and commercialize Tecogen's patented technology, Ultra®, for the automotive market. The technology is designed to reduce harmful emissions generated by engines using fossil fuels. Tecogen contributed an exclusive license for use of Ultra® in the automotive space to the joint venture, and the strategic partners had committed to financing the initial research, development and testing of a viable product. Upon termination of the joint venture, Ultratek was dissolved and the exclusive license for the use of Ultra® that was granted to Ultratek automatically reverted back to the Company. The Company received its full \$2,000,000 investment in Ultratek upon the completion of the dissolution process. Upon dissolution,

the Company purchased all of the remaining assets of Ultratek, including new intellectual property that Ultratek developed and other assets, for a total purchase price of \$400,000.

On December 14, 2017, Tecogen repaid \$3,150,000 to Michaelson Capital Special Finance Fund LP ("Michaelson") to discharge the Senior Convertible Promissory Note (the "Note") with Michaelson. Through the Note, Michaelson was the Company's principle debt holder and a beneficial holder of approximately 5% of Tecogen's shares outstanding. There were no pre-payment penalties paid by the Company, as Michaelson provided a waiver of the pre-payment penalties that were contained in the Note. By completing the payment, we satisfied all our obligations under the Note and the Note was cancelled.

Business Overview

Tecogen designs, manufactures, markets, and maintains high efficiency, ultra-clean cogeneration products including natural gas engine-driven combined heat and power, air conditioning systems, and water heaters for residential, commercial, recreational and industrial use. The company is known for cost efficient, environmentally friendly and reliable products for distributed power generation that, through patented technology, nearly eliminate criteria pollutants and significantly reduce a customer's carbon footprint.

Tecogen's natural gas-powered cogeneration systems (also known as combined heat and power or "CHP") are efficient because they drive electric generators or compressors, which reduce the amount of electricity purchased from the utility while recovering the engine's waste heat for water heating, space heating, and/or air conditioning at the customer's building.

Tecogen manufactures three types of CHP products:

- Cogeneration units that supply electricity and hot water;
- Chillers that provide air-conditioning and hot water marketed under the TECOCHILL® brand name; and
- High-efficiency water heaters marketed under the Ilios® brand name.

All of these are standardized, modular, CHP products that reduce energy costs, carbon emissions, and dependence on the electric grid. Tecogen's products allow customers to produce power on-site in parallel with the electric grid or stand alone when no utility grid is available via inverter-based black-start capability. Because our CHP systems also produce clean, usable heat energy, they provide economic advantages to customers who can benefit from the use of hot water, chilled water, air conditioning and heating.

Following the acquisition of ADGE in May 2017, the Company also sells energy in the form of electricity, heat, hot water and cooling to customers under long-term energy sales agreements (with a standard term of 10 to 15 years). The typical sales model is to install and own energy systems in customers' buildings and sell the energy produced by those systems back to the customers at a cost set by a negotiated formula in customer contracts. We call this our "On-Site Utility" business, or our Energy Production segment.

Traditional customers for our cogeneration and chiller systems include hospitals and nursing homes, schools and universities, health clubs and spas, hotels and motels, office and retail buildings, food and beverage processors, multi-unit residential buildings, laundries, ice rinks, swimming pools, factories, municipal buildings, indoor agriculture, and military installations; however, the economic feasibility of using our systems is not limited to these customer types. Market drivers include the price of natural gas, local electricity rates, environmental regulations, and governmental energy policies, as well as customers' desire to become more environmentally responsible.

Through our factory service centers in California, Connecticut, Massachusetts, Michigan, New Jersey, and New York our specialized technical staff maintains our products via long-term service contracts. To, date the Company has shipped over 2,500 units, some of which have been operating for almost 30 years.

Our CHP technology uses low-cost, mass-produced engines, which we modify to run on natural gas. In the case of our mainstay cogeneration and chiller products, the engines have proven to be cost-effective and reliable. In 2009, in response to the changing regulatory requirements for stationary engines, our research team developed an economically feasible process for removing air pollutants from the engine exhaust. This technology's U.S. and foreign patents were granted beginning in October 2013 with other domestic and foreign patents granted or applications pending. Branded Ultera®, the ultra clean emissions technology repositions our engine driven products in the marketplace, making them comparable environmentally with other technologies such as fuel cells, but at a much lower cost and greater efficiency. Because of this breakthrough design for emission control, our natural gas-fueled CHP modules fitted with the patented Ultera® control technology are certified by the California Air Resources Board ("CARB") as meeting its stringent 2007 emissions requirements, the same emissions standard used to certify fuel cells, and the same emissions levels as a state-of-the-art central power plant. We now offer our Ultera emissions control technology as an option on all our products or as a stand-alone application for the retrofitting of other rich-burn spark-ignited reciprocating internal combustion engines.

Tecogen products are designed as compact modular units that are intended to be installed in multiples when utilized in larger CHP plants. The majority of our CHP modules are installed in multi-unit sites with applications ranging up to 12 units.

This approach has significant advantages over utilizing single larger units, allowing building placement in constrained urban settings and redundancy to mitigate service outages. Redundancy is particularly relevant in regions where the electric utility has formulated tariff structures that include high “peak demand” charges. Such tariffs are common in many areas of the country, and are applied by such utilities as Southern California Edison, Pacific Gas and Electric, Consolidated Edison of New York, and National Grid of Massachusetts. Because these tariffs are assessed based on customers’ peak monthly demand charge over a very short interval, typically only 15 minutes, a brief service outage for a system comprised of a single unit can create a high demand charge, and therefore be highly detrimental to the monthly savings of the system. For multiple unit sites, the likelihood of a full system outage that would result in a high demand charge is dramatically reduced, so consequently, these customers have a greater probability of capturing peak demand savings.

Our CHP products are sold directly to customers by our in-house marketing team, and by established sales agents and representatives.

ADGE installs, owns, operates and maintains complete distributed generation, or DG systems (or energy systems), and other complementary systems at customer sites, and sells electricity, hot water, heat and cooling energy under long-term contracts at prices guaranteed to the customer to be below conventional utility rates. As of December 31, 2017 we had 81 operational energy systems, representing an aggregate of approximately 5,035 kilowatts, or kW, 39.0 million British thermal units, or MMBtu's, of heat and hot water and 4,660 tons of cooling (kW is a measure of electricity generated, MMBtu is a measure of heat generated and a ton is a measure of cooling generated).

The Company's operations are comprised of two business segments. Our Products and Services segment designs, manufactures and sells industrial and commercial cogeneration systems as described above. Our Energy Production segment sells energy in the form of electricity, heat, hot water and cooling to our customers under long-term sales agreements.

Products and Services

Our Products and Services segment represented 88.5% and 100.0% of our consolidated revenues for the years ended December 31, 2017 and 2016, respectively. See Note 16. "Segments" of the Notes to the Consolidated Financial Statements. Our products and services are described below.

Our Products

We manufacture natural gas engine-driven cogeneration systems, heat pumps, and chillers, all of which are CHP products that deliver more than one form of energy. Our cogeneration products are all standard, modular units that come pre-packaged from the Company's factory for ease of installation at a customer's site. The package incorporates the engine, generator, heat-recovery equipment, system controls, electrical switchgear, emission controls, and a data controller for remote monitoring and data transmission; minimizing the cost and complexity of installing the equipment at a site. This packaged, modular system simplifies CHP technology for small to mid-sized customers who typically are less experienced with the implementation and benefits of a CHP system.

Traditionally all of our cogeneration systems and most of our chillers have utilized the same engine, the TecoDrive 7400 model. This is an engine modified by us to use natural gas fuel. In the past year, we have introduced a new, slightly larger engine into certain products with advanced features, including improved efficiency and an advanced ignition system. The CHP products utilizing the new engine are the InVerde e+® and the TecoPower models CM-60 and CM-75. The new engine and the older TecoDrive model share custom features that enhance durability and efficiency, many of which date from our extensive research done previously with engine manufacturers and the gas industry, including the Gas Research Institute. For the Ilios® water heater, we introduced a technologically advanced Ford engine that is enhanced for industrial applications.

Our commercial product lines includes:

- the InVerde e+® and TecoPower cogeneration units;
- TECOCHILL® air-conditioning and refrigeration chillers;
- Ilios® high-efficiency water heaters; and
- Ultera® emissions control technology.

InVerde Cogeneration Units

Our premier cogeneration product has been the InVerde, a 100-kW CHP system that not only provides electricity and hot water, but also satisfies the growing customer demand for operation during a utility outage, commonly referred to as “black-start” capability. Our exclusively licensed microgrid technology (see “Intellectual Property” below) enables our InVerde CHP products to provide backup power in the event of power outages that may be experienced by local, regional, or national grids. In 2017 we introduced an extensively redesigned version of the unit, the InVerde e+®, which includes a state of the art power conversion system, more effective acoustic treatment, and the larger, more efficient engine. The InVerde e+® includes variations with power ratings from 75kW to 125kW.

The InVerde e+® incorporates an inverter, which converts direct current, or DC, electricity to alternating current, or AC. With an inverter, the engine and generator can run at variable speeds, which maximizes efficiency at varying loads. The inverter then converts the generator's variable output to the constant-frequency power required by customers in 50 or 60 Hertz.

This inverter technology was developed originally for solar and wind power generation. The Company believes that the InVerde is the first commercial engine-based CHP system to use an inverter. Electric utilities accept inverter technology as "safe" by virtue of its certification to the Underwriters Laboratory interconnection standard 1741. Our InVerde has earned this certification. This qualifies our product for a much simpler permitting process nationwide and is mandatory in some areas such as New York City and California, a feature we consider to be a competitive advantage. The inverter also improves the CHP system's efficiency at partial load, when less heat and power are needed by the customer.

The InVerde's black-start feature addresses a crucial demand from commercial and institutional customers who are increasingly concerned about utility grid blackouts and brownouts, natural disasters, security threats, and antiquated utility infrastructure. Multiple InVerde units can operate collectively as a stand-alone microgrid, which is a group of interconnected loads served by one or more power sources. The InVerde is equipped with software that allows a cluster of units to seamlessly share the microgrid load without complex controls; a proprietary cost advantage for multiple modules at a single location.

The InVerde CHP system was developed in 2007 and began shipping in 2008. Our largest InVerde installation utilizes 12 units, which supply 1.2 MW of on-site power and about 8.5 million Btu/hr of heat (700,000 Btu/hr per unit).

TECOGEN Cogeneration Units

The TECOGEN cogeneration system is the original model introduced in the 1980s; available in sizes of 60 kW and 75 kW and capable of producing up to 500,000 Btu/hr of hot water. This technology is based on a conventional single-speed generator. It is meant only for grid-connected operation and is not universally accepted by utilities for interconnection, in contrast to the InVerde. Although this cogeneration product has the longest legacy and largest installed population, much of its production volume has been supplanted by the InVerde and its broader array of product features. In 2017 the Company introduced an upgraded version of the 60kW and 75kW models under the new name TecoPower. The key features of the TecoPower models are the larger engine with improved efficiency, advanced ignition system, more effective acoustic aftertreatment, and the ability to operate even at the very low gas supply pressures in New York City with a pressure booster.

TECOHILL Chillers

Our TECOCHILL® natural gas engine-driven chillers are available in capacities ranging from 25 to 400 tons, with the smaller units air-cooled and the larger ones water-cooled. Using technology first developed in 1987, the engine drives a compressor that makes chilled water, while the engine's free waste heat can be recovered to satisfy the building's needs for heat or hot water. This process is sometimes referred to as "mechanical" cogeneration, as it generates no electrical power, and the equipment does not have to be connected to the utility grid.

A gas-fueled chiller provides enough air conditioning to avoid most of the utility's seasonal peak charges for electric usage and capacity. In summer when electric rates are at their highest, natural gas is "off-peak" and quite affordable, allowing TECOCHILL® customers to avoid typically higher summer-time "peak-usage" electric rates. Gas-fueled chillers also free up the building's existing electrical capacity to use for other loads and can operate on minimal electric load in case of electric grid blackout; a key feature for customers concerned about load demand on backup power generators.

Ilios High-Efficiency Water Heaters

Tecogen has developed several heat pumps under the Ilios® brand name including a High Efficiency ("HE") Air-Source Water Heater, HE Water-Sourced Water Heater, and HE Air-Sourced "Split System" Water Heater. Our water heater products operate like an electric heat pump but use a natural gas engine instead of an electric motor to power the system. The Ilios® high-efficiency water heater uses a heat pump, which captures warmth from outdoor air even if it is moderately cool outside. Heat pumps work somewhat like a refrigerator, but in reverse. Refrigerators extract heat from inside the refrigerator and move it outside the refrigerator while heat pumps extract heat from outside and move it indoors.

The gas engine's waste heat is recovered and used in the process, unlike its electric counterpart, which runs on power that has already lost its waste heat. This means that the heat being captured from outdoors is supplemented by the engine's waste heat, which increases the efficiency of the process. The net effect is that an Ilios® heat pump's efficiency far surpasses that of conventional boilers for water heating. Gas engine heat pumps can deliver efficiencies in excess of 200%.

Similarly, if used for space heating, the engine-powered heat pump is more efficient than an electric heat pump, again because heat is recovered and used for other building processes. The product's higher efficiency translates directly to lower fuel consumption and, for heavy use customers, significantly lowers operating costs when compared with conventional equipment.

In 2013, a water-sourced model of the heat pump was added to our product line. This heat pump captures heat from a water source such as a geothermal well or from a pre-existing chilled water loop in the facility; the latter configuration provides simultaneous heating and cooling benefits, doubling the effect.

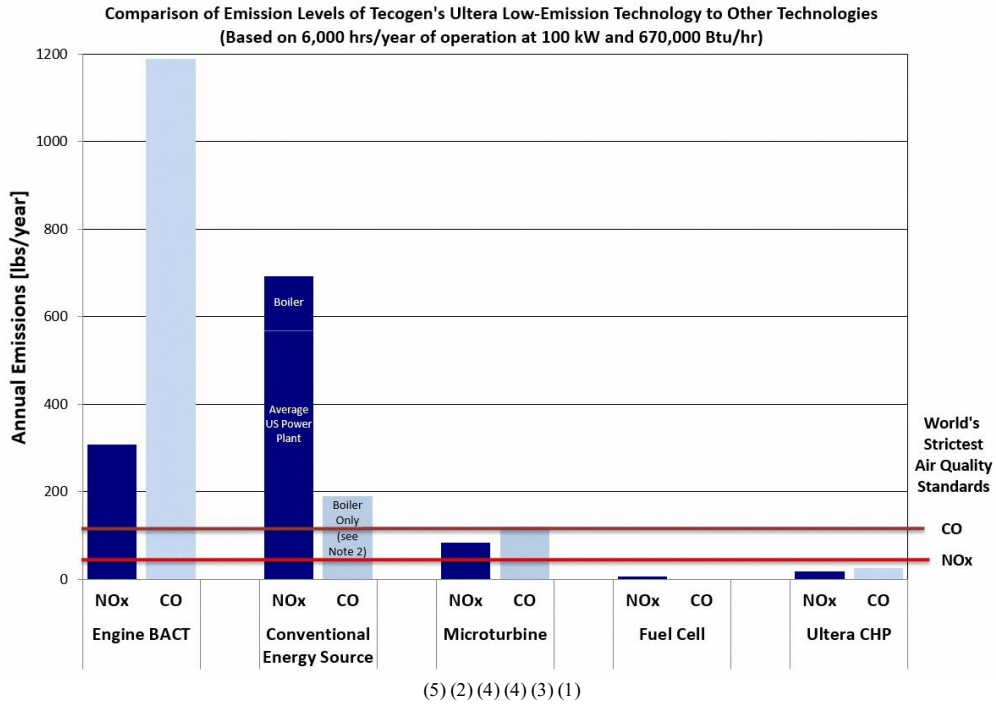
Following on the success of the water-sourced model, in early 2015 a 'split system' Ilios® model was introduced. The new split system offers increased flexibility because its air-source evaporator package can be installed remotely. The engine driven heat pump, which is contained in a small acoustic enclosure, can be located within a building's mechanical space while the quiet air-source evaporator package can be installed on a roof, or in any outdoor space. The outdoor evaporator component is connected to the indoor heat pump via refrigerant lines, therefore eliminating all freeze protection issues in colder climates. All of the water being heated remains inside the conditioned space, eliminating the need for a costly isolation heat exchanger and additional pumps, which simplifies installation and increases efficiency because it can operate at a lower delivery temperature.

The heat pump water heater serves as a boiler, producing hot water for drinking and washing, space heating, swimming pools, or other building loads. Energy cost savings to the customer depend on the climate. Heat pumps in general, whether gas or electric, perform best in moderate weather conditions although the performance of the Ilios® water-source heat pump is not impacted by weather or climate conditions. In a typical building, the Ilios® heat pump would be added on to an existing heating or water heating system, and would operate as many hours as possible. The conventional boiler would be left in place, but would serve mainly as a backup when the heat pump's engine is down for maintenance or when the heat pump cannot meet the building's peak heating load. In areas where low electric rates make CHP less economical, the Ilios® heat pump could be a financially attractive alternative because its economics depend only on natural gas rates. In some areas with high electric rates, the Ilios® option could have advantages over CHP; for example where it is hard to connect to the utility grid or where the building's need for electricity is too low for CHP to be economically sound.

Ultra Low-Emissions Technology

All of our CHP products are available with the patented Ultra® low-emissions technology as an equipment option. This breakthrough technology was developed in 2009 and 2010 as part of a research effort partially funded by the California Energy Commission and Southern California Gas Company. The objective was to bring our natural-gas engines into compliance with California's stringent air quality standards.

The chart below compares emission levels of the Company's Ultra® technology to other technologies. As of December 31, 2017 our Ultra® CHP and fuel cell technologies are the only technologies that we know of which comply with California's air quality standards for CO and NOx, represented in the chart by the colored horizontal lines, shown as the world's strictest air quality standards on the lower right of the chart.



- (1) California has the strictest air quality standards for engines in the world
- (2) Conventional Energy Source is U.S. powerplant and gas boiler. Average U.S. powerplant NOx emission rate of 0.9461 lb/MWh from (USEPA eGrid 2012). CO data not available. Gas boiler efficiency of 78% (www.eia.gov) with emissions of 20 ppm NOx @ 3% O₂ (California Regulation SCAQMD Rule 1146.2 and <50 ppmv CO @ 3% O₂ (California Regulation SCAQMD BACT).
- (3) Tecogen emissions based upon actual third party source test data.
- (4) Microturbine and Fuel Cell emissions from EPA CHP Partnership - Catalog of CHP Technologies- March 2015.
- (5) Stationary Engine BACT as defined by SCAQMD.

Through development of a two stage catalyst emission treatment system, the Company was able to meet or exceed the strict air quality regulations with a solution that is cost-effective, robust, and reliable. Inclusion of the patent-protected Ultera® low-emissions technology as an option keeps our CHP systems compliant with air quality regulations. The first commercial CHP units equipped with Ultera® low-emissions technology shipped to a California utility in 2011. We conducted three validation programs for this technology:

1. Third-party laboratory verification. The AVL California Technology Center, a long-standing research and technology partner with the international automotive industry, confirmed our results in their state-of-the-art dynamometer test cell, which was outfitted with sophisticated emissions measurement equipment.
2. Verifying longevity and reliability in the field. By equipping one of our 75 kW units, already operating at a customer location in Southern California with the Ultera® low-emissions technology and a device to continuously monitor emissions we verified longevity and reliability. The Ultera® low-emissions system operated successfully for more than 25,000 hours, approximately 3.5 years, and consistently complied with California's stringent emission standards over the entire field testing period.
3. Additional independent tests. During the field test, two companies licensed in California to test emissions each verified our results at different times. The results from one of these tests, obtained in August 2011, enabled us to qualify for New Jersey's fast-track permitting. Virtually every state nationwide requires some kind of permit related to local air quality, but New Jersey allows an exemption for systems such as ours that demonstrate superior emissions performance. This certification was granted in November 2011, and since then we have sold Ultera® low-emissions systems to customers in this territory.

In 2012, a 75 kW CHP unit equipped with the Ultera® system became our first unit to obtain a conditional air permit (i.e., pending a third party source test to verify compliance) in Southern California since the strict regulations went into effect in 2009. A state-certified source test, administered in January 2013, verified that our emissions levels were well below the new permitting requirements, and the final permit was approved in August 2013.

Standby Generators

After successfully developing the Ultera® technology for our own equipment, the Company's research & development team began exploring other possible emissions control applications in an effort to expand the market for the ultra-clean emissions system. Retrofit kits were developed in 2014 for other stationary engines and in 2015 the Ultera Retrofit Kit was applied successfully to natural gas stand-by generators from other manufacturers, including Generac and Caterpillar.

Historically, standby generators have not been subjected to the strict air quality emissions standards of traditional power generation. However, generators which run for more than 200 hours per year or run for non-emergency purposes (other than routine scheduled maintenance) in some territories are subject to compliance with the same stringent regulations applied to a typical electric utility. As demand response programs become more economically attractive and air quality regulations continue to become more stringent, there could be strong demand for retrofitting standby generators with our Ultera® emissions control technology, thus providing a cost-effective solution to keeping the installed base of standby generators operational and in compliance.

In 2017, a group of generators owned by a single customer in Southern California were supplied Ultera® kits because of their particular requirement to exceed the 200-hour annual limit. These units are now operational and have been tested by the customer and shown to be compliant with the local pollution limits which we believe to be the strictest anywhere in the United States, and potentially the world. Our CHP products have been permitted to this same standard. However, CHP products are given a heat credit which effectively increases the allowable limit. Once permitting is complete these engines will be certified to the lowest level we have achieved.

Biogas

The Ultera® emissions control technology developed by our engineering team applies specifically to rich-burn, spark-ignited, internal combustion engines. While originally intended for natural gas powered engines, we believe that our technology may be adapted for other fuel types as long as the engine meets the rich-burn criteria.

In 2015 the Ultera® system was applied to a biogas powered engine operating at the Eastern Municipal Water District's (EMWD) Moreno Valley Region Water Reclamation Facility in Perris, California. The demonstration project was a result of an ongoing collaboration between Tecogen, the EMWD and various other partners, and successfully applied an Ultera Retrofit Kit to a 50 liter Caterpillar engine fueled by biogas extracted from an anaerobic digester.

Biogas is a significant byproduct of wastewater treatment plants. Considered to be a renewable source of fuel, it is becoming an increasingly important resource for power generation. According to the American Biogas Council, nationwide there are over 1,100 engines fueled by wastewater-derived biogas, over 600 fueled by landfill-generated biogas, and over 100 running

on biogas from agricultural waste. This represents a significant potential market for the Ultera Retrofit Kit application as these biogas engines become subject to the same air quality standards as traditional power generation sources.

Automotive Emissions Control

In October 2015, following revelations of wide-scale problems with vehicle emissions compliance and testing, Tecogen formed an Emissions Advisory Committee to examine the potential application of Ultera® to the automotive gasoline market. According to the U.S. EPA, 50 percent of nitrogen oxides (NOx) and 60 percent of all carbon monoxide (CO) emissions in the United States come from vehicle exhaust. The Ultera® emission control system is designed to target both NOx and CO. After a thorough investigative process on the part of the Emissions Advisory Committee and various industry expert consultants, the group recommended that the Company pursue a funded initiative to develop the technology for gasoline vehicles.

In December 2015, the Company and a group of strategic investors formed a joint venture company, Ultra Emissions Technologies, Ltd. ("Ultratek"), to advance the Ultera® near-zero emissions technology for adaptation to transportation applications powered by spark-ignited rich-burn engines in the automobile and truck categories. Tecogen granted Ultratek an exclusive license for the development of its patented, emissions-related, intellectual property for the vehicle market.

Initially Ultratek's focus was on preliminary research, testing, and verification that the Ultera® technology can in fact be applied to gasoline engines while maintaining similar near-zero emission results as have been demonstrated in other use cases. Having completed multiple phases of testing at AVL's California Technology Center, the Ultratek team verified the viability of the Ultera® technology for gasoline automotive use.

On October 24, 2017, the Company and the group of strategic investors agreed to dissolve Ultratek due to varying opinions regarding next steps toward potential commercialization. Upon dissolution, the remaining cash was disbursed in accordance with the joint venture agreement, first to the Company which was entitled to receive its cash investment of \$2,000,000, with the remainder, on a pro rata basis, to the strategic investors. Additionally, the license the Company originally granted to Ultratek reverted back to the Company, and the Company purchased all of the remaining Ultratek assets and intellectual property that Ultratek had created for a total purchase price of \$400,000.

On November 28, 2017 Tecogen formed Ultera Technologies, Inc., a Delaware Corporation, as its wholly owned subsidiary of the Company, to continue the effort toward commercialization that was begun by Ultratek. Ultera Technologies Inc. intends to continue research and development and to produce a prototype for commercialization. If successfully developed, the market for automotive emissions control could be a source of future growth for the Company; although it could take years to realize that goal, and there is no guarantee that such efforts will be successful.

Fork-Truck Research

In October 2016, the Company was awarded a Propane Education & Research Council (PERC) research grant funding the Company's proposal to develop the Ultera® ultra-clean emissions control technology for the propane powered fork truck market.

Electric fork trucks have been making significant in-roads in the fork truck industry, in part, because of their green image and indoor air quality benefit. The primary benefit of the Ultera-equipped ultra-clean propane fork truck will be fuel cell like emissions and a propane-green brand that offers a robust indoor air quality advantage without compromising vehicle performance. The project will assess the adaption of the Ultera® near-zero emissions technology for the fork truck category and demonstrate the technical performance on popular propane fork truck models. Select industry-leading fork truck manufacturers are also participating in the research initiative.

Management believes that approximately 70,000 propane powered fork trucks are sold annually in the United States. Successful completion of this project could open a new emissions control market to the Company.

Other Ultera Applications

According to a 2013 Massachusetts Institute of Technology study, the U.S. experiences 200,000 early deaths each year due to emissions from heavy industry, transportation, and commercial and residential heating. As climate change and air quality continue to develop as areas of focus for government regulators, emissions restrictions are expected to become increasingly stringent around the world. These tightening regulations could open up new markets and applications for the Ultera® near-zero emissions control technology. These opportunities may include:

- commercial and industrial natural gas fueled engines from other manufacturers; and
- natural gas and biogas powered vehicle fleets - such as municipal bus fleets

Product Service

We provide long-term maintenance contracts, parts sales, and turnkey installation through a network of nine well-established field service centers in California, the Midwest, and the Northeast. These centers are staffed by full-time Company technicians, working from local leased facilities. The facilities provide offices and warehouse space for inventory. We encourage our customers to provide internet or phone connections to our units so that we may maintain remote communications with the

installed equipment. For connected installations, the machines are contacted daily and download their status and provide regular operational reports (daily, monthly, and quarterly) to our service managers. This communication link is used to support the diagnosis efforts of our service staff, and to send messages to preprogrammed phones if a unit has experienced an unscheduled shutdown. In many cases, communications received by service technicians from connected devices allow for proactive maintenance, minimizing equipment downtime and improving operating efficiency for the customer.

The work of our service managers, supervisors, and technicians focuses on our products. Because we manufacture our own equipment, our service technicians bring hands-on experience and competence to their jobs. They are trained at our corporate headquarters and primary manufacturing facility in Waltham, Massachusetts.

Most of our service revenue is in the form of annual service contracts, which are typically of an all-inclusive “bumper-to-bumper” type, with billing amounts proportional to the equipment's achieved operating hours for the period. Customers are thus invoiced in level, predictable amounts without unforeseen add-ons for such items as unscheduled repairs or engine replacements. We strive to maintain these contracts for many years, and work to maintain the integrity and performance of our equipment.

Our products have a long history of reliable operation. Since 1995, we have had a remote monitoring system in place that connects to hundreds of units daily and reports their “availability,” which is the amount of time a unit is running or is ready to run. More than 80% of the units operate above 90% availability, with the average being 93.8%. Our factory service agreements have directly impacted these positive results and represent an important long-term annuity-like stream of revenue for the Company.

New equipment sold beginning in 2016 and select upgrades to the existing installed equipment fleet includes an industrial internet solution which enables Tecogen to collect, analyze, and manage valuable asset data continuously and in real-time. This provides the service team with improved insight into the functionality of our installed CHP fleet. Specifically, it enables the service department to perform remote monitoring and diagnostics and to view system results in real time via a computer, smart phone or tablet. Consequently, we can better utilize monitoring data ensuring customers are capturing maximum possible savings and efficiencies from their installation. Through constant monitoring and analysis of equipment data, Tecogen expects to enhance the performance of installed equipment by ensuring machinery consistently operates at peak performance and is available to deliver maximum potential value for customers. For the past two years we have used General Electric's Company's Equipment Insight product for online monitoring. Management believes that similar monitoring solutions are available from other alternative sources.

Energy Production

Our Energy Production segment represented 11.5% and 0% of our consolidated revenues for the years ended December 31, 2017 and 2016, respectively. See Note 16 “Segments” of the Notes to the Consolidated Financial Statements. Our on-site utility business is described below.

On-Site Utility

Our wholly-owned subsidiary, ADGE, distributes, owns and operates clean, on-site energy systems that produce electricity, hot water, heat, and cooling. Our business model is to own the equipment that ADGE installs at customers' facilities and to sell the energy produced by these systems to customers on a long-term contractual basis. We call this business the “On-Site Utility” and offer natural gas powered cogeneration systems that are reliable and energy efficient. ADGE utilizes energy equipment supplied by Tecogen and other cogeneration manufacturers. Our cogeneration systems produce electricity from an internal combustion engine driving a generator, while the heat from the engine and exhaust is recovered and typically used to produce heat and hot water for use on-site. ADGE also distributes and operates water chiller systems for building cooling applications that operate in a similar manner, except that the engines in the water chiller systems drive a large air-conditioning compressor while recovering heat for hot water.

Cogeneration systems reduce the amount of electricity that a customer must purchase from the local utility and produce valuable heat and hot water on-site to use as required. By simultaneously providing electricity, hot water and heat, cogeneration systems also have a significant positive impact on the environment by reducing the carbon dioxide, or CO₂, produced by replacing a portion of the traditional energy supplied by the electric grid and conventional hot water boilers. Distributed generation of electricity, or DG, often referred to as cogeneration systems or combined heat and power systems, or CHP, is an attractive option for reducing energy costs and increasing the reliability of available energy. DG has been successfully implemented by others in large industrial installations over 10 Megawatts (“MW”), where the market has been growing for a number of years, and is increasingly being accepted in smaller sized units because of technology improvements, increased energy costs, and better DG economics. We believe that our target market for DG, users of up to 1 MW, has been barely penetrated and that the reduced reliability of the utility grid, increasing cost pressures experienced by energy users, advances in new, low cost technologies, and DG-favorable legislation and regulation at the state and federal level will drive our near-term growth and penetration of this market.

We believe that the primary opportunity for DG energy and equipment sales is in regions of the U.S. where commercial electricity rates exceed \$0.12 per kW hour, or kWh, which is predominantly in the Northeast and California. Attractive DG economics are currently attainable in applications that include hospitals, nursing homes, multi-tenant residential housing, hotels,

schools and colleges, recreational facilities, food processing plants, dairies, and other light industrial facilities. We also believe that the largest number of potential DG users in the U.S. require less than 1 MW of electric power and less than 1,200 tons of cooling capacity. We are able to design our systems to suit a particular customer's needs because of our ability to place multiple units at a site. This approach is part of what allows our products and services to meet changing power and cooling demands throughout the day (also from season-to-season) and greatly improves efficiency. As these technologies mature to the point that they are both reliable and economical, the Company will consider employing these power sources to supply energy for our customers. Management regularly assesses the technical, economic, reliability, and emissions issues associated with systems that use solar, micro-turbine, or fuel cell technologies to generate power.

Sales & Distribution

Our products are sold directly to end-users by our sales team and by established sales agents and representatives. Various agreements are in place with distributors and outside sales representatives, who are compensated by commissions for certain territories and product lines. Sales through our in-house team or sales that are not covered by a representative's territory carry no or nominal commissions. For the fiscal years ended 2017 and 2016, no distribution partner or customer relationship accounted for more than 10% of total combined company revenue.

Our product sales cycle exhibits typical seasonality for the HVAC industry with sales of chillers generally stronger in the warmer months while heat pump sales are stronger in the cooler months.

Total product and installation backlog as of December 31, 2017 was \$15.6 million compared to year end backlog 2016 of \$11.1 million. Please see "Management's Discussion and Analysis of Financial Condition and Results of Operations" and related Risk Factors below for additional information about the Company's backlog.

Markets and Customers

Worldwide, stationary power generation applications vary from huge central stationary generating facilities (traditional electric utility providers) to back-up generators as small as 2 kW. Historically, power generation in most developed countries such as the United States has been part of a regulated central utility system utilizing high-temperature steam turbines powered by fossil-fuels. This turbine technology, though steadily refined over the years, reached a maximum efficiency (where efficiency means electrical energy output per unit of fuel energy input) of approximately 40%.

A number of developments related primarily to the deregulation of the utility industry as well as significant technological advances have now broadened the range of power supply choices available to all types of customers. CHP, which harnesses waste energy from power generation processes and puts it to work for other uses on-site, can boost the energy conversion efficiency to nearly 90%, a better than two-fold improvement over the average efficiency of a fossil fuel plant. This distributed generation, or power generated on-site at the point of consumption rather than power generated centrally, eliminates the cost, complexity, and inefficiency associated with electric transmission and distribution. The implications of the CHP distributed generation approach are significant. Management believes that if CHP were applied on a large scale, global fuel usage might be dramatically curtailed and the utility grid made far more resilient.

Our CHP products address the inherent efficiency limitation of central power plants by siting generation close to the loads being served. This allows customers with energy-intensive buildings or processes to reduce energy costs and operate with a lower carbon footprint. Furthermore, with technology we have introduced, like the Ultera® low-emissions technology, our products can now contribute to better air quality at the local level while complying with the strictest air quality regulations in the United States.

Cogeneration and chiller products can often reduce the customer's operating costs (for the portion of the facility loads to which they are applied) by approximately 30% to 60% based on Company estimates, which provides an excellent rate of return on the equipment's capital cost in many areas of the country with high electricity rates. Our chillers are especially suited to regions where utilities impose extra charges during times of peak usage, commonly called "demand" charges. In these cases, the gas-fueled chiller reduces the use of electricity during the summer, the most costly time of year.

On-site CHP not only eliminates the loss of electric power during transmission, but also offsets the capital expense of upgrading or expanding the utility infrastructure. The national electric grids of many developed countries are already challenged to keep up with existing power demand. In addition, the transmission and distribution network is operating at capacity in a majority of urban areas. Decentralizing power generation by installing equipment at customer sites not only relieves the capacity burden on existing power plants, but also lessens the burden on transmission and distribution lines. This ultimately improves the grid's reliability and reduces the need for costly upgrades.

Increasingly favorable economic conditions could improve our business prospects domestically and abroad. Specifically, we believe that natural gas prices might increase from their historically depressed values, but only modestly, while electric rates would continue to rise over the long-term as utilities pay for grid expansion, better emission controls, efficiency improvements, and the integration of renewable power sources.

The largest numbers of potential new customers in the U.S. require less than 1 MW of electric power and less than 1,200 tons of cooling capacity. We are targeting customers in states with high electricity rates in the commercial sector, such as California, Connecticut, Massachusetts, New Hampshire, New Jersey, and New York. These regions also have high peak demand rates, which favor utilization of our modular units in groups so as to assure redundancy and peak demand savings. Governmental agencies in some of these regions may also provide generous rebates that can improve the economic viability of our systems.

We aggressively market to both potential domestic and international customers where utility pricing aligns with our advantages. These areas include regions that have strict emissions regulations, such as California, or those that reward CHP systems that are especially non-polluting, such as New Jersey. There are currently 23 states that recognize CHP as part of their Renewable Portfolio Standards or Energy Efficiency Resource Standards and several of them, including New York, California, Massachusetts, New Jersey, and North Carolina, have initiated specific incentive programs for CHP.

The traditional markets for CHP systems are buildings with long hours of operation and with corresponding demand for electricity and heat. Traditional customers for our cogeneration systems include hospitals and nursing homes, colleges and universities, health clubs and spas, hotels and motels, office and retail buildings, food and beverage processors, multi-unit residential buildings, laundries, ice rinks, swimming pools, factories, municipal buildings, and military installations.

Traditional customers for our chillers and heat pumps overlap with those for our cogeneration systems. Engine-driven chillers are often used as replacements for aging electric chillers because they both occupy similar amounts of floor space and require similar maintenance schedules.

On-site utility services are provided in standardized packages of energy, equipment, and services suited to the needs of property owners and operators in healthcare, hospitality, large residential, athletic facilities, and certain industrial sites. This includes national accounts and other customer groups having a common set of energy requirements at multiple locations.

Competition

Although we believe that the Company offers customers a suite of premier best-in-class clean energy and thermal solutions, the markets for our products are highly competitive. Our cogeneration products compete with the utility grid, existing technologies such as other reciprocating engine and microturbine CHP systems, and other emerging distributed generation technologies including solar power, wind-powered systems, and fuel cells. We believe that Capstone Turbine Corporation is the only microturbine manufacturer with a commercial presence in CHP.

Although operating solar and wind powered systems produce no emissions, the main drawbacks to these renewable powered systems are their dependence on weather conditions, their reliance on backup utility grid-provided power, and high capital costs that can often make these systems uneconomical without government subsidies. Similarly, while the market for fuel cells is still developing, a number of companies are focused on markets similar to ours. Fuel cells, like solar and wind powered systems, have received higher levels of incentives for the same type of applications as CHP systems in many territories. We believe that, absent these higher government incentives, our CHP solutions provide a better value and more robust solution to end users in most applications.

Additionally, our patents relating to the Ultera[®] ultra-low emissions technology give Tecogen products a strong competitive advantage in markets where severe emissions limits are imposed or where very clean power is favored, such as New Jersey, California, and Massachusetts.

Our products fall into the broad market category of distributed generation systems that produce electric power on-site to mitigate the drawbacks of traditional central power and the low efficiency of conventional heating processes.

Overall, we compete with end users' other options for electrical power, heating, and cooling on the basis of our clean technology's ability to:

- Provide power when a utility grid is not available or goes out of service;
- Reduce the customer's total cost of purchasing electricity and other fuel;
- Reduce emissions of criteria pollutants (NOx and CO) to near-zero levels and cut the emission of greenhouse gases such as carbon dioxide;
- Provide reliable on-site power generation, heating and cooling services; and
- Control maintenance costs and ensure optimal peak equipment performance.

InVerde e+[®] CHP

We believe that no other company has developed a product that competes with our inverter-based InVerde e+[®], which offers UL-certified grid connection, black-start capability, and patented variable-speed operation. An inverter-based product with at least some of these features has been introduced by others, but we believe that they face serious challenges in duplicating all the unique features of the InVerde e+[®]. Competitors product development time and costs could be significant. The Company has exclusive license rights to Microgrid algorithms developed by the University of Wisconsin researchers. We have exclusive rights for engine-driven systems utilizing natural gas or diesel fuel in the application of power generation where the per-unit output is

less than 500kW. The software allows our products to be integrated as a Microgrid, where multiple InVerde e+® units can be seamlessly isolated from the main utility grid in the event of an outage and re-connected to it afterward. We expect that our patents and license for Microgrid software will deter others from offering certain important functions. See "Business-Intellectual Property".

Similarly, in the growing Microgrid segment, neither fuel cells nor microturbines can respond to changing energy loads when the system is disconnected from the utility grid. Engines such as those used in the Company's equipment inherently have a fast dynamic response to step load changes, which is why they are the primary choice for emergency generators. Fuel cells and microturbines require additional energy storage systems to be utilized in off-grid operation, giving our engine-driven solutions an advantage for Microgrid and resiliency applications.

TECOHILL Chillers

The Company's TECOHILL line of chillers are the only gas-engine-driven chillers available on the market. Natural gas can also fuel absorption chillers, which use fluids to transfer heat without an engine drive. However, engine chillers continue to have an efficiency advantage over absorption machines. TECOHILL chillers reach efficiencies well above levels achieved by similarly sized absorption systems. Today's relatively low natural gas prices in the United States improve the economics of gas-fueled chillers while their minimal electric demand on back up power systems make them ideal for facilities requiring critical precision climate control.

Ilios® Heat Pump

There are a few companies manufacturing gas-engine heat pumps. Two companies that we deem to be competitors are Yanmar and Tedom. The Ilios® water heater and other heat pump products compete in both the high-efficiency water heating market and the CHP market.

On-Site Utility

Our on-site utility business competes with established utilities that provide electricity, wholesale electricity and gas utility distributors, companies that provide services similar to ours, and other forms of alternative energy. We believe DG is gaining acceptance in regions where energy customers are dissatisfied with the cost and reliability of traditional electricity services. These end-users, together with growing support from state legislatures and regulators, are creating a favorable climate for the growth of DG that is overcoming the objections of established utility providers. In our target markets, we compete with large utility companies such as Con Edison Inc. and Long Island Power authority in New York, Public Service Electric and Gas Company in New Jersey, and Eversource and National Grid USA Service Company, Inc. in Massachusetts. These companies are much larger than us in terms of revenues, assets, marketing, and other resources, but we target the same markets and customers. We compete with large utility companies by marketing our electricity services to the same potential commercial building customers. We compete on the basis of the cost, service, price, and favorable environmental benefits of generating energy with our installed systems. We also compete with other on-site utility companies, such as Aegis Energy Services Inc. and All Systems Cogeneration Inc.

Research & Development

Tecogen's long and rich research and development tradition and sustained programs have allowed us to cultivate deep engineering expertise. We have strong core technical knowledge that is critical to product support and continuous product improvement efforts. Our TecoDrive engine, permanent magnet generator, cogeneration and chiller products, InVerde, Ilios® heat pumps, and most recently the Ultera® emissions control system were all created and optimized in-house with both public and private funding support.

We continue to seek to forge alliances with utilities, government agencies, universities, research facilities, and manufacturers. The Company has already succeeded in developing new technologies and products in collaboration with several entities, including:

- Sacramento Municipal Utility District has provided test sites for the Company since 2010.
- Southern California Gas Company and San Diego Gas & Electric Company, each a Sempra Energy subsidiary have granted us research and development contracts since 2004.
- Department of Energy's Lawrence Berkeley National Laboratory, with which the Company has had research and development contracts since 2005, including ongoing Microgrid development work related to the InVerde.
- Eastern Municipal Water District has co-sponsored demonstration projects to retrofit both a natural-gas powered municipal water pump engine and a biofuel powered pumping station engine with the Ultera low emissions technology since 2012.
- Consortium for Electric Reliability Technology Solutions executed research and development contracts with the Company, and provided a test site to the Company since 2005.
- California Energy Commission executed research and development contracts with the Company from 2004 until March 2013.
- The AVL California Technology Center performed a support role in research and development contracts as well as internal research and development on our Ultera® emission control system from August 2009 to November 2011. Currently, this testing center's work on emissions from gasoline vehicles which began in January of 2016 continues for the Ultra Emissions products.
- Propane Education & Research Council (PERC) executed research and development contracts with the Company for work related to developing Ultera low emissions control systems for the propane powered fork truck market.
- The Southwest Research Institute (SWRI), a non-profit independent research center located in San Antonio, Texas, has been engaged by the Company to complete the next phase of research in the Ultera® automotive application. This effort will focus on evaluation of advanced catalyst formulations tailored to the Ultera® process.

Our efforts to forge partnerships continue to focus on utilities, particularly to promote the InVerde, our most utility-friendly product. The nature of these alliances varies by utility, but includes simplified interconnection, joint marketing, ownership options, peak demand mitigation agreements, and customer services. We have commissioned a Microgrid with the Sacramento Municipal Utility District at its headquarters in Sacramento, California, where the central plant incorporated three InVerde systems equipped with our Ultera® low-emissions technology. Some expenses for this project were reimbursed to the utility through a grant from the California Energy Commission.

Certain components of our InVerde product were developed through a grant from the California Energy Commission. This grant includes a requirement that we pay royalties on all sales of all products related to the grant. As of December 31, 2017, such royalties accrued in accordance with this grant agreement were less than \$6,000 on an annual basis.

Our relationship with the Propane Education & Research Council (PERC) plays an instrumental role in the development of our Ultera® emissions control system for the propane powered fork truck market.

We also continue to leverage our resources with government and industry funding, which has yielded a number of successful developments, including the Ultera® low-emissions technology, sponsored by the California Energy Commission and Southern California Gas Company. Pursuant to the terms of the grants from the California Energy Commission, the California Energy Commission has a royalty-free, perpetual, non-exclusive license to these technologies for government purposes.

For the years ended December 31, 2017 and 2016, we spent approximately \$936,929 and \$667,064, respectively, in research and development activities.

Intellectual Property

Patents

We currently hold six United States patents for our technologies:

- 9,470,126: "Assembly and method for reducing ammonia in exhaust of internal combustion engines." This patent, granted in October 2016, is related to the *Ultera* emission control system applicable to all of our products.
- 9,121,326: "Assembly and method for reducing nitrogen oxides, carbon monoxide and hydrocarbons in exhausts of internal combustion engines." This patent, granted in September 2015, is related to the *Ultera* emission control system applicable to all of our products.
- 8,829,698: "Power generation systems." This patent, granted in September 2014, is for a power generation system that includes an internal combustion engine configured to provide rotational mechanical energy.
- 8,578,704: "Assembly and method for reducing nitrogen oxides, carbon monoxide, and hydrocarbons in exhausts of internal combustion engines." This patent, granted in November 2013, is for the *Ultera* emission control system applicable to all our products.

- 7,239,034: "Engine driven power inverter system with cogeneration." This patent, granted in July 2007, pertains to the utilization of an engine-driven CHP module combined with an inverter and applies to our *InVerde* product specifically.
- 7,243,017: "Method for controlling internal combustion engine emissions." This patent, granted in July 2007, applies to the specific algorithms used in our engine controller for metering fuel usage to obtain the correct combustion mixture and is technology used by most of our engines.

We have filed for several additional patents, most notable among them are the following:

- "Systems and methods for reducing emissions in exhaust of vehicles and producing electricity." This application, filed in November 2015 and published in March 2016, is related to the development of the *Ultera* emission control system for vehicle applications.
- "Poison-Resistant Catalyst and Systems Containing Same." This application, filed in March 2016, relates to treatment of exhaust generated by internal combustion engines, combustion turbines, and boilers, and more particularly to systems and method for treating exhausts containing one or more poisons, such as sulfur.
- "Internal Combustion Engine Controller." This application, filed in October 2015, relates to controllers and control circuits for controlling an internal combustion engine, including a gas fired internal combustion prime motor used for driving a generator for generating electrical power.
- "Emissions Control Systems and Methods for Vehicles." This application, filed in April 2016 relates to emissions control systems for vehicles.
- "Assemblies and Methods for Reducing Particulate Matter, Hydrocarbons, and Gaseous Oxides from Internal Combustion Engine Exhaust." This application, filed in February 2017 relates to emissions controls system for vehicles.
- "Dual Stage Internal Combustion Engine Aftertreatment System Using Exhaust Gas Intercooling and Charger-Driven Air Ejector." This application filed in February 2017 relates to emissions controls systems for vehicles.

In addition, the Company licensed specific rights to Microgrid software algorithms developed by University of Wisconsin researchers for which we pay royalties to the assignee, The Wisconsin Alumni Research Foundation (WARF). The specific patent named in our agreement is "Control of small distributed energy resources" (7,116,010), granted in 2006. Our exclusive rights are valid for engine-driven systems utilizing natural gas or diesel fuel in the application of power generation where the per-unit output is less than 500 kW. The software allows our products to be integrated as a Microgrid, where multiple *InVerde* units can be seamlessly isolated from the main utility grid in the event of an outage and re-connected to it afterward. The licensed software allows us to implement such a Microgrid with minimal control devices and associated complexity and cost. Tecogen pays WARF a royalty for each cogeneration module sold using the licensed technology. Such royalty payments have been in the range of \$5,000 to \$20,500 on an annual basis through the year ended December 31, 2017. In addition, WARF reserved the right to grant non-profit research institutions and governmental agencies non-exclusive licenses to practice and use, for non-commercial research purposes, the technology developed by the Company that is based on the licensed software.

We consider our patents and licensed intellectual property to be important in the operation of our business. The expiration, termination, or invalidity of one or more of these patents may have a material adverse effect on our business. Our earliest patent, licensed from WARF, was issued in 2006 and expires in 2022. Most of our current patents expire between 2022 and 2027.

We believe that one other company, Aegis Energy Service Inc., has developed a product that competes with our inverter-based *InVerde*. We anticipate that an inverter-based product with at least some of these features will be introduced by others, but we believe that competitors will face serious challenges in duplicating the *InVerde*. Product development time and costs would likely be significant, and we expect that our patent for the inverter-based CHP system (7,239,034) would offer significant protection, for key features. We consider the Microgrid software algorithm licensed from WARF to be a key feature of our *InVerde* product, and one that would be difficult to duplicate outside the patent.

In 2013, we purchased rights to designs and technologies, including patents granted or pending for our permanent magnet generators. A key component of our *InVerde* module uses this acquired technology.

The recent issuance by the U.S. PTO of the patent for the *Ultera*® low-emissions control technology keeps that technology exclusive to us. It applies to all of our gas engine-driven products and may have applications to other rich-burn spark-ignited internal combustion engines. We have also filed for or been granted patents for this technology in Europe, Australia, Brazil, Canada, China, Costa Rica, Dominican Republic, India, Japan, Mexico, New Zealand, Republic of Korea, Singapore, and South Africa. There is no assurance, however, that the *Ultera* low-emissions control patent applications will be approved in any other country.

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Our control software is protected by copyright laws or on an exclusive license agreement.

Trademarks

The Company has registered the brand names of our equipment and logos used on our equipment. These registered trademarks include Tecogen, Tecochill, Ultera, InVerde, Ilios, InVerde+ and the associated logos. We will continue to trademark our product names and symbols.

We rely on treatment of our technology as trade secrets through confidentiality agreements, which our employees and vendors are required to sign. Also, we rely on non-disclosure agreements with others that have or may have access to confidential information to protect our trade secrets and proprietary knowledge.

Sourcing & Manufacturing

We are focused on continuously strengthening our manufacturing processes and increasing operational efficiencies within the Company. Many of the components used in the manufacture of our highly-efficient clean energy equipment are readily fabricated from commonly available raw materials or are standard available parts sourced from multiple suppliers. We believe that in most cases, adequate supplies exist to meet our near to medium term manufacturing needs. Tecogen has an on-going focus on developing and implementing new systems to simplify our manufacturing processes, product sourcing methods, and our supply chain.

The Company has a combined total of approximately 26,000 square feet of manufacturing and warehouse space running on a single 5-day per week shift at the Waltham, Massachusetts facility. We believe we have sufficient spare capacity to meet near to medium term demand without incurring additional fixed costs.

Government & Regulation

Several kinds of federal, state and local government regulations affect our products and services, including but not exclusive to:

- Product safety certifications and interconnection requirements;
- Air pollution regulations which govern the emissions allowed in engine exhaust;
- State and federal incentives for CHP technology;
- Various local building and permitting codes and third party certifications;
- Electric utility pricing and related regulations; and
- Federal versus state laws regarding the legalization of cannabis for medicinal and recreational use.

Our markets can be positively or negatively impacted by the effects of governmental and regulatory matters. We are impacted not only by energy policy, laws, regulations and incentives of governments in the markets in which we sell, but also by rules, regulations and costs imposed by utilities. Utility companies or governmental entities may place barriers on the installation or interconnection of our products with the electric grid. Further, utility companies may charge additional fees to customers who install on-site power generation; thereby reducing the electricity they take from the utility, or for having the capacity to use power from the grid for back-up or standby purposes. These types of restrictions, fees or charges could hamper the ability to install or effectively use our product, or increase the cost to our potential customers for using our systems. This could make our systems less desirable, adversely impacting our revenue and profitability. In addition, utility rate reductions can make our products less competitive, causing a material adverse effect on our operations. These costs, incentives and rules are not always the same as those faced by technologies with which we compete.

Similarly, rules, regulations, laws and incentives could also provide an advantage to our distributed generation solutions as compared with competing technologies if we are able to achieve required compliance in a lower cost, more efficient manner. Additionally, reduced emissions and higher fuel efficiency could help our customers combat the effects of global warming. Accordingly, we may benefit from increased government regulations that impose tighter emission and fuel efficiency standards. We encourage investors and potential investors to carefully consider associated Risk Factors detailed below which highlight various aspects of the regulatory environment and other related risks.

Our products are well-suited to meet the needs of the rapidly emerging indoor agriculture market, including cannabis. To date our focus in the indoor agricultural market has primarily involved cannabis, a high revenue generating potential. However, we have sold to other indoor agricultural growers, and we believe that the indoor food production market will provide significant opportunities for the Company. While sales to cannabis growers made up less than 5% of total revenue in 2017, we believe this segment of the indoor agriculture market in particular has the potential to be a major driver of growth as states move to legalize the use of cannabis for medicinal purposes and possibly even recreational use. However, under the Controlled Substances Act (CSA) cannabis continues to be categorized as a Schedule I drug, so that cannabis growers continue to face significant uncertainty regarding their ability to conduct business.

First passed by Congress in 2014, the Rohrabcher-Farr Amendment is an amendment to the annual appropriations bill that, among other things, funds the Department of Justice. It prohibits the Attorney General from using funds to prosecute the medical use of cannabis. It does not address recreational use. On January 4, 2018, US Attorney General Jeff Sessions rescinded the Cole memo. Written in 2013, the Cole memo had directed US Attorneys not to allocate resources to prosecute "individuals whose actions are in clear and unambiguous compliance with existing state laws" regarding the cannabis market. As of the date of this filing, to our knowledge, no US Attorney in a district where the recreational use of cannabis has taken action against

participants in the recreational cannabis market operating in accordance with state law. However, none have unambiguously stated that they intend to take no action. Consequently, we face uncertainty regarding the potential for growth from the cannabis industry.

Our Energy Production segment is subject to extensive government regulation. We are required to file for local construction permits (electrical, mechanical and the like) and utility interconnects, and must make various local and state filings related to environmental emissions.

In the past, many electric utility companies have raised opposition to DG, a critical element of our On-Site Utility business. Such resistance has generally taken the form of stringent standards for interconnection and the use of target rate structures as disincentives to combined generation of on-site power and heating or cooling services. A DG company's ability to obtain reliable and affordable back-up power through interconnection with the grid is essential to the business model. Utility policies and regulations in most states are often not prepared to accommodate widespread on-site generation. These barriers erected by electric utility companies and unfavorable regulations, where applicable, make more difficult or uneconomic our ability to connect to the electric grid at customer sites and are an impediment to the growth of this segment. The development of this segment could be adversely affected by any slowdown or reversal in the utility deregulation process or by difficulties in negotiating back-up power supply agreements with electric providers in the areas where we intend to do business.

Employees

As of December 31, 2017, we employed 91 full-time employees and 4 part-time employees, including 7 sales and marketing personnel and 46 service personnel. We believe that our relationship with our employees is satisfactory. Seven of our New Jersey service employees are represented by a collective bargaining agreement which was executed on December 30, 2016 with an effective date of January 1, 2017.

Item 1A. Risk Factors

Our business, operations, and the Company face many risks. The risks described below may not be the only risks we face. Additional risks that we do not yet know of, or that we currently think are immaterial, may also impair our business operations or financial results. If any of the events or circumstances described in the following risks occur, our business, financial condition or results of operations could suffer and the trading price of our common stock could decline. Investors and prospective investors should consider the following risks and the information contained under the heading "Cautionary Note Concerning Forward-Looking Statements" above before deciding whether to invest in our securities.

Risks Relating to Our Business

To the extent cash generated from operations in the future is insufficient to fund our operating requirements, we will be required to seek outside financing. Our inability to obtain necessary capital or financing to fund these working capital needs will adversely affect our ability to expand our operations.

If the cash generated by operations is insufficient to fund our future operating requirements, we will need to raise additional funds through public or private equity or debt financings. Such financing may not be available to us when needed, or if available, may not be available on terms that are favorable to us and could result in significant dilution to the holdings of our stockholders. Furthermore, any such debt financing is likely to include financial and other covenants that may impede our ability to react to changes in the economy or industry. Although we are in discussions with various possible funding sources and have executed a term sheet, we have no commitments for any such financing at this time. If adequate financing is not available when needed, we may be required to implement cost-cutting strategies, delay production, curtail research and development efforts or implement other measures, which may adversely affect our overall business results of operations and financial condition.

If we experience a period of significant growth or expansion, it could place a substantial strain on our resources.

If our cogeneration and chiller products penetrate the market rapidly, we may be unable deliver large volumes of technically complex products or components to our customers on a timely basis and at a reasonable cost to us. We have never ramped up our manufacturing capabilities to meet significant large-scale production requirements. If we were to commit to deliver large volumes of products, we may not be able to satisfy these commitments on a timely and cost-effective basis.

Our operating history is characterized by net losses and there can be no assurance we will be able to increase our sales and sustain profitability in the future.

Although we were able to generate net income from our Products and Services segment for the year ended December 31, 2017, we have historically incurred annual operating losses from such segment. Such business is capital intensive and, because our products generally are built to order with customized configurations, the lead time to build and deliver a unit can be significant. We may be required to purchase key components long before we can deliver a unit. Changes in customer orders or lack of demand may also impact our profitability. There can be no assurance we will be able to increase our sales and sustain or increase or profitability in the future.

We are dependent on a limited number of third-party suppliers for the supply of key components for our products.

We use third-party suppliers for components in all of our products. Our engine supplier, generator supplier for cogeneration products (other than the InVerde), and the compressor and vessel sets in our chillers, are all purchased from large multinational equipment manufacturers. The loss of one or more of our suppliers could materially and adversely affect our business if we are unable to replace them. While alternate suppliers for the manufacture of our engine, generator and compressor have been identified, should the need arise, there can be no assurance that alternate suppliers will be available and able to provide such items on acceptable terms or on a timely basis.

From time to time, shipments can be delayed because of industry-wide or other shortages of necessary materials and components from third-party suppliers, as well as shipping delays at points of importation. A supplier's failure to supply components in a timely manner, or to supply components that meet our quality, quantity, or cost requirements, or our inability to obtain substitute sources of these components on a timely basis or on terms acceptable to us, could impair our ability to deliver our products in accordance with contractual obligations.

The amount of the Company's backlog is subject to fluctuation due to its customers' experiencing unexpected delays in financing, permitting or modifications in specifications of the equipment.

The Company's total product and installation backlog as of December 31, 2017 was \$15.7 million compared to \$11.1 million as of 2016. Although Tecogen expects its customers to issue definitive purchase orders with respect to such backlog, there can be no assurance that such amounts will not be subject to modification in the event customers experience unexpected delays in obtaining permits, interconnection agreements or financing. Any of such events may result in customers modifying the equipment or the terms or timing of the expected installation, which may result in changes to the amount of backlog attributed to those projects.

We expect significant competition for our products and services.

Many of our competitors and potential competitors are well established and have substantially greater financial, research and development, technical, manufacturing and marketing resources than we do. If these larger competitors decide to focus on the development of distributed power or cogeneration, they have the manufacturing, marketing and sales capabilities to complete research, development, and commercialization of these products more quickly and effectively than we can. There can also be no assurance that current and future competitors will not develop new or enhanced technologies or more cost-effective systems, and therefore, there can be no assurance that we will be successful in this competitive environment.

If we are unable to maintain our technological expertise in design and manufacturing processes, we will not be able to successfully compete.

We believe that our future success will depend upon our ability to continue to develop and provide innovative products and product enhancements that meet the increasingly sophisticated needs of our customers.

However, this requires that we successfully anticipate and respond to technological changes in design and manufacturing processes in a cost-effective and timely manner. The development of new, technologically advanced products and enhancements is a complex and uncertain process requiring high levels of innovation, as well as the accurate anticipation of technological and market trends. There can be no assurance that we will successfully identify new product opportunities, develop and bring new or enhanced products to market in a timely manner, successfully lower costs, and achieve market acceptance of our products, or that products and technologies developed by others will not render our products or technologies obsolete or noncompetitive.

The introduction of products embodying new technologies and the shifting of customer demands or changing industry standards could render our existing products obsolete and unmarketable. We may experience delays in releasing new products and product enhancements in the future. Material delays in introducing new products or product enhancements may cause customers to forego purchases of our products and purchase those of our competitors.

Our intellectual property may not be adequately protected.

We seek to protect our intellectual property rights through patents, trademarks, copyrights, trade secret laws, confidentiality agreements, and licensing arrangements, but we cannot ensure that we will be able to adequately protect our technology from misappropriation or infringement. We cannot ensure that our existing intellectual property rights will not be invalidated, circumvented, challenged, or rendered unenforceable.

Our competitors may successfully challenge the validity of our patents, design non-infringing products, or deliberately infringe our patents. There can be no assurance that other companies are not investigating or developing other similar technologies. In addition, our intellectual property rights may not provide a competitive advantage to us or ensure that our products and technology will be adequately covered by our patents and other intellectual property. Any of these factors or the expiration, termination, or invalidity of one or more of our patents may have a material adverse effect on our business.

Others may assert that our technology infringes their intellectual property rights.

We may be subject to infringement claims from time to time. The defense of any claims of infringement made against us by third parties could involve significant legal costs and require our management to divert time from our business operations. If we are unsuccessful in defending any claims of infringement, we may be forced to obtain licenses or to pay additional royalties to continue to use our technology. We may not be able to obtain any necessary licenses on commercially reasonable terms or at all. If we fail to obtain necessary licenses or other rights, or if these licenses are costly, our operating results would suffer either from reductions in revenues through our inability to serve customers or from increases in costs to license third-party technologies.

Our success is dependent upon attracting and retaining highly qualified personnel and the loss of key personnel could significantly hurt our business.

To achieve success, we must attract and retain highly qualified technical, operational and executive employees. The loss of the services of key employees or an inability to attract, train and retain qualified and skilled employees, specifically engineering, operations, and business development personnel, could result in the loss of business or could otherwise negatively impact our ability to operate and grow our business successfully.

Our business is subject to product liability and warranty claims.

Our business exposes us to potential product liability claims, which are inherent in the manufacturing, marketing and sale of our products, and we may face substantial liability for damages resulting from the faulty design of products, manufacture of products or improper use of products by end users. We currently maintain a moderate level of product liability insurance, but there can be no assurance that this insurance will provide sufficient coverage in the event of a claim. Also, we cannot predict whether we will be able to maintain such coverage on acceptable terms, if at all, or that a product liability claim would not harm our business or financial condition. In addition, negative publicity in connection with the faulty design or manufacture of our products would adversely affect our ability to market and sell our products.

We sell our products with limited warranties. There can be no assurance that the provision in our financial statements for estimated product warranty expense will be sufficient. We cannot ensure that our efforts to reduce our risk through warranty disclaimers will effectively limit our liability. Any significant occurrence of warranty expense in excess of estimates could have a material adverse effect on our operating results, financial condition and cash flow. Further, we have at times undertaken programs to enhance the performance of units previously sold. These enhancements have at times been provided at no cost or below our cost. If we choose to offer such programs again in the future, such actions could result in significant costs.

Utilities or governmental entities could hinder our entry into and growth in the marketplace, and we may not be able to effectively sell our products.

Utilities or governmental entities on occasion have placed barriers to the installation of our products or their interconnection with the electric grid, and they may continue to do so. Utilities may charge additional fees to customers who install on-site CHP and rely on the grid for back-up power. These types of restrictions, fees, or charges could make it harder for customers to install our products or use them effectively, as well as increasing the cost to our potential customers. This could make our systems less desirable, thereby adversely affecting our revenue and other operating results.

The reduction, elimination or expiration of government and economic incentives for applications of our equipment could reduce demand for our equipment and harm our business.

The market for cogeneration equipment depends in part on the availability and size of government and economic incentives that vary by geographic market. Because our sales are typically into geographic areas with such incentives, elimination, or expiration of government subsidies and economic incentives for cogeneration equipment may negatively affect the competitiveness of equipment relative to other sources of electricity, heating, and cooling equipment, and could harm or halt the growth of the cogeneration industry and our business. In particular, the Company depends on the New York State Energy Development Authority CHP Program (PON 2568) and the New Jersey Smart Start Combined Heat and Power Incentive.

The Company sometimes incorporates price reduction on equipment sold to customers based on the anticipated receipt of governmental economic incentive payments, and applies for and collects the incentives payments. If such incentives become unavailable to the Company the Company may be materially adversely affected.

Competing sources of electricity, heating, and cooling equipment may successfully lobby for changes in the relevant legislation in their markets that are harmful to the cogeneration industry. Reductions in, or eliminations or expirations of, governmental incentives in regions where we focus our sales efforts could result in decreased demand for and lower revenue from cogeneration equipment there, which would adversely affect the Company. In addition, our ability to successfully penetrate new geographic markets may depend on new geographic areas adopting and maintaining incentives to promote cogeneration, to the extent such incentives are not currently in place. Additionally, electric utility companies may establish pricing structures or interconnection requirements that could adversely affect our sales and be harmful to cogeneration.

We may not achieve production cost reductions necessary to competitively price our products, which would adversely affect our sales.

We believe that we will need to reduce the unit production cost of our products over time to maintain our ability to offer competitively priced products. Our ability to achieve cost reductions will depend on our ability to develop low-cost design enhancements, to obtain necessary tooling and favorable supplier contracts, and to increase sales volumes so we can achieve economies of scale. We can make no assurance that we will be able to achieve any such production cost reductions. Our failure to do so could have a material adverse effect on our business and results of operations.

Our products involve a lengthy sales cycle and we may not anticipate sales levels appropriately, which could impair our results of operations.

The sale of our products typically involves a significant commitment of capital by customers, with the attendant delays frequently associated with large capital expenditures. For these and other reasons, the sales cycle associated with our products is typically lengthy and subject to a number of significant risks over which we have little or no control. We expect to plan our production and inventory levels based on internal forecasts of customer demand, which is highly unpredictable and can fluctuate substantially. If sales in any period fall significantly below anticipated levels, our financial condition, results of operations and cash flow would suffer. If demand in any period increases well above anticipated levels, we may have difficulties in responding, incur greater costs to respond, or be unable to fulfill the demand in sufficient time to retain the order, which would negatively impact our operations. In addition, our operating expenses are based on anticipated sales levels, and a high percentage of our expenses are generally fixed in the short term. As a result of these factors, a small fluctuation in timing of sales can cause operating results to vary materially from period to period.

The economic viability of our projects depends on the price spread between fuel and electricity, and the variability of these prices creates a risk that our projects will not be economically viable and that potential customers will avoid such energy price risks.

The economic viability of our CHP products depends on the spread between natural gas fuel and electricity prices. Volatility in one component of the spread, such as the cost of natural gas and other fuels (e.g., propane or distillate oil), can be managed to some extent by means of futures contracts. However, the regional rates charged for both base load and peak electricity may decline periodically due to excess generating capacity or general economic recessions.

Our products and on-site utility service could become less competitive if electric rates were to fall substantially in the future, although, historically, electric rates have not had any sustained decline in price. Potential customers may perceive the risk of unpredictable swings in natural gas and electricity prices as a risk of investing in on-site CHP, and may decide not to purchase CHP products.

We are exposed to credit risks with respect to some of our customers.

To the extent our customers do not advance us sufficient funds to finance our costs during the execution phase of our contracts, we are exposed to the risk that they will be unable to accept delivery or that they will be unable to make payment at the time of delivery.

We may make acquisitions or take other corporate strategic actions that could harm our financial performance.

To expedite development of our business, including with regard to equipment installation and service functions, we anticipate investigating and potentially pursuing future acquisitions of complementary businesses. Risks associated with such acquisitions include the diversion of management attention and cash from operating to costs associated with acquisitions, disruption of our existing operations, loss of key personnel in the acquired companies, dilution through the issuance of additional securities, assumptions of existing liabilities, and commitment to further operating expenses. If any or all of these problems actually occur, acquisitions could negatively impact our financial performance and future stock value.

The Company has recently completed the acquisition of ADGE. As the Company continues to integrate ADGE's business model into its operations, the Company's financial condition, cash flows, and results of operations could be negatively impacted.

U.S. federal income tax reform could adversely affect us.

On December 22, 2017, U.S. federal tax legislation, commonly referred to as the Tax Cuts and Jobs Act ("TCJA"), was signed into law, significantly reforming the U.S. Internal Revenue Code. The TCJA contains significant changes to the U.S. federal corporate income taxation, including reduction of the corporate tax rate from 35% to 21% for US taxable income. Further, it imposes significant additional limitations on the deductibility of interest, allows for the expensing of capital expenditures, puts into effect the migration from a "worldwide" system of taxation to a territorial system, and modifies or repeals many business deductions and credits. We continue to examine the impact the TCJA may have on our business. The Company is in the process of quantifying the impact of the TCJA and will record any adjustments in accordance with the guidance provided in SAB118.

The impact of the TCJA on holders of common stock is uncertain and could be adverse. This Annual Report does not discuss any such tax legislation or the manner in which it might affect investors of our common stock. Investors should consult with their own tax advisors with respect to such legislation and the potential tax consequences of investing in our common stock.

Our business and financial performance may be adversely affected by information systems interruptions, cybersecurity attacks or other disruptions which could have a material adverse effect on our business and results from operations.

We depend upon information technology, infrastructure, including network, hardware and software systems to conduct our business. Despite our implementation of network and other cybersecurity measures, our information technology system and networks could be disrupted or experience a security breach from computer viruses, break-ins and similar disruptions from unauthorized tampering with our computer systems. Our security measures may not be adequate to protect against highly targeted sophisticated cyber-attacks, or other improper disclosures of confidential and/or sensitive information. Additionally, we may have access to confidential or other sensitive information of our customers, which despite our efforts to protect, may be vulnerable to security breaches, theft, or improper disclosure any of which could have a material adverse effect on our competitive position, results of operations, cash flows or financial condition.

Risks Relating to the Company's Acquisition of ADGE

Through ADGE, we may be exposed to substantial liability claims if we fail to fulfill our obligations to our customers or our on-site equipment malfunctions.

Through ADGE we enter into contracts with large commercial and not-for-profit customers under which we assume responsibility for meeting a portion of the customers' building energy demand and equipment installation. We may be exposed to substantial liability claims if we fail to fulfill our obligations to customers. If the equipment malfunctions, it may be costly to repair or replace. There can be no assurance that we will not be vulnerable to claims by customers and by third parties that are beyond any contractual protections that we are able to negotiate. As a result, liability claims could cause us significant financial harm.

Expiring ADGE customer contracts may lead to decreases in revenue and increases in expenses.

Each year, a portion of our customer contracts expire and need to be renewed or replaced. We may not be able to renew or extend contracts with existing customers or obtain replacement contracts at attractive rates or for the same term as the expiring contracts. To the extent ADGE is unable to extend customer contracts prior to their expiration date, energy production revenue will decline due to less energy billing. Expiring customer contracts can also lead to an increase in expenses because we are obligated to remove the equipment from the customer location at our own expense at the end of the customer contract.

ADGE revenue from energy billing is partly dependent on the weather and increased temperatures could reduce our revenue.

In warmer months the customers do not use as much thermal energy because they do not have as much demand for heat at their locations. Due to lower demand in warmer months we may not be able to bill for thermal energy and in turn may have a decrease in revenue.

Although Tecogen expects that the acquisition of ADGE will result in synergies and other benefits to the Company, we may not realize those benefits because of difficulties related to integration, the realization of synergies, and other challenges.

Tecogen and ADGE operated, until completion of the Merger, independently, and there can be no assurances that the respective businesses can be combined in a manner that allows for the achievement of substantial benefits. It is possible that there could be loss of Tecogen's or ADGE's key employees, the loss of customers, the disruption of either company's or both companies' ongoing businesses or unexpected issues, higher than expected costs and an overall post-completion process that takes longer than originally anticipated. Specifically, the following issues, among others, must be successfully addressed in combining Tecogen's and ADGE's operations in order to realize the anticipated benefits of the transaction:

- combining Tecogen's and ADGE's businesses in a manner that permits Tecogen to achieve the synergies anticipated to result from the transaction, the failure of which would result in the anticipated benefits of the transaction not being realized in the time frame currently anticipated or at all;
- maintaining existing agreements with customers, distributors, and vendors and avoiding delays in entering into new agreements with prospective customers, distributors, and vendors; and
- addressing possible differences in corporate cultures and management philosophies.

The transaction may not be accretive, and may be dilutive, to the Company's earnings per share, which may negatively affect the market price of the Company's common stock.

The Company currently expects the Merger to be accretive to its adjusted earnings per share within 12 months after the completion of the transaction. This expectation, however, is based on preliminary estimates that may materially change. In addition, the Company could fail to realize all the benefits anticipated in the transaction or experience delays or inefficiencies in realizing

such benefits. Such factors could, combined with the issuance of shares of the Company's common stock in the Merger, result in the transaction being dilutive to the Company's earnings per share, which could negatively affect the market price of shares of the Company's common stock.

Pending litigation relating to the Merger pursuant to which the Company acquired ADGE or any future litigation, has required, and may continue to require, the Company to incur significant costs.

The Company, along with ADGE and certain of our current and ADGE's former directors and officers, have been named as defendants in a class action lawsuit filed prior to the Merger. This litigation has been and any future litigation may be costly and a distraction from the daily operation of our business. Although the Company maintains, and ADGE maintained prior to the Merger, directors' and officers' insurance coverage, there can be no assurances that this insurance coverage will be sufficient to cover the substantial fees and expenses of lawyers and other professional advisors relating to the pending lawsuit or any future litigation, our obligations to indemnify our officers and directors who are or may become parties to such pending and future actions, or the amount of any judgments or settlements that we may be obligated to pay in connection with such actions. We may be required to make material payments in connection with the defense of or to settle such litigation or to satisfy any adverse judgment. In addition, such action, or those that arise in the future, could be excluded from coverage or, if covered, could exceed our deductibles and/or the coverage provided. In addition, an adverse outcome of the litigation could cause our insurance premiums and retention amounts to increase in the future. Any of these consequences could have a material adverse effect on our business, financial condition and results of operations. The Company believes that the lawsuit is without merit and intends to defend it vigorously. For more information regarding the pending litigation, see "Item 3. Legal Proceedings" and Note 10 "Commitments and Contingencies" in the Notes to Consolidated Financial Statements included elsewhere herein.

Risks Relating to Ownership of our Common Stock

Investment in our Common Stock is subject to price fluctuations and market volatility.

Historically, valuations of many small companies have been highly volatile. The securities of many small companies have experienced significant price and trading volume fluctuations, unrelated to the operating performance or the prospects of such companies. The market price of shares of our Common Stock could be subject to wide fluctuations in response to many risk factors listed in this section, and others beyond our control, including:

- results and timing of our product development;
- results of the development of our competitors' products;
- regulatory actions with respect to our products or our competitors' products;
- actual or anticipated fluctuations in our financial condition and operating results;
- actual or anticipated changes in our growth rate relative to our competitors;
- actual or anticipated fluctuations in our competitors' operating results or changes in their growth rate;
- competition from existing products or new products that may emerge;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures, collaborations, or capital commitments;
- issuance of new or updated research or reports by securities analysts;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- share price and volume fluctuations attributable to inconsistent trading volume levels of our shares;
- additions or departures of key management or personnel;
- disputes or other developments related to proprietary rights, including patents, litigation matters, and our ability to obtain, maintain, defend or enforce proprietary rights relating to our products and technologies;
- announcement or expectation of additional financing efforts;
- sales of our Common Stock by us, our insiders, or our other stockholders; and
- general economic and market conditions.

Furthermore, the stock markets have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies. These fluctuations often have been unrelated or disproportionate to the operating performance of those companies. These broad market and industry fluctuations, as well as general economic, political, and market conditions such as recessions, interest rate changes, or international currency fluctuations, may negatively impact the market price of shares of our Common Stock. In addition, such fluctuations could subject us to securities class action litigation, which could result in substantial costs and divert our management's attention from other business concerns, which could potentially harm our business.

We experience significant fluctuations in revenues from quarter to quarter on our product sales which may make period to period comparisons difficult.

We have low volume, high dollar sales for projects that are generally non-recurring, and therefore our sales have fluctuated significantly from period to period. Fluctuations cannot be predicted because they are affected by the purchasing decisions and timing requirements of our customers, which are unpredictable. Such fluctuations may make quarter to quarter and year to year comparisons difficult.

We may be subject to litigation, which is expensive and could divert management attention.

Our share price may be volatile and in the past companies that have experienced volatility in the market price of their stock have been subject to an increased incidence of securities class action litigation. We may be the target of this type of litigation in the future. Securities litigation against us could result in substantial costs and divert our management's attention from other business concerns, which could seriously harm our business.

If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, our share price and trading volume could decline.

The trading market for our Common Stock will depend on the research and reports that securities or industry analysts publish about us or our business. We do not have any control over these analysts. There can be no assurance that analysts will cover us, or provide favorable coverage. If one or more analysts downgrade our Common Stock or change their opinion of our Common Stock our share price would likely decline. In addition, if one or more analysts cease coverage of the Company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our share price or trading volume to decline.

Because our directors and executive officers are among our largest stockholders, they can exert influence over our business and affairs and have actual or potential interests that may depart from other stockholders or investors.

As of the date of this report our directors and executive officers collectively beneficially own approximately 13% of our issued and outstanding Common Stock. John Hatsopoulos, our co-Chief Executive Officer and a director, beneficially owns approximately 9% of our issued and outstanding Common Stock. Additionally, the holdings of our directors and executive officers may increase in the future upon vesting or other maturation of exercise rights under any of the options or warrants they may hold or in the future be granted or if they otherwise acquire additional shares of our Common Stock. The interests of such persons may differ from the interests of our other stockholders. As a result, in addition to their board seats and offices, such persons will have influence over corporate actions requiring shareholder approval.

Such persons' stock ownership may discourage a potential acquirer from making a tender offer or otherwise attempting to acquire us, which in turn could reduce our stock price or prevent our stockholders from realizing a premium over our stock price.

Current stockholdings may be diluted if we make future equity issuances or if outstanding warrants or options are exercised for shares of our common stock.

"Dilution" refers to the reduction in the voting effect and proportionate ownership interest of a given number of shares of common stock as the total number of shares increases. Our issuance of additional stock, convertible preferred stock, or convertible debt may result in dilution to the interests of shareholders and may also result in the reduction of your stock price. The sale of a substantial number of shares into the market, or even the perception that sales could occur, could depress the price of our Common Stock. Also, the exercise of warrants and options may result in additional dilution.

The holders of outstanding options and warrants (and other convertible securities or derivatives, if any are subsequently issued) have the opportunity to profit from a rise in the market price of our Common Stock, if any, without assuming the risk of ownership, with a resulting dilution in the interests of other stockholders. We may find it more difficult to raise additional equity capital if it should be needed for our business while the options, warrants and convertible securities are outstanding.

Future sales of our Common Stock by our existing stockholders may cause our stock price to fall.

The market price of our Common Stock could decline as a result of sales by our existing stockholders of shares of our Common Stock in the market or the perception that these sales could occur. These sales might also make it more difficult for us to sell equity securities at a time and price that we deem appropriate and thus inhibit our ability to raise additional capital when it is needed.

Because we have not and do not intend to pay cash dividends, our stockholders receive no current income from holding our stock.

We have paid no cash dividends on our capital stock to date and we currently intend to retain our future earnings, if any, to fund the development and growth of our business. We currently expect to retain earnings for use in the operation and expansion

of our business, and therefore do not anticipate paying any cash dividends in the foreseeable future. In addition, the terms of any future debt or credit facility may preclude us from paying any cash dividends. As a result, capital appreciation, if any, of our Common Stock could be the sole source of gain for our stockholders for the foreseeable future.

Failure to comply with the Nasdaq Capital Market continued listing requirements could lead to the commencement of delisting proceedings in accordance with the Nasdaq rules. Delisting could limit investors' ability to effect transactions in the Company's securities and subject the stock to additional trading restrictions.

The Company's Common Stock is listed on the Nasdaq Capital Market, a national securities exchange. To maintain such listing, the Company is required to meet its continued listing requirements. If the Company is unable to maintain the listing of its stock on Nasdaq or another exchange for failure to comply with the continued listing requirements, including timely filing of Exchange Act reports and compliance with Nasdaq's corporate governance requirements, the Company and its security holders could face significant material adverse consequences including a limited availability of market quotations for its stock and a decreased ability to issue additional securities or obtain additional financing in the future.

Certain provisions of our charter and bylaws may discourage mergers and other transactions.

Certain provisions of our certificate of incorporation and bylaws may make it more difficult for someone to acquire control of the Company. These provisions may make it more difficult for stockholders to take certain corporate actions and could delay or prevent someone from acquiring our business. These provisions could limit the price that certain investors might be willing to pay for shares of our Common Stock. The ability to issue "blank check" preferred stock is a traditional anti-takeover measure. This provision may be beneficial to our management and the board of directors in a hostile tender offer, and may have an adverse impact on stockholders who may want to participate in such tender offer, or who may want to replace some or all of the members of the board of directors.

Our board of directors may issue additional shares of preferred stock without stockholder approval.

Our certificate of incorporation authorizes the issuance of up to 10,000,000 shares of preferred stock. Accordingly, our board of directors may, without shareholder approval, issue one or more new series of preferred stock with rights which could adversely affect the voting power or other rights of the holders of outstanding shares of our Common Stock. In addition, the issuance of shares of preferred stock may have the effect of rendering more difficult or discouraging, an acquisition or change of control of the Company. Although we do not have any current plans to issue any shares of preferred stock, we may do so in the future.

Investor confidence in the price of our stock may be adversely affected if we are unable to comply with Section 404 of the Sarbanes-Oxley Act of 2002. As of the end of the period covered by this report, our principal executive officers and principal accounting officer have concluded there is a material weakness in our disclosure controls and procedures and our internal control over financial reporting, which could harm our operating results or cause us to fail to meet our reporting obligations.

As a public company, we are subject to the rules adopted by the SEC pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, which require us to include in our annual report on Form 10-K our management's report on, and assessment of the effectiveness of, our internal control over financial reporting ("management's report"). If we fail to achieve and maintain the adequacy of our disclosure control or internal control over financial reporting, there is a risk that we will not comply with all of the requirements imposed by Section 404. Moreover, effective internal control over financial reporting, particularly that relating to revenue recognition, is necessary for us to produce reliable financial reports and is important in helping to prevent financial fraud. Any of these possible outcomes could result in an adverse reaction in the financial marketplace due to a loss in investor confidence in the reliability of our financial statements, which ultimately could harm our business and could negatively impact the market price of our common stock. Investor confidence and the price of our common stock may be adversely affected if we are unable to comply with Section 404 of the Sarbanes-Oxley Act of 2002.

As of the end of the period covered by this Annual Report, December 31, 2017, our principal executive officers and principal accounting officer performed an evaluation of disclosure controls and procedures and concluded that our controls were not effective to provide reasonable assurance that information required to be disclosed by our Company in reports that we file under the Exchange Act, is recorded, processed, summarized and reported when required. Management conducted an evaluation of our internal control over financial reporting and based on this evaluation, management concluded that the company's internal control over financial reporting was not effective as of December 31, 2017. The Company has a small number of employees dealing with general controls over information technology security and user access. This constitutes a material weakness in financial reporting. Any failure to implement effective internal controls could harm our operating results or cause us to fail to meet our reporting obligations. Inadequate internal controls could also cause investors to lose confidence in our reported financial information, which could have a negative effect on the trading price of our common stock, and may require us to incur additional costs to improve our internal control system.

In order to comply with public reporting requirements, we must continue to strengthen our financial systems and controls, and failure to do so could adversely affect our ability to provide timely and accurate financial statements.

Refinement of our internal controls and procedures will be required as we manage future growth, integrate the operations of ADGE and operate effectively as a public company. Such refinement of our internal controls, as well as compliance with the Sarbanes-Oxley Act of 2002 and related requirements, will be costly and will place a significant burden on management. We cannot assure you that measures already taken, or any future measures, will enable us to provide accurate and timely financial reports, particularly if we are unable to hire additional personnel in our accounting and financial department, or if we lose personnel in this area. Any failure to improve our disclosure controls or other problems with our financial systems or internal controls could result in delays or inaccuracies in reporting financial information, or non-compliance with SEC reporting and other regulatory requirements, any of which could adversely affect our business and stock price.

The JOBS Act allows us to postpone the date by which we must comply with certain laws and regulations and reduces the amount of information provided by us in reports filed with the SEC. We cannot be certain if the reduced disclosure requirements applicable to emerging growth companies will make our Common Stock less attractive to investors.

We are and we will remain an “emerging growth company”, as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, until the earliest to occur of (i) the last day of the fiscal year during which our total annual gross revenues equal or exceed \$1 billion (subject to adjustment for inflation), (ii) the last day of the fiscal year following the fifth anniversary of our initial public offering, (iii) the date on which we have, during the previous three-year period, issued more than \$1 billion in non-convertible debt, or (iv) the date on which we are deemed a large accelerated filer under the Exchange Act.

For so long as we remain an emerging growth company we are not required to:

- have an auditor report on our internal controls over financial reporting pursuant to Section 404(b) of the Sarbanes-Oxley Act;
- comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor’s report providing additional information about the audit and the financial statements (i.e., an auditor discussion and analysis);
- submit certain executive compensation matters to shareholder non-binding advisory votes;
- submit for shareholder approval golden parachute payments not previously approved; and
- disclose certain executive compensation related items such as the correlation between executive compensation and financial performance and comparisons of the Chief Executive Officer’s compensation to median employee compensation, when such disclosure requirements are adopted.

In addition, Section 107 of the JOBS Act also provides that an emerging growth company can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act of 1933, as amended, or the Securities Act, for complying with new or revised accounting standards. An emerging growth company can therefore delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. However, we have chosen to “opt out” of such extended transition period, and as a result, we will comply with new or revised accounting standards on the relevant dates on which adoption of such standards is required for non-emerging growth companies. Section 107 of the JOBS Act provides that our decision to opt out of the extended transition period for complying with new or revised accounting standards is irrevocable.

We cannot predict if investors will find our Common Stock less attractive because we may rely on some of these exemptions. If some investors find our Common Stock less attractive as a result, there may be a less active trading market for our Common Stock and our stock price may be more volatile. If we avail ourselves of certain exemptions from various reporting requirements, our reduced disclosure may make it more difficult for investors and securities analysts to evaluate us and may result in less investor confidence.

Item 1B. Unresolved Staff Comments.

Disclosure in response to this item is not required of a smaller reporting company.

Item 2. Properties.

Our headquarters is located in Waltham, Massachusetts, and consists of approximately 43,000 square feet of manufacturing, storage and office space. Our lease will expire March 31, 2024. We believe that our facilities are appropriate and adequate for our current needs.

Our nine leased service centers can be broken into two different sizes. The larger leased spaces have office space to accommodate administrative, sales and engineering personnel, and warehouse space to stock parts in support of our service contracts.

As of December 31, 2017, the service centers that fit this larger category are based in Piscataway, New Jersey, Valley Stream and Buchanan, New York to service the Metro New York City and the Mid-Atlantic region. The San Francisco bay area and Northern California is served by such a center in Hayward, California. A portion of the corporate headquarters in Waltham, Massachusetts is used in this manner to service Boston and New England.

The smaller type service centers are a parts depot or warehouse for the stocking of parts in support of our service contracts. These centers are located in Los Angeles, California; Sterling Heights, Michigan; Newark, New York; and East Windsor, Connecticut.

Item 3. Legal Proceedings.

The Company is a party to a pending action in the United States District Court for the District of Massachusetts, described below, related to the Merger.

Massachusetts Superior Court Action

On or about February 6, 2017, ADGE, John N. Hatsopoulos, George N. Hatsopoulos, Charles T. Maxwell, Deanna M. Petersen, Christine Klaskin, John Rowe, Joan Giacinti, Elias Samaras, Tecogen, and Merger Sub were served with a Verified Complaint by William C. May ("May"), individually and on behalf of the other shareholders of ADGE as a class. The action was commenced in the Business Litigation Session of the Superior Court of the Commonwealth of Massachusetts, Civil Action No. 17-0390. The complaint alleged class action claims arising out of the proposed Merger. On May 31, 2017, May voluntarily dismissed the action without prejudice and consolidated his claims with the pending federal action in the United States District Court for the District of Massachusetts. There can be no assurance, if the complaint in the federal court is dismissed, that May or another plaintiff will recommence an action in state court with similar claims to those originally asserted by May.

United States District Court Action

On or about February 15, 2017, a lawsuit was filed in the United States District Court for the District of Massachusetts by Lee Vardakas ("Vardakas"), individually and on behalf of other stockholders of ADGE, naming ADGE, John N. Hatsopoulos, George N. Hatsopoulos, Benjamin Locke, Charles T. Maxwell, Deanne M. Petersen, Christine M. Klaskin, John Rowe, Joan Giacinti, Elias Samaras, Tecogen Inc., Merger Sub., and Cassel Salpeter and Co., LLC, as defendants. The action is captioned *Vardakas v. American DG Energy Inc.*, Case No. 17-CV-10247(LTS). At the time *Vardakas* commenced the action, his complaint challenged the proposed Merger between Tecogen and ADGE.

Following the consummation of the Merger (and the appointment of May from the Massachusetts Superior Court Action, as lead plaintiff), Vardakas filed an Amended Class Action Complaint (the "Amended Complaint"). The Amended Complaint discontinued the claims against Cassel Salpeter & Co., LLC but asserted against the remaining defendants claims under Section 14(a) of the Securities and Exchange Act of 1934 (the "Exchange Act") and SEC Rule 14a-19; claims against certain defendants for control person liability under Section 20(a) of the Exchange Act (collectively, the "Federal Securities Law Claims"); and common law claims for breach of fiduciary duty and aiding and abetting (the "State Law Claims"). The Federal Securities Law Claims allege, in substance, that defendants failed to disclose material information in the proxy statement about the process leading to the merger and about the fairness opinion relied upon by ADGE's Board of Directors in recommending the Merger to the shareholders. The State Law Claims assert, in substance, that defendants breached their fiduciary duties in negotiating and approving the Merger, which plaintiff claims deprived ADGE's nonaffiliated shareholders of fair value for their shares.

On July 19, 2017, defendants moved to dismiss the Amended Complaint. In their motion to dismiss, defendants contend that the Federal Securities Law Claims are not sufficiently pleaded and fail to state a viable claim. Defendants also assert that if the Federal Securities Law Claims are dismissed, the district court must also dismiss the State Law Claims because it would lack subject matter jurisdiction.

On February 28, 2018 the parties presented their oral arguments on the defendant's motion to dismiss. On March 2, 2018 the district court rendered its decision, dismissing the Federal Securities Law Claims, but retaining the State Law Claims. The district court exercised supplemental jurisdiction over the State Law Claims and ordered the Defendants to file an answer to the Amended Complaint addressing the State Law Claims. On March 12, 2018 the Defendants filed their answer.

The Company believes that the lawsuit is without merit and intends to defend vigorously. The Amended Complaint does not specify the amount of damages claimed and the likelihood of an unfavorable outcome is not reasonably estimable.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

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

The Company's common stock has been listed on the NASDAQ Capital Market since May 2014 and trades under the ticker symbol TGEN. The following table sets forth, for the periods indicated, the high and low sale prices per share of common stock as quoted by the NASDAQ.

Year Ended December 31, 2017	High	Low
1st Quarter	\$ 4.35	\$ 3.50
2nd Quarter	4.17	3.04
3rd Quarter	3.50	2.95
4th Quarter	3.38	2.20
Year Ended December 31, 2016	High	Low
1st Quarter	\$ 6.50	\$ 2.80
2nd Quarter	5.75	3.50
3rd Quarter	5.20	4.00
4th Quarter	4.80	3.75

Holders

As of March 21, 2018, there were more than 300 beneficial owners of our Common Stock including 66 holders of record.

Dividends

To date, we have not declared or paid any dividends on our outstanding Common Stock. We currently do not anticipate paying any cash dividends in the foreseeable future on our Common Stock. Although we intend to retain our earnings to finance our operations and future growth, our Board of Directors will have discretion to declare and pay dividends in the future. Payment of dividends in the future will depend upon our earnings, capital requirements and other factors which our Board of Directors may deem relevant.

Issuer Purchases of Equity Securities

Not applicable.

Item 6. Selected Financial Data.

Disclosure in response to this item is not required of a smaller reporting company.

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

You should read the following discussion and analysis of our financial condition and results of operations together with our financial statements and related notes appearing elsewhere in this Annual Report on Form 10-K. Some of the information contained in this discussion and analysis or set forth elsewhere in this Annual Report on Form 10-K, including information with respect to our plans and strategy for our business, includes forward-looking statements that involve risks and uncertainties. You should review "Item 1A. Risk Factors" of this Annual Report on Form 10-K for a discussion of important factors that could cause actual results to differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

Tecogen designs, manufactures and sells industrial and commercial cogeneration systems that produce combinations of electricity, hot water, and air conditioning using automotive engines that have been specially adapted to run on natural gas. Cogeneration systems are efficient because in addition to supplying mechanical energy to power electric generators or compressors – displacing utility supplied electricity – they provide an opportunity for the facility to incorporate the engine's waste heat into onsite processes such as space and potable water heating. We produce standardized, modular, small-scale products, with a limited number of product configurations that are adaptable to multiple applications. We refer to these combined heat and power products as CHP (electricity plus heat) and MCHP (mechanical power plus heat).

Our products are sold directly to end-users by our in-house marketing team and by established sales agents and representatives. We have agreements in place with distributors and sales representatives. Our existing customers include hospitals and nursing homes, colleges and universities, health clubs and spas, hotels and motels, office and retail buildings, food and beverage processors, multi-unit residential buildings, laundries, ice rinks, swimming pools, factories, municipal buildings, military installations and indoor growing facilities. We have an installed base of more than 2,500 units. Many of these have been operating for almost 30 years.

As a result of our acquisition of American DG Energy ("ADGE") in May 2017, we added an additional source of revenue. Through ADGE, we install, own, operate and maintain complete distributed generation of electricity systems, or DG systems or energy systems, and other complementary systems at customer sites and sell electricity, hot water, heat and cooling energy under long-term contracts at prices guaranteed to the customer to be below conventional utility rates. Each month we obtain readings from our energy meters to determine the amount of energy produced for each customer. We use a contractually defined formula to multiply these readings by the appropriate published price of energy (electricity, natural gas or oil) from each customer's local energy utility, to derive the value of our monthly energy sale, which includes a negotiated discount. Our revenues per customer on a monthly basis vary based on the amount of energy produced by our energy systems and the published price of energy (electricity, natural gas or oil) from our customers' local energy utility that month. As of December 31, 2017, we had 81 operational energy systems, representing an aggregate of approximately 5,035 kilowatts, or kW, 39.0 million British thermal units, or MMBtu's, of heat and hot water and 4,660 tons of cooling. kW is a measure of electricity generated, MMBtu is a measure of heat generated and a ton is a measure of cooling generated.

Although we may, from time to time, have one or a few customers who may represent more than 10% of our product revenue for a given year, we are not dependent on the recurrence of revenue from those customers. Our product revenue is such that customers may make a large purchase once and may not ever make a purchase again. Our equipment is built to last 30 or more years. Therefore, on the one hand, our product revenue model is not dependent on recurring sales transactions from the same customer. Our service revenue, on the other hand, does lend itself to recurring revenue from particular customers, although we currently do not have any service revenue customers who make up more than 10% of our total revenues on an annual basis.

For the last two fiscal years, more than one third of our revenue was generated from long-term maintenance contracts, or service contracts, which provide us with a predictable revenue stream, especially during the summer months. We have a slight surge of activity from May through September as our "chiller season" is in full swing. Our service revenue has grown from year to year since 2005, with our New York City/New Jersey, New England and to some extent California territories experiencing the majority of the growth. This growth is consistent with the sale of new units into those territories. Our service margins are generally predictable as we service hundreds of long-term contracts with relatively low dollar, high volume sales.

Our product revenue is derived from the sale of the various cogeneration modules, such as the InVerde 100, the CM-75, the CM-60, Ilios heat pumps, and the three TECOCHILL chiller models, such as the smaller ST, the larger DT and the RT (roof-top) units. The sales cycle for each module varies widely, and can range from as short as a month to as long as a year or more. Furthermore, since our products and their installation are costly, they are considered a major capital improvement and customers may be slow in making their buying decisions. Our products sales are high dollar value, low volume transactions. Therefore, our product revenue can be difficult to predict and the expected margin variable.

Our cogeneration, heat pump, and chiller modules are built to order and revenue is recognized upon shipment. The lead time to build and deliver a unit depends on its customized configuration and is approximately 12 to 14 weeks for a chiller and 6

to 8 weeks for a cogeneration or heat pump from time of purchase order. As revenue is recognized upon shipment, our work-in-process is an important factor in understanding our financial condition in any given quarter.

The Company's operations are comprised of two business segments. Our Products and Services segment designs, manufactures and sells industrial and commercial cogeneration systems as described above. Our Energy Production segment sells energy in the form of electricity, heat, hot water and cooling to our customers under long-term sales agreements.

Recent Developments

On May 18, 2017, holders of approximately 71% of ADGE's outstanding common stock approved the Merger and approximately 55% of the outstanding stock of Tecogen approved the issuance of Tecogen shares in the Merger. Consequently, that day Tecogen completed its acquisition, by means of a stock-for-stock merger, of 100% of the outstanding common shares of ADGE. As a result, ADGE became a wholly owned subsidiary of Tecogen. Pursuant to the Merger Agreement, at the effective time of the Merger, each outstanding share of ADGE common stock, \$.001 par value per share, was automatically converted into the right to receive 0.092 shares of common stock, \$.001 par value per share, of Tecogen (the "Exchange Ratio"), with cash paid in lieu of any fractional shares. As a result of the Merger, Tecogen issued approximately 4,662,937 shares of Tecogen common stock at \$4.02 per share. This price was based on the closing price of Tecogen's common stock on May 18, 2017, the closing date of the Merger. The aggregate value of the consideration to be paid in connection with the Merger to former holders of ADGE common stock was approximately \$18.9 million. Upon consummation of the Merger, ADGE stock options and other equity awards converted into stock options and equity awards with respect to Tecogen common shares, after giving effect to the Exchange Ratio. See Note 4. "Acquisition of American DG Energy Inc." of the Notes to Consolidated Financial Statements for further information and Item 3. Legal Proceedings for information regarding litigation related to the Merger.

In May 2016, Tecogen entered into a joint venture agreement, (the "JV Agreement") with Tedom a.s., a European combined heat and power product manufacturer incorporated in the Czech Republic ("Tedom") and Tedom's subsidiary, Tedom USA, Inc., a Delaware corporation. Pursuant to the JV Agreement, the parties formed TTcogen LLC, a Delaware limited liability company ("TTcogen"), and entered into a limited liability company operating agreement (the "LLC Agreement"), through which the joint venture is operated. TTcogen offered Tedom's line of Combined Heat and Power ("CHP") products to the United States via Tecogen's nationwide sales and service network consisting of 27 CHP modules ranging in size from 35 kW up to 4 MW and fully capable of running on a variety of fuel feedstocks (including natural gas, propane, and biofuel). On September 22, 2017, the Company exercised its rights under the JV Agreement to terminate the joint venture and to begin the process of winding up TTcogen. Currently the Company and Tedom are amicably working together to wind-up TTcogen as provided for in the JV Agreement and the LLC Agreement, and the Company will continue to market, sell, and service the Tedom 35kW CHP equipment on an exclusive basis in certain territories.

On October 28, 2017, all the shareholders of the joint venture company organized by the Company and a group of European strategic investors, Ultra Emissions Technologies, Ltd. ("Ultratek"), including the Company, unanimously voted to terminate the joint venture. Ultratek was organized to develop and commercialize Tecogen's patented technology, Ultera®, for the automotive market. The technology is designed to reduce harmful emissions generated by engines using fossil fuels. Tecogen contributed an exclusive license for use of Ultera in the automotive space to the joint venture, and the strategic partners have committed to financing the initial research, development and testing of a viable product. Upon termination of the joint venture, Ultratek was dissolved and the exclusive license for the use of Ultera that was granted to Ultratek automatically reverted back to the Company. The Company received its full \$2,000,000 investment in Ultratek upon the completion of the liquidation process. Upon dissolution, the Company purchased all of the remaining assets of Ultratek, including new intellectual property that Ultratek developed and other assets, for a total purchase price of \$400,000.

On December 14, 2017, Tecogen through principal payment of \$3,150,000 to Michaelson Capital Special Finance Fund LP ("Michaelson") discharged the Senior Convertible Promissory Note (the "Note") with Michaelson. Through the Note, Michaelson was the Company's principal debt holder and a beneficial holder of approximately 5% of Tecogen's outstanding shares. There were no pre-payment penalties paid by the Company, as Michaelson provided a waiver of the pre-payment penalties that were contained in the Note. By completing the payment, we satisfied all our obligations under the Note and the Note was cancelled.

See Note 18. "Subsequent events" of the Notes to the Consolidated Financial Statements for a discussion regarding a Summary of Proposed Terms and Conditions with a bank for a senior revolving credit facility of up to \$10 million.

Critical Accounting Policies

The preparation of financial statements and related disclosures in conformity with accounting principles generally accepted in the United States of America requires management to make judgments, assumptions and estimates that affect the amounts reported. Note 2. "Summary of Significant Accounting Policies" of the Notes to Consolidated Financial Statements describes the significant accounting policies used in the preparation of the consolidated financial statements. Some of these significant accounting policies are considered to be critical accounting policies, as defined below.

A critical accounting policy is defined as one that is both material to the presentation of the Company's financial statements and requires management to make difficult, subjective or complex judgments that could have a material effect on the Company's financial condition and results of operations. Specifically, critical accounting estimates have the following attributes: 1) the Company is required to make assumptions about matters that are highly uncertain at the time of the estimate; and 2) different estimates the Company could reasonably have used, or changes in the estimate that are reasonably likely to occur, would have a material effect on the Company's financial condition or results of operations. Estimates and assumptions about future events and their effects cannot be determined with certainty. The Company bases its estimates on historical experience and on various other assumptions believed to be applicable and reasonable under the circumstances. These estimates may change as new events occur, as additional information is obtained and as the Company's operating environment changes. These changes have historically been minor and have been included in the consolidated financial statements as soon as they became known. In addition, management is periodically faced with uncertainties, the outcomes of which are not within its control and will not be known for prolonged periods of time. These uncertainties are discussed in Item 1A, "Risk Factors" above. Based on a critical assessment of its accounting policies and the underlying judgments and uncertainties affecting the application of those policies, management believes that the Company's consolidated financial statements are fairly stated in accordance with generally accepted accounting principles, and present a meaningful presentation of the Company's financial condition and results of operations.

Management believes that the following are critical accounting policies:

Accounts Receivable

Accounts receivable are stated at the amount management expects to collect from outstanding balances. An allowance for doubtful accounts is provided for those accounts receivable considered to be uncollectible based upon historical experience and management's evaluation of outstanding accounts receivable at the end of the year. Bad debts are written off against the allowance when identified.

Inventory

Raw materials, work in process, and finished goods inventories are stated at the lower of cost, as determined by the average cost method, or market. The Company periodically reviews inventory quantities on hand for excess and/or obsolete inventory based primarily on historical usage, as well as based on estimated forecast of product demand. Any reserves that result from this review are charged to cost of sales.

Revenue Recognition

Revenue is recognized when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the price is fixed or determinable and collectability is reasonably assured. Generally, sales of cogeneration and chiller units and parts are recognized when shipped and services are recognized over the term of the service period. Payments received in advance of services being performed are recorded as deferred revenue.

The Company recognizes revenue in certain circumstances before delivery has occurred (commonly referred to as bill and hold transactions). In such circumstances, among other things, risk of ownership has passed to the buyer, the buyer has made a written fixed commitment to purchase the finished goods, the buyer has requested the finished goods be held for future delivery as scheduled and designated by them, and no additional performance obligations exist by the Company. For these transactions, the finished goods are segregated from inventory and normal billing and credit terms granted.

For those arrangements that include multiple deliverables, the Company first determines whether each service or deliverable meets the separation criteria of FASB ASC 605-25, *Revenue Recognition—Multiple-Element Arrangements*. In general, a deliverable (or a group of deliverables) meets the separation criteria if the deliverable has stand-alone value to the customer and, if the arrangement includes a general right of return, delivery or performance of the undelivered item(s) is considered probable and substantially in control of the Company. Each deliverable that meets the separation criteria is considered a separate "unit of accounting". The Company allocates the total arrangement consideration to each unit of accounting using the relative selling price method. The amount of arrangement consideration that is allocated to a delivered unit of accounting is limited to the amount that is not contingent upon the delivery of another unit of accounting.

When vendor-specific objective evidence or third-party evidence is not available, adopting the relative fair value method of allocation permits the Company to recognize revenue on specific elements as completed based on the estimated selling price. The Company generally uses internal pricing lists that determine sales prices to external customers in determining its best estimate of the selling price of the various deliverables in multiple-element arrangements. Changes in judgments made in estimating the selling price of the various deliverables could significantly affect the timing or amount of revenue recognition. The Company enters into sales arrangements with customers to sell its cogeneration and chiller units and related service contracts and occasionally installation services. Based on the fact that the Company sells each deliverable to other customers on a stand-alone basis, the Company has determined that each deliverable has a stand-alone value. Additionally, there are no rights of return relative to the delivered items; therefore, each deliverable is considered a separate unit of accounting.

After the arrangement consideration has been allocated to each unit of accounting, the Company applies the appropriate revenue recognition method for each unit of accounting based on the nature of the arrangement and the services included in each unit of accounting. Cogeneration and chiller units are recognized when shipped and services are recognized over the term of the applicable agreement, or as provided when on a time and materials basis.

In some cases, our customers may choose to have the Company engineer and install the system for them rather than simply purchase the cogeneration and/or chiller units. In this case, the Company accounts for revenue, or turnkey revenue, and costs using the percentage-of-completion method of accounting. Under the percentage-of-completion method of accounting, revenues are recognized by applying percentages of completion to the total estimated revenues for the respective contracts. Costs are recognized as incurred. The percentages of completion are determined by relating the actual cost of work performed to date to the current estimated total cost at completion of the respective contracts. When the estimate on a contract indicates a loss, the Company's policy is to record the entire expected loss, as required by generally accepted accounting principles. The excess of contract costs and profit recognized to date on the percentage-of-completion accounting method in excess of billings is recorded as unbilled revenue. Billings in excess of related costs and estimated earnings are recorded as deferred revenue.

With the addition of ADGE, revenue from their energy contracts is recognized when electricity, heat, and chilled water is produced by the cogeneration systems on-site. The Company bills its customers each month based on energy consumption indicated on meters installed at each site. The amount of energy produced by on-site energy systems is invoiced according to a contractually defined formula. Under certain energy contracts, the customer directly acquires the fuel to power the systems and receives credit for that expense from the Company. The credit is recorded as a reduction of revenue and as a reduction of cost of fuel. Revenues from operation, including shared savings, are recorded when provided and verified. Maintenance service revenue is recognized over the term of the agreement and is billed on a monthly basis in arrears. Customers may buy out their long-term obligation under energy contracts and purchase the underlying equipment from the Company. Any resulting gain on these transactions is recognized over the payment period in the accompanying consolidated statements of operations.

ADGE's Property and Equipment and Depreciation

Upon the acquisition, property and equipment were recorded at fair value using a cost approach whereby replacement cost new ("RCN") was utilized as the starting point, with factors for inflation, physical obsolescence, functional obsolescence and economic obsolescence being considered and applied as required to arrive at an estimated fair value.

Depreciation is computed using the straight-line method at rates sufficient to write off the cost of the applicable assets over their estimated useful lives. Repairs and maintenance are expensed as incurred.

The Company reviews its energy systems for potential impairment whenever events or changes in business circumstances indicate that the carrying value of the assets may not be fully recoverable or that the useful lives of the assets are no longer appropriate. The Company evaluates the recoverability of its long-lived assets when impairment is indicated by comparing the net book value of the asset group to the estimated future undiscounted cash flows attributable to such assets. The useful life of the Company's energy systems is the lesser of the economic life of the asset or the term of the underlying contract with the customer, typically 12 to 15 years. If impairment is indicated, the asset is written down to its estimated fair value.

Contract Assets and Liabilities

The favorable contract asset and unfavorable contract liability included in the intangible assets and liabilities of the consolidated balance sheets represent the fair value of American DG Energy's customer contracts (both positive for favorable contracts and negative for unfavorable contracts) which were acquired by the Company on May 18, 2017 (see Note 4. "Acquisition of American DG Energy Inc." of the Notes to the Consolidated Financial Statements). These contracts are long-term and provide customers with an alternative source of electrical power in addition to that provided by the local power utility, at rates that are lower than local utilities. This alternative electrical power is typically produced by ADGE owned, operated and maintained natural gas powered systems installed at the customers' sites, with ADGE bearing all costs of operation and maintenance. In addition to the alternative source of electrical power provided by ADGE's systems, customers can opt to add and take advantage of the heat generated in the electrical production process in the form of hot water and/or space heating. Pricing to the customer for electrical power produced and supplied by ADGE under the contracts is under a fixed formula which requires the customer to pay for the kilowatts of electrical power provided at a fixed percentage discount to the local utility's electric rate for that period. As a result, as utility rates for electrical power change, the amount ADGE is able to charge the customer under the contract also changes. There has been a sharp decrease in electric rates over the past several years, subsequent to the vast majority of customer contract dates, causing the billable value of the electrical power generated by ADGE's systems to decrease, resulting in a deterioration of expected profitability. As of the date of acquisition, utility electric rates were significantly below the level anticipated at the time the fixed percentage discounts contained in the vast majority of ADGE's customer contracts were contracted for, thus these contract terms, although they produce cash flow, were considered to be off market in the vast majority of ADGE's customer contracts. Additionally, the demand and volume of kilowatts produced and billed for vary by contract and by period and in certain instances have been significantly below what was originally expected such that had it been known at the time the contract(s) were negotiated, it would have influenced ADGE's determination of the level of the fixed percentage discount in those contracts.

The determination of fair value required development of an estimate of the price at which an orderly transaction to sell the asset or to transfer the liability would take place between market participants at the measurement date under current market conditions. Contracts are considered to be assets or liabilities by virtue of the rights and obligations inherent in the contract terms. Typically, contracts with terms considered to be at market are considered to have no fair value as in order to be entitled to the rights under the contract, performance must occur for which a market rate of return is earned due to the market terms. The fair value of a contract is primarily a measurement of its off market terms. The obligation to perform under a contract with terms that are unfavorable to market results in a liability to the extent its terms are off market. The resulting liability is an estimate of the price that would need to be paid to a willing market participant to assume the obligations under the contract in order for them to receive a market rate of return for their remaining performance obligation under the contract. The exact opposite holds true in instances where the terms of a contract are considered to be favorable to market. In that case an asset would exist as an estimate of the price that would be received from a willing market participant in order to be entitled to the rights under the contract.

In determining the estimate of fair value of ADGE's customer contracts, the measure of market, and thus the baseline to measure the amount related to any of the off market terms or conditions with respect to the contracts, was considered best determined, given the nature of the services provided under the contracts, by utilizing a benchmark level of margin, in this case 35% of revenue which is consistent with the average return on revenue of US investor owned public utilities.

Recent Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board ("FASB") issued an accounting standard update related to revenue from contracts with customers, which, along with amendments issued in 2015 and 2016, will supersede nearly all current U.S. GAAP guidance on this topic and eliminate industry-specific guidance. The underlying principle is to recognize revenue when promised goods or services are transferred to customers in an amount that reflects the consideration that is expected to be received for those goods or services. This accounting standard update, as amended, will be effective for the Company beginning in the first quarter of 2018. The new revenue standard may be applied retrospectively to each prior period presented or retrospectively with the cumulative effect recognized in retained earnings as of the date of adoption ("modified retrospective basis"). The Company expects to adopt this accounting standard update on a modified retrospective basis in the first quarter of 2018. Management has completed its assessment of the impact of the new revenue recognition standard and concluded that no significant differences are expected to result upon adoption.

In January 2016, the FASB issued an accounting standard update related to investments in equity securities requiring unrealized holding gains and losses to be included in net income. Prior to this update, unrealized holding gains and losses related to available-for-sale securities were included in accumulated other comprehensive income and not included in determining net income. This accounting standard update will be effective for the Company beginning in the first quarter of 2018 and is applied by means of a cumulative-effect adjustment to the balance sheet as of the beginning of the fiscal year of adoption. The Company plans to adopt this accounting standard update in the first quarter of 2018 which will result in reclassification of \$165,317 of cumulative unrealized holding losses from accumulated other comprehensive loss to accumulated deficit. The future impact of recognizing unrealized holding gains or losses in net income is dependent on the movement in the stock prices related to such investments.

In February 2016, the FASB issued ASU No. 2016-02, Leases (Topic 842), which requires companies to recognize all leases as assets and liabilities on the consolidated balance sheet. This ASU retains a distinction between finance leases and operating leases, and the classification criteria for distinguishing between finance leases and operating leases are substantially similar to the classification criteria for distinguishing between capital leases and operating leases in the current accounting literature. The result of retaining a distinction between finance leases and operating leases is that under the lessee accounting model in Topic 842, the effect of leases in a consolidated statement of comprehensive income and a consolidated statement of cash flows is largely unchanged from previous GAAP. The amendments in this ASU are effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. Earlier application is permitted. The Company is currently evaluating the impact that the adoption of this ASU will have on its Consolidated Financial Statements.

Emerging Growth Company

Section 107 of the JOBS Act provides that an emerging growth company can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act for complying with new or revised accounting standards. However, we chose to "opt out" of any extended transition period, and as a result we will comply with new or revised accounting standards on the relevant dates on which adoption of such standards is required for non-emerging growth companies. Section 107 of the JOBS Act provides that our decision to opt out of the extended transition period for complying with new or revised accounting standards is irrevocable.

Results of Operations

The following table sets forth for the periods indicated, the percentages of the net sales represented by certain items reflected in the Company's statements of operations.

	Years ended December 31,	
	2017	2016
Revenues	100.0 %	100.0 %
Cost of Sales	61.0	62.0
Gross Profit	39.0	38.0
General and administrative	28.7	32.6
Selling	6.8	6.7
Research and development	2.8	2.7
Income (loss) from operations	0.7	(4.1)
Total other expense, net	(0.4)	(0.7)
Consolidated net income (loss)	0.3	(4.7)
(Income) loss attributable to the noncontrolling interest	(0.2)	0.3
Net income (loss) attributable to Tecogen Inc.	0.1 %	(4.5)%

Year Ended December 31, 2017 Compared to Year Ended December 31, 2016

Revenues

Revenues in 2017 were \$33,202,666 compared to \$24,490,386 in 2016, an increase of \$8,712,280 or 35.6%. This increase is the result of the increased sales in both equipment and services as well as the new energy production revenue stream from ADGE. Product revenues in 2017 were \$12,991,283 compared to \$10,722,285 in 2016, an increase of \$2,268,998 or 21.2%. This increase from the year ended December 31, 2016 to 2017 resulted from an increase in cogeneration sales of \$390,976 in addition to an increase in chiller sales of \$1,878,022. The focus on chiller sales efforts in 2017 yielded this increase in sales. Our product mix, as well as product revenue, can vary significantly from period to period as our products are high dollar, low volume sales in which revenue is recognized upon shipment.

Revenues derived from our service centers, including installation activities, in 2017 were \$16,377,443 compared to \$13,768,101 for the same period in 2016, an increase of \$2,609,342 or 19.0%. Our service operation grows with the sales of installed systems, since the majority of our product sales are accompanied by a service contract or time and materials agreements. As a result our "fleet" of units being serviced by our service department grows with product sales. Our service department revenue has increased due to turnkey projects of \$7,680,125 in 2017 compared to \$5,227,054 in 2016.

Energy production revenues for the year ending December 31, 2017 were \$3,833,940, which represents energy revenues earned through our wholly owned subsidiary ADGE from May 19, 2017, the date after the acquisition.

Cost of Sales

Cost of sales in 2017 was \$20,248,262 compared to \$15,189,708 in 2016, an increase of \$5,058,554 or 33.3%. Our gross margin was 39.0% in 2017 compared to 38.0% in 2016, a 2.6% improvement. The increase in gross margin is attributable to improved margins on product sales year over year due to production efficiencies in material, labor and factory utilization as well as the addition of the energy production segment. The factory continues to improve product service cycles, ease of maintenance, and component sourcing in order to continuously improve efficiencies in our processes.

Cost of sales for energy production for the year ending December 31, 2017 was \$2,034,518, which represents the cost associated with energy revenues earned from May 19, 2017, the date after the acquisition of ADGE. Included in Energy production cost of sales is depreciation expense associated with the Sites, net of amortization of unfavorable contract liability of \$304,340.

Operating Expenses

Operating expenses increased in 2017 to \$12,729,252 compared to \$10,298,129 in 2016, an increase of \$2,431,123 or 23.6%. This increase was the combination of an increase in general and administrative expense of \$1,526,136, an increase of \$635,122 in selling expense and an increase in research and development expense of \$269,865. General and administrative increase was mainly due to the acquisition of ADGE and the additional costs associated with this business. Selling expenses increased in 2017 to \$2,271,826 compared to \$1,636,704 in 2016, an increase of \$635,122 or 38.8%. This increase in selling expenses was due to an increase in commissions and marketing expenses. Research and development expenses increased in 2017 to \$936,929 compared to \$667,064 in 2016, an increase of \$269,865 or 40.5%. The increase in research and development expenses was due to development of our fork truck emissions program, bringing the vehicle emissions program in-house and other product developments. There has not been a change in focus with research and development. Management continues its efforts to improve the product's performance and cost.

Income (Loss) from Operations

Income from operations for the year ended December 31, 2017 was \$225,152 compared to a loss of \$997,451 in 2016, an increase of \$1,222,603 or 122.6%. The increase in the net income from operations was due to the continuing effort to reduce material costs and control operating expenses as well as to revenue growth, including the revenue recognized as a result of the acquisition of ADGE.

Other Income (Expense), net

Other expense, net, for the year ended December 31, 2017 was \$127,456 compared to \$163,794 for the same period in 2016. Other income (expense) includes interest and other income of \$27,626, net of interest expense on notes payable of \$155,082 in 2017. For the same period in 2016, interest and other income was \$11,988 and interest expense was \$175,782.

Noncontrolling Interest

The noncontrolling interest share in the losses of Ilios was \$64,962 on December 31, 2016. The noncontrolling interest losses ended with the private placement exchange of the outstanding shares of Ilios. On April 11, 2016, this exchange was completed as Ilios merged into Tecogen through a statutory merger.

With the addition of ADGE, the Company has income attributable to the noncontrolling interest portion it has in ADGE's 51% owned subsidiary, ADGNY. The income attributable to the noncontrolling interest was \$50,260 on December 31, 2017.

Net Income (Loss) Attributable to Tecogen, Inc

Net income for the year ended December 31, 2017 was \$47,436 compared to a loss of \$1,096,283 for the same period in 2016. The increase in income of \$1,143,719 or 104.3% was the result of our growth in product revenue and services revenue together with the Company's acquisition of ADGE.

Other Comprehensive Loss

The unrealized loss on securities of \$165,317 for the year ended December 31, 2017 represents the market fluctuation impacting the fair value of ADGE's remaining common stock ownership in its former partially owed subsidiary, EuroSite Power Inc.

Net Income (Loss) Per Share

Net income per share for the year ended December 31, 2017 was \$0.00 compared to a loss of \$0.06 for the same period in 2016. The increase in income of \$0.06 was due to the increase in gross profit offset partially by the increase in operating expenses as discussed above. The basic weighted average shares outstanding for the year ended December 31, 2017 was 23,171,033 compared to 19,295,922 for the same period in 2016.

Liquidity and Capital Resources

Consolidated working capital at December 31, 2017 was \$12,952,537, compared to \$14,436,452 at December 31, 2016, a decrease of \$1,483,915 or 10.3%. Included in working capital were cash and cash equivalents of \$1,673,072 at December 31, 2017, compared to \$3,721,765 at December 31, 2016. This decrease in consolidated working capital and cash and cash equivalents is primarily due to the pay off of the Michaelson debt of \$3.15 million partially offset by an increase in accounts payable and deferred revenue.

Net cash used in operating activities for the years ended December 31, 2017 and 2016 were \$591,256 and \$2,717,856, respectively, a decrease of \$2,126,600 or 78.2%. The Company's consolidated net income increased by \$1,258,941. In addition, our accounts receivable from operations increased by \$336,051 at December 31, 2017 compared to December 31, 2016, due to timing of billing, shipments, and collections. Unbilled revenues also increased by \$1,676,409 in connection with turnkey projects as some revenues are recognized prior to contractual milestones for invoicing. Our inventory from operations increased by

\$298,167 as of December 31, 2017 compared to December 31, 2016. Prepaid expenses and other current assets increased by \$47,498 as of December 31, 2017 as compared to December 31, 2016.

Accounts payable increased by \$1,335,042 from December 31, 2016 to December 31, 2017. The increase in accounts payable is related to increased activities in manufacturing. Accrued expenses from operations decreased by \$494,095 as of December 31, 2017 compared to December 31, 2016. Deferred revenues from operations increased by \$375,499 as of December 31, 2017 as compared to December 31, 2016. This increase in deferred revenues relates to an increase in prepaid service contracts and an increase in projects billed but not completed.

Our related party balance was a net receivable of \$585,492 as of December 31, 2017 and \$260,988 as of December 31, 2016. This change is due to the intercompany transactions related to Ttcogen LLC and Tedom.

During 2017 our cash flows provided by investing activities were \$1,512,645, and included purchases of property and equipment of \$580,044, expenditures related to intangible assets such as patents and product certifications of \$453,598, a return of an investment of \$2,000,000 in Ultratek and cash acquired in the acquisition of ADGE of \$971,454.

During 2017 our cash flows used in financing activities were \$2,970,082 resulting from the payoff of the Michaelson debt of \$3,150,000 and proceeds from the exercise of stock options of \$179,918.

Tecogen's total product and installation backlog as of December 31, 2017 was \$15.7 million compared to \$11.1 million as of December 31, 2016. This backlog meets management's expectation of exceeding a backlog of \$10 million. Backlog does not include maintenance contract service revenues or energy contract revenues.

At December 31, 2017, our commitments included various leases for office and warehouse facilities of \$3,335,188 to be paid over several years through 2024. The source of funds to fulfill these commitments are expected to be provided from operations.

See Note 18. "Subsequent events" in the Notes to Consolidated Financial Statements for discussion regarding a Summary of Proposed Terms and Conditions with a bank for a senior revolving credit facility of up to \$10 million.

Based on our current operating plan, we believe existing resources, including cash and cash flows from operations will be sufficient to meet our working capital requirements for the next twelve months. As we continue to grow our business, we expect that our cash requirements will increase. As a result, we may need to raise additional capital through a debt financing or an equity offering to meet our operating and capital needs for future growth.

Seasonality

We expect that the majority of our heating systems sales will be operational for the winter and the majority of our chilling systems sales will be operational for the summer. Our cogeneration sales are not generally affected by the seasons. Our service team does experience higher demand in the warmer months when cooling is required. These chiller units are generally shut down in the winter and started up again in the spring. This chiller "busy season" for the service team generally runs from May through the end of September.

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

Not applicable.

Item 8. Financial Statements and Supplementary Data.

The information required by this item is incorporated from Item 15 and pages F-1 through F-26 of this Annual Report on Form 10-K.

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

None

Item 9A. Controls and Procedures.

Management's Evaluation of Disclosure Controls and Procedures:

Our disclosure controls and procedures are designed to provide reasonable assurance that the control system's objectives will be met. Our management, including our Co-Chief Executive Officers and Chief Accounting Officer, after evaluating the effectiveness of our disclosure controls and procedures as of December 31, 2017, (the "Evaluation Date"), have concluded that as of the Evaluation Date, our disclosure controls and procedures were not effective due to the material weakness in financial reporting relating to a small number of employees dealing with general controls over information technology. At the present time, our management has decided that the expense associated with a new system is justified and is in the process of implementing a system which will put the proper control procedures in place to remediate these weaknesses.

For these purposes, the term disclosure controls and procedures of an issuer means controls and other procedures of an issuer that are designed to ensure that information required to be disclosed by the issuer in the reports that it files or submits under Section 13(a) or 15(d) of the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by an issuer in the reports that it files or submits under Section 13(a) or 15(d) of the Exchange Act is accumulated and communicated to the issuer's management, including its principal executive and principal accounting officers, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure.

Management's Annual Report on Internal Control over Financial Reporting:

The management of the Company is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) under the Securities Exchange Act of 1934, as amended.

The 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 in the United States of America. The Company's internal controls over financial reporting include those policies and procedures that:

- pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the Company;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with U.S. generally accepted accounting principles;
- provide reasonable assurance that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and
- 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 consolidated financial statements.

Because of its inherent limitations, internal control over financial reporting, no matter how well designed, may not prevent or detect misstatements. Accordingly, even effective internal control over financial reporting can provide only reasonable assurance with respect to financial statement preparation. Also, the assessment of the effectiveness of internal control over financial reporting was made as of a specific date. 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.

Management, including our Co-Chief Executive Officers and Chief Accounting Officer, conducted an evaluation of our internal control over financial reporting based on the framework and criteria established in Internal Control—Integrated Framework (2013), issued by the Committee of Sponsoring Organizations of the Treadway Commission. This evaluation included review of the documentation of controls, evaluation of the design effectiveness of controls, testing of the operating effectiveness of controls and a conclusion regarding this evaluation. Based on this evaluation, management concluded that the Company's internal control over financial reporting was not effective as of December 31, 2017.

At December 31, 2017, the Company employed 91 active full-time employees and 4 part-time employees. Considerable progress has been made during 2017 with the addition of competent staff, competent consultants and changes in processes, however, due to the small number of employees dealing with general controls over information technology security and user access, management believes this constitutes a material weakness in financial reporting. At this time, management has decided that the expense associated with a new system is justified and is in the process of implementing a system which will put the proper control procedures in place to remediate these weaknesses.

Our management, including our Co-Chief Executive Officers and Chief Accounting Officer, does not expect that our disclosure controls or our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. The design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Further, because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within the Company have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of a simple error or mistake. Controls can also be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Projections of any evaluation of controls effectiveness to future periods are subject to risks. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures.

This annual report does not include an attestation report of the Company's registered independent public accounting firm regarding internal control over financial reporting. Management's report was not subject to attestation by the Company's registered independent public accounting firm pursuant to rules of the Securities and Exchange Commission that permit the Company to provide only management's report in this Annual Report on Form 10-K.

Changes in Internal Control Over Financial Reporting

The Company instituted mitigating controls related to energy billing whereby multiple level reviews are performed prior to revenue recognition. Additionally, the Company is in the process of implementing a company-wide system which will put the proper control procedures in place to remediate internal control weaknesses. There has been no change to the Company's internal control over financial reporting (as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the fourth quarter of the fiscal year ended December 31, 2017, that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

Item 9B. Other Information.

None.

PART III**Item 10. Directors, Executive Officers and Corporate Governance.**

The information required by this item is incorporated herein by reference from the Company's definitive proxy statement, which will be filed with the SEC no later than 120 days after December 31, 2017.

Item 11. Executive Compensation.

The information required by this item is incorporated herein by reference from the Company's definitive proxy statement, which will be filed with the SEC no later than 120 days after December 31, 2017.

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

The information required by this item is incorporated herein by reference from the Company's definitive proxy statement, which will be filed with the SEC no later than 120 days after December 31, 2017.

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

The information required by this item is incorporated herein by reference from the Company's definitive proxy statement, which will be filed with the SEC no later than 120 days after December 31, 2017.

Item 14. Principal Accountant Fees and Services.

The information required by this item is incorporated herein by reference from the Company's definitive proxy statement, which will be filed with the SEC no later than 120 days after December 31, 2017.

PART IV

Item 15. Exhibits and Financial Statement Schedules.

The following consolidated financial statements and the related notes thereto of Tecogen Inc. and the report of the Accounting Firm thereon are filed as part of this Annual Report on Form 10-K.

(a) Index to Financial Statements and Financial Statement Schedules

Report of Independent Registered Public Accounting Firm

Consolidated Balance Sheets as of December 31, 2017 and 2016

Consolidated Statements of Operations and Comprehensive Loss for the years ended December 31, 2017 and 2016

Consolidated Statements of Stockholders' Equity for the years ended December 31, 2017 and 2016

Consolidated Statements of Cash Flows for the years ended December 31, 2017 and 2016

Notes to Consolidated Financial Statements

All other schedules for which provision is made in the applicable accounting regulations of the SEC are not required under the related instructions, or are inapplicable, and therefore have been omitted.

(b) Exhibits

The exhibits to the Registration Statement are listed in the Exhibit Index attached hereto and incorporated by reference herein.

Item 16. Form 10K Summary.

The Company has determined not to include a summary of the information permitted by this Item 16 of the Form 10-K.

EXHIBIT INDEX

Exhibit Number	Description
2.1	Agreement and Plan of Merger, dated as of November 1, 2016, by and among Tecogen Inc., American DG Energy Inc. and ADGE.Tecogen Merger Sub Inc. (Incorporated by reference to exhibit 2.1 to the registrant's Current Report on Form 8-K, as filed with the SEC on November 2, 2016).
2.2	Amendment 1 to the Agreement and Plan of Merger, dated as of March 23, 2017, by and among Tecogen Inc., American DG Energy Inc., and ADGE.Tecogen Merger Sub Inc. (Incorporated by reference to exhibit 2.2 to the registrant's Current Report on Form 8-K, as filed with the SEC on March 24, 2017).
3.1	Amended and Restated Certificate of Incorporation (Incorporated by reference to exhibit 3.1 to the registrant's Registration Statement on Form S-1, as amended (Registration No. 333-193791), filed with the SEC on June 27, 2014).
3.2	Amended and Restated Bylaws (Incorporated by reference to exhibit 3.2 to the registrant's Registration Statement on Form S-1, as amended (Registration No. 333-193791), filed with the SEC on June 27, 2014).
4.1	Specimen Common Stock Certificate of Tecogen Inc. (Incorporated by reference to exhibit 4. to the registrant's Registration Statement on Form S-1, as amended (Registration No. 333-193791), filed with the SEC on June 27, 2014).
4.3+	Form of Stock Option Agreement (Incorporated by reference to exhibit 4.3 to the registrant's Registration Statement on Form S-1, as amended (Registration No. 333-193791), filed with the SEC on June 27, 2014).
4.5	Warrant to Subscribe for Shares between Ultra Emissions Technology, Ltd and Tecogen (Incorporated by reference to exhibit 4.5 to the registrant's Annual Report on Form 10-K, as filed with the SEC on March 30, 2016).
4.6	Warrant to Subscribe for Ultra Emissions Technology, Ltd. Shares signed August 2, 2016 (Incorporated by reference to exhibit 4.1 to the registrant's Current Report on Form 8-K, as filed with the SEC on August 8, 2016).
10.1+*	Tecogen Inc. 2006 Stock Incentive Plan, as amended and restated on November 1, 2016 with stockholder approval on June 29, 2017.
10.7	Lease Agreement between Atlantic-Waltham Investment II, LLC, and Tecogen Inc., dated May 14, 2008 (Incorporated by reference to exhibit 10.7 to the registrant's Registration Statement on Form S-1, as amended (Registration No. 333-193791), filed with the SEC on June 27, 2014).
10.8	Second Amendment to Lease Agreement between Atlantic-Waltham Investment II, LLC, and Tecogen Inc., dated January 16, 2013 (Incorporated by reference to exhibit 10.2 to the registrant's Quarterly Report on Form 10-Q, as filed with the SEC on May 15, 2014).
10.13#	Exclusive License Agreement between Tecogen Inc. and the Wisconsin Alumni Research Foundation, dated February 5, 2007 (Incorporated by reference to exhibit 10.13 to the registrant's Registration Statement on form S-1, as amended (Registration No. 333-193791), filed with the SEC on June 27, 2014).
10.21	Senior Convertible Promissory Note, dated December 23, 2013, by Tecogen Inc. in favor of Michaelson Capital Special Finance Fund LP (Incorporated by reference to exhibit 10.21 of the registrant's Registration Statement on form S-1, as amended (Registration No. 333-193791), filed with the SEC on June 27th, 2014).
10.24	Facilities and Support Services Agreement between American DG Energy Inc. and Tecogen Inc., dated August 8, 2014. (Incorporated by reference to exhibit 10.1 to American DG Energy Inc.'s Quarterly Report on Form 10-Q (No. 001-34493) filed with the SEC on August 14, 2014).
10.26	Non-Revolving Line of Credit Agreement between Tecogen Inc. and John N. Hatsopoulos, dated July 1, 2015 (Incorporated by reference to exhibit 10.1 to the registrant's Current Report on Form 8-K, as filed with the SEC on June 18, 2015).
10.29	Shelf Registration Rights Agreement dated August 3, 2015 (Incorporated by reference to Exhibit 10.29 to the registrant's Current Report on Form 8-K, as filed with the SEC on August 8, 2015).
10.30	First Amendment to the Facilities and Support Services Agreement between American DG Energy Inc. and Tecogen Inc., dated August 7, 2015 (Incorporated by reference to exhibit 10.1 to American DG Energy Inc.'s Current Report on Form 8-K (No. 001-34493), as filed with the SEC on August 13, 2015).
10.31	Joint Venture Shareholder Agreement, dated December 28, 2015 between Tecogen, Inc. and Ultra Emissions Technologies Limited (Incorporated by reference to exhibit 10.31 to the registrant's Current Report on Form 8-K, as filed with the SEC on December 31, 2015).
10.32	License between Tecogen and Ultra Emissions Technologies Ltd., dated December 28, 2015 (Incorporated by reference to exhibit 10.32 to the registrant's Current Report on Form 8-K, as filed with the SEC on December 31, 2015).
10.34	Form of Warrant to Purchase Common Stock of Tecogen, Inc. (Incorporated by reference to exhibit 10.34 to the registrant's Current Report on Form 8-K, as filed with the SEC on December 31, 2015).

10.35	Form of Share Exchange Agreement dated April 11, 2016 and April 13, 2016 between Tecogen and certain shareholders of Ilios (Incorporated by reference to exhibit 10.35 to the registrant's Current Report on Form 8-K, as filed with the SEC on April 15, 2016).
10.36	Amendment No. 1 to the Senior Convertible Promissory Note effective April 1, 2016 (Incorporated by reference to exhibit 10.37 to the registrant's current report on Form 8-K, as filed with the SEC on April 15, 2016).
10.37	Joint Venture Agreement dated May 19, 2016 among Tecogen Inc., Tedom a.s. and Tedom USA, Inc. (Incorporated by reference to exhibit 10.37 to the registrant's Current Report on Form 8-K, as filed with the SEC on May 24, 2016).
10.38	TTcogen LLC Operating Agreement dated as of May 19, 2016 (Incorporated by reference to exhibit 10.38 to the registrant's Current Report on Form 8-K, as filed with the SEC on May 24, 2016).
10.39	First Amendment to Warrant Agreement dated June 27, 2016 described in Exhibit 10.34 hereto (Incorporated by reference to exhibit 10.39 to the registrant's current Report on Form 8-K, as filed with the SEC on June 30, 2016).
10.40+	Employment Agreement dated December 1, 2016 between Tecogen Inc. and David A. Garrison (Incorporated by reference to exhibit 99.1 to the registrant's Current Report on Form 8-K, as filed with the SEC on December 2, 2016).
10.41	Promissory Note-Line of Credit issued on December 22, 2016 by American DG Energy Inc. to John Hatsopoulos (Incorporated by reference to American DG Energy Inc.'s Current Report on Form 8-K (No. 001-34493), as filed with the SEC on December 28, 2016).
10.42+	Advisor and Retirement Agreement, dated January 3, 2018, between Tecogen Inc. and John N. Hatsopoulos (Incorporated by reference to exhibit 10.1 to the registrant's Current Report on Form 8-K, as filed with the SEC on January 8, 2018).
10.43	Research and Development Contract between Southwest Research Institute and Tecogen Inc. (Incorporated by reference to exhibit 10.1 to the registrant's Current Report on Form 8-K, as filed with the SEC on January 9, 2018).
21.1*	List of subsidiaries
23.1*	Consent of Wolf & Company, P.C.
31.1*	Rule 13a-14(a) Certification of Co-Chief Executive Officer
31.2*	Rule 13a-14(a) Certification of Co-Chief Executive Officer
31.3*	Rule 13a-14(a) Certification of Chief Accounting Officer
32.1*	Section 1350 Certifications of Co-Chief Executive Officers and Chief Accounting Officer
101.INS*	XBRL Instance Document
101.SCH*	XBRL Taxonomy Extension Schema
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase
101.DEF*	XBRL Taxonomy Extension Definition Linkbase
101.LAB*	XBRL Taxonomy Extension Label Linkbase
101.PRE*	XBRL Taxonomy Extension Presentation Linkbase

* Filed herewith.

Confidential Treatment has been granted for portions of this document. The confidential portions were omitted and filed separately, on a confidential basis, with the Securities and Exchange Commission.

+ Management contract or compensatory plan or agreement.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

TECOGEN INC.
(Registrant)

Dated: March 21, 2018

By: /s/ John N. Hatsopoulos
Co-Chief Executive Officer
(Principal Executive Officer)

Dated: March 21, 2018

By: /s/ Benjamin M. Locke
Co-Chief Executive Officer
(Principal Executive Officer)

Dated: March 21, 2018

By: /s/ Bonnie J. Brown
Chief Accounting Officer, Treasurer and Secretary
(Chief Accounting Officer)

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Benjamin Locke and Bonnie J. Brown, or either of them, each with the power of substitution and re-substitution, as his or her attorney-in-fact and agents, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K for the year ended December 31, 2017, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming that all said attorneys-in-fact and agents, or any of them or their or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

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

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Angelina M. Galiteva</u> Angelina M. Galiteva	Chairman of the Board	March 21, 2018
<u>/s/ John N. Hatsopoulos</u> John N. Hatsopoulos	Director and Co-Chief Executive Officer (Principal Executive Officer)	March 21, 2018
<u>/s/ Benjamin M. Locke</u> Benjamin M. Locke	Co-Chief Executive Officer (Principal Executive Officer)	March 21, 2018
<u>/s/ Bonnie J. Brown</u> Bonnie J. Brown	Chief Accounting Officer, Treasurer and Secretary (Chief Accounting Officer)	March 21, 2018
<u>/s/ Charles T. Maxwell</u> Charles T. Maxwell	Director	March 21, 2018
<u>/s/ Ahmed F. Ghoniem</u> Ahmed F. Ghoniem	Director	March 21, 2018
<u>/s/ Keith Davidson</u> Keith Davidson	Director	March 21, 2018
<u>/s/ Deanna Petersen</u> Deanna Petersen	Director	March 21, 2018

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of
Tecogen Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Tecogen Inc. (the "Company") as of December 31, 2017 and 2016, the related consolidated statements of operations, stockholders' equity, and cash flows, for the years then ended and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of its operations and its cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements 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 audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the 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 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 financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ WOLF & COMPANY, P.C.

We have served as the Company's auditor since 2014.

Boston, Massachusetts

March 21, 2018

TECOGEN INC.

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CONSOLIDATED BALANCE SHEETS
As of December 31, 2017 and 2016

	2017	2016
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 1,673,072	\$ 3,721,765
Accounts receivable, net	9,536,673	8,630,418
Unbilled revenue	3,963,133	2,269,645
Inventory, net	5,130,805	4,774,264
Due from related party	585,492	260,988
Prepaid and other current assets	771,526	401,876
Total current assets	21,660,701	20,058,956
Property, plant and equipment, net	12,265,711	517,143
Intangible assets, net	2,896,458	1,065,967
Goodwill	13,365,655	40,870
Other assets	482,551	2,058,425
TOTAL ASSETS	\$ 50,671,076	\$ 23,741,361
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 5,095,285	\$ 3,367,481
Accrued expenses	1,416,976	1,378,258
Deferred revenue	1,293,638	876,765
Loan due to related party	850,000	—
Interest payable, related party	52,265	—
Total current liabilities	8,708,164	5,622,504
Long-term liabilities:		
Deferred revenue, net of current portion	538,100	459,275
Senior convertible promissory note, related party	—	3,148,509
Unfavorable contract liability, net	7,729,667	—
Total liabilities	16,975,931	9,230,288
Commitments and contingencies (Note 10)		
Stockholders' equity:		
Tecogen Inc. stockholders' equity:		
Common stock, \$0.001 par value; 100,000,000 shares authorized; 24,766,892 and 19,981,912 issued and outstanding at December 31, 2017 and 2016, respectively	24,767	19,982
Additional paid-in capital	56,176,330	37,334,773
Accumulated other comprehensive loss-investment securities	(165,317)	—
Accumulated deficit	(22,796,246)	(22,843,682)
Total Tecogen Inc. stockholders' equity	33,239,534	14,511,073
Noncontrolling interest	455,611	—
Total stockholders' equity	33,695,145	14,511,073
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	\$ 50,671,076	\$ 23,741,361

The accompanying notes are an integral part of these consolidated financial statements.

TECOGEN INC.

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CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
For the Years Ended December 31, 2017 and 2016

	2017	2016
Revenues		
Products	\$ 12,991,283	\$ 10,722,285
Services	16,377,443	13,768,101
Energy production	3,833,940	—
Total revenues	<u>33,202,666</u>	<u>24,490,386</u>
Cost of sales		
Products	8,012,012	7,189,225
Services	10,201,732	8,000,483
Energy production	2,034,518	—
Total cost of sales	<u>20,248,262</u>	<u>15,189,708</u>
Gross profit	<u>12,954,404</u>	<u>9,300,678</u>
Operating expenses		
General and administrative	9,520,497	7,994,361
Selling	2,271,826	1,636,704
Research and development	936,929	667,064
Total operating expenses	<u>12,729,252</u>	<u>10,298,129</u>
Income (loss) from operations	<u>225,152</u>	<u>(997,451)</u>
Other income (expense)		
Interest and other income	27,626	11,988
Interest expense	(155,082)	(175,782)
Total other expense, net	<u>(127,456)</u>	<u>(163,794)</u>
Income (loss) before income taxes	97,696	(1,161,245)
Income tax provision	—	—
Consolidated net income (loss)	97,696	(1,161,245)
(Income) loss attributable to the noncontrolling interest	(50,260)	64,962
Net income (loss) attributable to Tecogen Inc.	47,436	(1,096,283)
Other comprehensive loss-unrealized loss on securities	(165,317)	—
Comprehensive loss	<u>\$ (117,881)</u>	<u>\$ (1,096,283)</u>
Net income (loss) per share - basic	<u>\$ 0.00</u>	<u>\$ (0.06)</u>
Net income (loss) per share - diluted	<u>\$ 0.00</u>	<u>\$ (0.06)</u>
Weighted average shares outstanding - basic	<u>23,171,033</u>	<u>19,295,922</u>
Weighted average shares outstanding - diluted	<u>23,342,627</u>	<u>19,295,922</u>

The accompanying notes are an integral part of these consolidated financial statements.

TECOGEN INC.

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CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

For the Years Ended December 31, 2017 and 2016

Tecogen Inc. Stockholders							
	Common Stock Shares	Common Stock \$.001 Par Value	Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Noncontrolling Interest	Total
Balance at December 31, 2015	18,478,990	\$ 18,479	\$ 34,501,640	\$ —	\$ (21,682,437)	\$ (395,814)	\$ 12,441,868
Exercise of warrants	675,000	675	2,699,325	—	—	—	2,700,000
Exercise of stock options	157,458	158	395,414	—	—	—	395,572
Acquisition of non-controlling interest in Ilios	670,464	670	(427,537)	—	(64,962)	460,776	(31,053)
Stock-based compensation	—	—	165,931	—	—	—	165,931
Net loss	—	—	—	—	(1,096,283)	(64,962)	(1,161,245)
Balance at December 31, 2016	19,981,912	\$ 19,982	\$ 37,334,773	\$ —	\$ (22,843,682)	\$ —	\$ 14,511,073
Exercise of stock options	122,043	122	179,796	—	—	—	179,918
Issuance of common stock in connection with ADGE acquisition, net of costs of \$377,246	4,662,937	4,663	18,477,993	—	—	—	18,482,656
Consolidation of non-controlling interest in ADGNY	—	—	—	—	—	453,272	453,272
Distributions to non-controlling interest	—	—	—	—	—	(47,921)	(47,921)
Stock-based compensation	—	—	183,768	—	—	—	183,768
Comprehensive income (loss)	—	—	—	(165,317)	47,436	50,260	(67,621)
Balance at December 31, 2017	24,766,892	\$ 24,767	\$ 56,176,330	\$ (165,317)	\$ (22,796,246)	\$ 455,611	\$ 33,695,145

The accompanying notes are an integral part of these consolidated financial statements.

TECOGEN INC.

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CONSOLIDATED STATEMENTS OF CASH FLOWS
For the Years Ended December 31, 2017 and 2016

	2017	2016
CASH FLOWS FROM OPERATING ACTIVITIES:		
Consolidated net income (loss)	\$ 97,696	\$ (1,161,245)
<i>Adjustments to reconcile net income (loss) to net cash used in operating activities:</i>		
Depreciation and amortization, net	587,822	264,005
Loss on sale of assets	2,909	640
Recovery for losses on accounts receivable	(16,600)	(19,245)
Provision (recovery) of inventory reserve	17,000	(27,000)
Stock-based compensation	183,768	165,931
Non-cash interest expense	1,491	49,532
<i>Changes in operating assets and liabilities, net of effects of acquisition:</i>		
(Increase) decrease in:		
Short-term investments, restricted	—	294,802
Accounts receivable	(336,051)	(3,324,310)
Unbilled revenue	(1,676,409)	(1,197,254)
Inventory, net	(298,167)	935,779
Due from related party	(325,651)	916,273
Prepaid expenses and other current assets	(47,498)	(48,771)
Other non-current assets	(32,252)	—
Increase (decrease) in:		
Accounts payable	1,335,042	55,672
Accrued expenses and other current liabilities	(494,095)	311,398
Deferred revenue	375,499	65,937
Interest payable, related party	34,240	—
Net cash used in operating activities	<u>(591,256)</u>	<u>(2,717,856)</u>
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchases of property and equipment	(580,044)	(139,725)
Purchases of intangible assets	(453,598)	(119,665)
Cash acquired in acquisition	971,454	—
Cash paid for investment in Ultra Emissions Technologies Ltd	—	(2,000,000)
Return of investment in Ultra Emissions Technologies Ltd	2,000,000	—
Payment of stock issuance costs	(377,246)	—
Distributions to noncontrolling interest	(47,921)	—
Net cash provided by (used in) investing activities	<u>1,512,645</u>	<u>(2,259,390)</u>
CASH FLOWS FROM FINANCING ACTIVITIES:		
Payments for debt issuance costs	—	(2,034)
Proceeds on notes payable	—	150,000
Payments for share issuance	—	(31,053)
Payments made on loan due to related party	(3,150,000)	—
Proceeds from exercise of stock options	179,918	395,572
Proceeds from exercise of warrants	—	2,700,000
Net cash provided by (used in) financing activities	<u>(2,970,082)</u>	<u>3,212,485</u>
Change in cash and cash equivalents	<u>(2,048,693)</u>	<u>(1,764,761)</u>
Cash and cash equivalents, beginning of the year	3,721,765	5,486,526
Cash and cash equivalents, end of the year	<u>\$ 1,673,072</u>	<u>\$ 3,721,765</u>
Supplemental disclosure of cash flow information:		
Cash paid for interest	\$ 110,979	\$ 126,250
Exchange of common stock for non-controlling interest in Ilios	\$ —	\$ 330,852
Issuance of stock to acquire American DG Energy, net	\$ 18,482,656	\$ —
Issuance of Tecogen stock options in exchange for American DG Energy options	\$ 114,896	\$ —

The accompanying notes are an integral part of these consolidated financial statements.

TECOGEN INC.
Notes to Audited Consolidated Financial Statements for December 31, 2017 and 2016

Note 1 – Nature of business and operations

Tecogen Inc. ("Tecogen" or the "Company"), a Delaware Corporation, was incorporated on September 15, 2000, and acquired the assets and liabilities of the Tecogen Products division of Thermo Power Corporation. The Company produces commercial and industrial, natural-gas-fueled engine-driven, combined heat and power (CHP) products that reduce energy costs, decrease greenhouse gas emissions and alleviate congestion on the national power grid. Tecogen's products supply electric power or mechanical power for cooling, while heat from the engine is recovered and purposefully used at a facility. The majority of the Company's customers are located in regions with the highest utility rates, typically California, the Midwest and the Northeast.

On May 4, 2009, the Company invested in a new corporation called Ilios Inc., or Ilios. The investment gave the Company a controlling financial interest in Ilios, whose business focus is advanced heating systems for commercial and industrial applications. Beginning in April 2016, a series of private placements were completed resulting in Ilios merging into the Company and Ilios is consolidated into our financial statements.

On November 28, 2017 after the dissolution of Ultratek, the Company created Ultera Technologies Inc., a Delaware corporation that is wholly owned by the Company ("Ultera Technologies"). Ultera Technologies was organized to continue to develop and commercialize Tecogen's patented technology, Ultera®, for the automotive market.

The Company's operations are comprised of two business segments. Our Products and Services segment designs, manufactures and sells industrial and commercial cogeneration systems as described above. Our Energy Production segment sells energy in the form of electricity, heat, hot water and cooling to our customers under long-term sales agreements.

Acquisition of American DG Energy, Inc.

On May 18, 2017, we completed our acquisition, by means of a stock-for-stock merger, of 100% of the outstanding common shares of American DG Energy Inc. ("ADGE"), a company which installs, owns, operates and maintains completed distributed generation of electricity, or DG systems or energy systems, and other complementary systems at customer sites and sells electricity, hot water, heat and cooling energy under long-term contracts at prices guaranteed to the customer to be below conventional utility rates.

Prior to the acquisition, ADGE was considered a related company because certain major stockholders had significant ownership positions in both companies. ADGE also had a sales representation agreement for Tecogen's products and service in New England and purchased the majority of its energy system from Tecogen.

Pursuant to the Merger Agreement, Tecogen acquired ADGE by means of a merger of one of our wholly owned subsidiaries (the "Merger Sub") with and into ADGE, so that ADGE became a wholly owned subsidiary of Tecogen. Pursuant to the Merger Agreement, at the effective time of the Merger, each outstanding share of ADGE common stock, \$.001 par value per share, was automatically converted into the right to receive 0.092 shares of common stock, \$.001 par value per share, of Tecogen (the "Exchange Ratio"), with cash paid in lieu of any fractional shares. As a result of the Merger, Tecogen issued approximately 4,662,937 shares of Tecogen common stock at \$4.02 per share. This price was based on the closing price of Tecogen's common stock on May 18, 2017, the closing date of the Merger. The aggregate value of the consideration to be paid in connection with the Merger to former holders of ADGE common stock, net of costs, was approximately \$18.5 million. Upon consummation of the Merger, ADGE stock options and other equity awards converted into stock options and equity awards with respect to Tecogen common shares, after giving effect to the Exchange Ratio.

ADGE distributes, owns, and operates clean, on-site energy systems that produce electricity, hot water, heat and cooling. ADGE's business model is to own the equipment that it installs at customer's facilities and to sell the energy produced by these systems to the customer on a long-term contractual basis. We have assumed these customer contracts and ADGE's business model and have fully incorporated ADGE's business into ours.

Note 2 – Summary of significant accounting policies

Principles of Consolidation and Basis of Presentation

The financial statements have been prepared in accordance with accounting standards set by the Financial Accounting Standards Board, or FASB. The FASB sets generally accepted accounting principles, or GAAP, to ensure financial condition, results of operations, and cash flows are consistently reported. References to GAAP issued by the FASB in these footnotes are to the FASB Accounting Standards Codification, or ASC. The Company adopted the presentation requirements for noncontrolling interests required by ASC 810 *Consolidation*. Under ASC 810, earnings or losses attributed to the noncontrolling interests are reported as part of the consolidated earnings and not a separate component of income or expense.

The accompanying consolidated financial statements include the accounts of the Company and entities in which it has a controlling financial interest. Those entities include the Company's wholly-owned subsidiaries, ADGE and Ilios Inc. and a joint venture, American DG New York, LLC, or ADGNY in which ADGE holds a 51.0% interest. As the controlling partner, all major

TECOGEN INC.
Notes to Audited Consolidated Financial Statements for December 31, 2017 and 2016

decisions in respect of ADGNY are made by the ADGE in accordance with the joint venture agreement. The interests in the individual underlying energy system projects in ADGNY vary between ADGE and its joint venture partner. The noncontrolling interest and distributions are determined based on economic ownership. The economic ownership is calculated by the amount invested by the Company and the noncontrolling partner in each site. Each quarter, the Company calculates a year-to-date profit/loss for each site that is part of ADGNY and the noncontrolling interest percent of economic ownership in each site is applied to determine the noncontrolling interest share in the profit/loss. The same methodology is used to determine quarterly distributions of available cash to the noncontrolling interest partner. On the Company's balance sheet, noncontrolling interest represents the joint venture partner's investment in ADGNY, plus its share of after tax profits less any cash distributions. ADGE owned a controlling 51.0% legal and economic interest in ADGNY as of December 31, 2017.

Investments in partnerships and companies in which the Company does not have a controlling financial interest but where we have significant influence are accounted for under the equity method.

Noncontrolling interests in the net assets and operations of Ilios and ADGNY are reflected in the caption "Noncontrolling interest" in the accompanying consolidated financial statements. All intercompany transactions have been eliminated. In May 2016, the Company completed an exchange of common stock with the shareholders of Ilios and effected a statutory merger. Ilios is no longer a subsidiary.

Reclassification

Certain prior period amounts have been reclassified to conform with current year presentation.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Concentration of Credit Risk

The Company's financial instruments that are exposed to concentrations of credit risk consist primarily of cash and cash equivalents, short-term investments and accounts receivable. The Company maintains its cash balances in bank accounts, which at times may exceed the Federal Deposit Insurance Corporation's general deposit insurance limits. The amount on deposit at December 31, 2017 and 2016 which exceeded the \$250,000 federally insured limit were approximately \$1,172,911 and \$3,471,765, respectively. The Company has not experienced any losses in such accounts and thus believes that it is not exposed to any significant credit risk on cash.

There was one customer who represented more than 10% of revenues for the year ended December 31, 2017 and no customers who represented more than 10% of revenues for the year ended December 31, 2016. The Company has approximately four hundred seventy customers who represented 100% of the revenues for the year ended December 31, 2017. There were no customers who represented more than 10% of the accounts receivable balance as of December 31, 2017, and one customer who represented 15% of the accounts receivable balance as of December 31, 2016.

Cash and Cash Equivalents

The Company considers all highly liquid instruments with an original maturity date of three months or less when purchased to be cash and cash equivalents. The Company has cash balances in certain financial institutions in amounts which occasionally exceed current federal deposit insurance limits. The financial stability of these institutions is continually reviewed by senior management. The Company believes it is not exposed to any significant credit risk on cash and cash equivalents.

Accounts Receivable

Accounts receivable are stated at the amount management expects to collect from outstanding balances. An allowance for doubtful accounts is provided for those accounts receivable considered to be uncollectible based upon historical experience and management's evaluation of outstanding accounts receivable at the end of the year. Bad debts are written off against the allowance when identified. At December 31, 2017 and 2016, the allowance for doubtful accounts was \$22,400 and \$29,665, respectively.

Inventory

Raw materials, work in process, and finished goods inventories are stated at the lower of cost, as determined by the average cost method, or market. The Company periodically reviews inventory quantities on hand for excess and/or obsolete inventory based primarily on historical usage, as well as based on estimated forecast of product demand. Any reserves that result from this review are charged to cost of sales.

TECOGEN INC.
Notes to Audited Consolidated Financial Statements for December 31, 2017 and 2016

Property, Plant and Equipment

Property, plant and equipment are recorded at cost. Depreciation is provided using the straight-line method over the estimated useful life of the asset, which range from three to fifteen years. Leasehold improvements are amortized using the straight-line method over the lesser of the estimated useful lives of the assets or the term of the related leases. Expenditures for maintenance and repairs are expensed currently, while renewals and betterments that materially extend the life of an asset are capitalized.

The Company receives rebates and incentives from various utility companies and governmental agencies which are accounted for as a reduction in the book value of the assets. The rebates are payable from the utility to the Company and are applied against the cost of construction, therefore reducing the book value of the installation. As a reduction of the facility construction costs, these rebates are treated as an investing activity in the statements of cash flows. The rebates received by the Company from the utilities that apply to the cost of construction are one time rebates based on the installed cost, capacity and thermal efficiency of the installed unit and are earned upon the installation and inspection by the utility and are not related to or subject to adjustment based on the future operating performance of the installed units. The rebate agreements with utilities are based on standard terms and conditions, the most significant being customer eligibility and post-installation work verification by a specific date. During 2017 the amount of rebates applied to the cost of construction was \$64,395.

Intangible Assets

Intangible assets subject to amortization include costs incurred by the Company to acquire product certifications, certain patent costs and developed technologies. These costs are amortized on a straight-line basis over the estimated economic life of the intangible asset. Indefinite life intangible assets such as trademarks are recorded at cost and not amortized. The Company reviews intangible assets for impairment when the circumstances warrant.

The favorable contract asset which relates to existing ADGE customer contracts is more fully described in Note 6., "Intangible assets and liabilities other than goodwill".

Impairment of Long-lived Assets

Long-lived assets, including intangible assets and property, plant and equipment, are evaluated for impairment whenever events or changes in circumstances have indicated that an asset may not be recoverable and are grouped with other assets to the lowest level for which identifiable cash flows are largely independent of the cash flows of other groups of assets and liabilities. If the sum of the projected undiscounted cash flows (excluding interest charges) is less than the carrying value of the assets, the assets will be written down to the estimated fair value and such loss is recognized in income from continuing operations in the period in which the determination is made. Management determined that no impairment of long-lived assets existed as of December 31, 2017.

Goodwill

The Company's goodwill was recorded as a result of the Company's asset acquisition of the permanent magnet generator technology in 2013 and the acquisition of ADGE in 2017. The Company tests its recorded goodwill for impairment as of the last day of the year, or more often if indicators of potential impairment exist, by determining if the carrying value of the Company's reporting units exceed estimated fair value. Factors that could trigger an interim impairment test include, but are not limited to, underperformance relative to historical or projected future operating results, significant changes in the manner of use of the acquired assets or the Company's overall business, significant negative industry or economic trends and a sustained period where market capitalization, plus an appropriate control premium is less than stockholders' equity.

The Company's impairment testing involves a step zero process. Step zero allows for management to first assess qualitative factors to determine whether it is more likely than not that the fair value of the intangible asset is less than its carrying value. As of December 31, 2017, the Company determined that it was more likely than not that the fair value of the reporting units exceeded carrying value and therefore no impairment was recognized.

Income (loss) per Common Share

The Company computes basic loss per share by dividing net income (loss) for the period by the weighted-average number of shares of common stock outstanding during the period. The Company computes its diluted earnings per common share using the treasury stock method. For purposes of calculating diluted earnings per share, the Company considers its shares issuable in connection with the convertible debentures, stock options and warrants to be dilutive common stock equivalents when the exercise/conversion price is less than the average market price of our common stock for the period. For the year ended December 31, 2017, the Company included 171,594 dilutive shares resulting from exercise of stock options. All shares issuable for December 31, 2016 were anti-dilutive because of the reported net loss.

TECOGEN INC.
Notes to Audited Consolidated Financial Statements for December 31, 2017 and 2016

Segment Information

The Company's operations are comprised of two business segments. Our Products and Services segment designs, manufactures and sells industrial and commercial cogeneration systems as described above. Our Energy Production segment sells energy in the form of electricity, heat, hot water and cooling to our customers under long-term sales agreements. Prior to the acquisition of ADGE (see Note 4."Acquisition of American DG Energy Inc."), the Company's operations were comprised of a single segment (see Note 16. "Segments").

Income Taxes

The Company uses the asset and liability method of accounting for income taxes. The current or deferred tax consequences of transactions are measured by applying the provisions of enacted tax laws to determine the amount of taxes payable currently or in future years. Deferred tax assets and liabilities are determined based on the difference between the financial statement and tax bases of assets and liabilities and expected future tax consequences of events that have been included in the financial statements or tax returns using enacted tax rates in effect for the years in which the differences are expected to reverse. Under this method, a valuation allowance is used to offset deferred taxes if, based upon the available evidence, it is more likely than not that some or all of the deferred tax assets may not be realized. Management evaluates the recoverability of deferred taxes and the adequacy of the valuation allowance annually.

The Company has adopted the provisions of the accounting standards relative to accounting for uncertainties in tax positions. These provisions provide guidance on the recognition, de-recognition and measurement of potential tax benefits associated with tax positions. The Company elected to recognize interest and penalties related to income tax matters as a component of income tax expense in the statements of operations. The Company has analyzed its current tax return compliance positions and has determined that no uncertain tax positions have been taken that would require recognition.

With few exceptions, the Company is no longer subject to possible income tax examinations by federal, state or local taxing authorities for tax years before 2014, with the exception of loss carryforwards in the event they are utilized in future years. The Company's tax returns are open to adjustment from 2001 forward, as a result of the fact that the Company has loss carryforwards from those years, which may be adjusted in the year those losses are utilized.

Fair Value of Financial Instruments

The Company's financial instruments are cash and cash equivalents, certificates of deposit, accounts receivable, available-for-sale securities, accounts payable, demand notes, and loans and convertible debentures due to related parties. The recorded values of cash and cash equivalents, accounts receivable and accounts payable approximate their fair values based on their short-term nature. At December 31, 2017, the recorded value on the consolidated balance sheet of the loan due to related party approximates fair value as the terms approximate those available for similar instruments. See Note 13. "Fair value measurements".

Revenue Recognition

Product and service revenue is recognized when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the price is fixed or determinable and collectability is reasonably assured. Generally, sales of cogeneration and chiller units and parts are recognized when shipped and services are recognized over the term of the service period. Payments received in advance of services being performed are recorded as deferred revenue.

The Company recognizes revenue in certain circumstances before delivery has occurred (commonly referred to as bill and hold transactions). In such circumstances, among other things, risk of ownership has passed to the buyer, the buyer has made a written fixed commitment to purchase the finished goods, the buyer has requested the finished goods be held for future delivery as scheduled and designated by them, and no additional performance obligations exist by the Company. For these transactions, the finished goods are segregated from inventory and normal billing and credit terms granted. For the years ended December 31, 2017 and 2016, bill and hold transactions in revenue were \$1,141,684 and \$2,588,458, respectively.

For those arrangements that include multiple deliverables, the Company first determines whether each service or deliverable meets the separation criteria of FASB ASC 605-25, *Revenue Recognition—Multiple-Element Arrangements*. In general, a deliverable (or a group of deliverables) meets the separation criteria if the deliverable has stand-alone value to the customer and, if the arrangement includes a general right of return, delivery or performance of the undelivered item(s) is considered probable and substantially in control of the Company. Each deliverable that meets the separation criteria is considered a separate "unit of accounting". The Company allocates the total arrangement consideration to each unit of accounting using the relative selling price method. The amount of arrangement consideration that is allocated to a delivered unit of accounting is limited to the amount that is not contingent upon the delivery of another unit of accounting.

When vendor-specific objective evidence or third-party evidence is not available, adopting the relative fair value method of allocation permits the Company to recognize revenue on specific elements as completed based on the estimated selling price. The Company generally uses internal pricing lists that determine sales prices to external customers in determining its best estimate of the selling price of the various deliverables in multiple-element arrangements. Changes in judgments made in estimating the

TECOGEN INC.
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selling price of the various deliverables could significantly affect the timing or amount of revenue recognition. The Company enters into sales arrangements with customers to sell its cogeneration and chiller units and related service contracts and occasionally installation services. Based on the fact that the Company sells each deliverable to other customers on a stand-alone basis, the Company has determined that each deliverable has a stand-alone value. Additionally, there are no rights of return relative to the delivered items; therefore, each deliverable is considered a separate unit of accounting.

After the arrangement consideration has been allocated to each unit of accounting, the Company applies the appropriate revenue recognition method for each unit of accounting based on the nature of the arrangement and the services included in each unit of accounting. Cogeneration and chiller units are recognized when shipped and services are recognized over the term of the applicable agreement, or as provided when on a time and materials basis.

In some cases, our customers may choose to have the Company engineer and install the system for them rather than simply purchase the cogeneration and/or chiller units. In this case, the Company accounts for revenue, or turnkey revenue, and costs using the percentage-of-completion method of accounting. Under the percentage-of-completion method of accounting, revenues are recognized by applying percentages of completion to the total estimated revenues for the respective contracts. Costs are recognized as incurred. The percentages of completion are determined by relating the actual cost of work performed to date to the current estimated total cost at completion of the respective contracts. When the estimate on a contract indicates a loss, the Company's policy is to record the entire expected loss, as required by generally accepted accounting principles. The excess of contract costs and profit recognized to date on the percentage-of-completion accounting method in excess of billings is recorded as unbilled revenue. Billings in excess of related costs and estimated earnings are recorded as deferred revenue.

Revenue from energy contracts is recognized when electricity, heat, and chilled water is produced by the cogeneration systems on-site. The Company bills each month based on various meter readings installed at each site. The amount of energy produced by on-site energy systems is invoiced, as determined by a contractually defined formula. Under certain energy contracts, the customer directly acquires the fuel to power the systems and receives credit for that expense from the Company. The credit is recorded as a cost of sale. Revenues from operations, including shared savings are recorded when provided and verified. Maintenance service revenue is recognized over the term of the agreement and is billed on a monthly basis in arrears.

As a byproduct of the energy business, in some cases, the customer may choose to own the energy system rather than have it owned by ADGE. In this case, the Company accounts for revenue, or turnkey revenue, and costs using the percentage-of-completion method of accounting. Under the percentage-of-completion method of accounting, revenues are recognized by applying percentages of completion to the total estimated revenues for the respective contracts. Costs are recognized as incurred. The percentages of completion are determined by relating the actual cost of work performed to date to the current estimated total cost at completion of the respective contracts. When the estimate on a contract indicates a loss, the Company records the entire expected loss, regardless of the percentage of completion. The excess of contract costs and profit recognized to date on the percentage-of-completion accounting method in excess of billings is recorded as unbilled revenue. Billings in excess of related costs and estimated earnings is recorded as deferred revenue.

Customers may buy out their long-term obligation under energy contracts and purchase the underlying equipment from the Company. Any resulting gain on these transactions is recognized over the payment period in the accompanying consolidated statements of operations.

The Company is able to participate in certain energy related programs and receive payments due to the availability of its energy systems. These programs provide incentive payments for either the reduction of electricity usage or the increase in electricity production during periods of peak usage throughout a utility territory.

Presentation of Sales Taxes

The Company reports revenues net of any revenue-based taxes assessed by governmental authorities that are imposed on and concurrent with specific revenue-producing transactions.

Shipping and Handling Costs

The Company classifies freight billed to customers as sales revenue and the related freight costs as cost of sales.

Advertising Costs

The Company expenses the costs of advertising as incurred. For the years ended December 31, 2017 and 2016, advertising expense was approximately \$278,000 and \$134,000, respectively.

Research and Development Costs

Research and development expenditures are expensed as incurred. The Company's total research and development expenditures of approximately \$937,000 and \$677,100 were recognized for each of the years ended December 31, 2017 and 2016, respectively.

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Stock-Based Compensation

Stock-based compensation cost is measured at the grant date, based on the estimated fair value of the award, and is recognized as an expense in the statements of operations over the requisite service period.

The determination of the fair value of share-based payment awards is affected by the Company's stock price. For the awards prior to the Company being publicly traded, the Company considered the sales price of the Common Stock in private placements to unrelated third parties as a measure of the fair value of its Common Stock.

The Company utilizes actual forfeitures when calculating the expense for the period. Stock-based compensation expense recognized is based on awards that are ultimately expected to vest. The Company evaluates the assumptions used to value awards regularly and if factors change and different assumptions are employed, stock-based compensation expense may differ significantly from what has been recorded in the past. If there are any modifications or cancellations of the underlying unvested securities, the Company may be required to accelerate, increase or cancel any remaining unearned stock-based compensation expense.

Pursuant to ASC 505-50, *Equity Based Payments to Non-Employees*, the fair value of restricted Common Stock and stock options issued to nonemployees is revalued at each reporting period until the ultimate measurement date, as defined by ASC 505-50. The Company records the value of the instruments at the time services are provided and the instruments vest. Accordingly, the ultimate expense is not fixed until such instruments are fully vested.

See Note 12."Stockholders' equity" for a summary of the restricted stock and stock option activity under the Company's stock-based employee compensation plan for the years ended December 31, 2017 and 2016.

Recent Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board ("FASB") issued an accounting standard update related to revenue from contracts with customers, which, along with amendments issued in 2015 and 2016, will supersede nearly all current U.S. GAAP guidance on this topic and eliminate industry-specific guidance. The underlying principle is to recognize revenue when promised goods or services are transferred to customers in an amount that reflects the consideration that is expected to be received for those goods or services. This accounting standard update, as amended, will be effective for the Company beginning in the first quarter of 2018. The new revenue standard may be applied retrospectively to each prior period presented or retrospectively with the cumulative effect recognized in retained earnings as of the date of adoption ("modified retrospective basis"). The Company plans to adopt this accounting standard update on a modified retrospective basis in the first quarter of 2018. Management has completed its assessment of the impact of the new revenue recognition standard and concluded that no significant differences are expected to result upon adoption.

In January 2016, the FASB issued an accounting standard update related to investments in equity securities requiring unrealized holding gains and losses to be included in net income. Prior to this update, unrealized holding gains and losses related to available-for-sale securities were included in accumulated other comprehensive income and not included in determining net income. This accounting standard update will be effective for the Company beginning in the first quarter of 2018 and is applied by means of a cumulative-effect adjustment to the balance sheet as of the beginning of the fiscal year of adoption. The Company plans to adopt this accounting standard update in the first quarter of 2018 which will result in reclassification of \$165,317 of cumulative unrealized holding losses from accumulated other comprehensive loss to accumulated deficit. The future impact of recognizing unrealized holding gains or losses in net income is dependent on the movement in the stock prices related to such investments.

In February 2016, the FASB issued an accounting standard update related to leases requiring lessees to recognize operating and financing lease liabilities on the balance sheet, as well as corresponding right-of-use assets. The new lease standard also makes some changes to lessor accounting and aligns key aspects of the lessor accounting model with the revenue recognition standard. In addition, disclosures will be required to enable users of financial statements to assess the amount, timing, and uncertainty of cash flows arising from leases. The accounting standard update will be effective for the Company beginning in the first quarter of fiscal 2019 on a modified retrospective basis, and early adoption is permitted. The Company is currently evaluating the impact of this accounting standard update on its consolidated financial statements.

Note 3 – Income (loss) per common share:

Basic and diluted income (loss) per share for the years ended December 31, 2017 and 2016, respectively, was as follows:

	2017	2016
Net income (loss) attributable to stockholders	\$ 47,436	\$ (1,096,283)
Weighted average shares outstanding - Basic	23,171,033	19,295,922
Basic income (loss) per share	\$ 0.00	\$ (0.06)
Weighted average shares outstanding - Diluted	23,342,627	19,295,922
Diluted income (loss) per share	\$ 0.00	\$ (0.06)
Anti-dilutive shares underlying stock options outstanding	441,356	1,117,918
Anti-dilutive convertible debentures	—	889,831

Note 4 – Acquisition of American DG Energy Inc.

On May 18, 2017, we completed our acquisition, by means of a stock-for-stock merger, of 100% of the outstanding common shares of American DG Energy Inc. ("American DG Energy" or "ADGE"), a company which installs, owns, operates and maintains complete distributed generation of electricity systems, or DG systems or energy systems, and other complementary systems at customer sites and sells electricity, hot water, heat and cooling energy under long-term contracts at prices guaranteed to the customer to be below conventional utility rates, by means of a merger of one of our wholly owned subsidiaries with and into ADGE such that ADGE became a wholly owned subsidiary of Tecogen. We acquired ADGE to, among other reasons, expand our product offerings and benefit directly from the long-term contracted revenue streams generated by these installations. We gained control of ADGE on May 18, 2017 by issuing Tecogen Common Stock to the prior stockholders of ADGE.

We have included the financial results of ADGE in our condensed consolidated financial statements from the date of acquisition. For the year ended December 31, 2017, ADGE contributed \$3,833,940 to our total revenues and \$1,799,422 to our gross profit.

Acquisition related costs included in general and administrative expenses totaled \$374,156 for the year ended December 31, 2017. Stock issuance related costs totaling \$377,246 were netted against additional paid in capital during the year ended December 31, 2017.

The merger is intended to qualify for federal income tax purposes as a tax-free reorganization under the provisions of Section 368(a) of the Internal Revenue Code of 1986. Subject to the terms and conditions of the merger agreement, at the closing of the merger, each outstanding share of ADGE common stock was converted into the right to receive approximately 0.092 shares of common stock of Tecogen (the "Exchange Ratio").

Also in connection with the merger, Tecogen, at the effective time of the merger, assumed the outstanding stock options of ADGE as adjusted pursuant to the Exchange Ratio and subject to the terms of the merger agreement.

The fair value of the 4,662,937 shares of common stock issued as part of the consideration for the acquisition was determined based on the closing market price of Tecogen's stock on the date of acquisition. Additionally, as there is no required service condition in the assumed equity-based awards, 100% of the estimated fair value of the replacement equity-based awards at the date of the merger is considered attributable to pre-combination service and accordingly is included in the consideration.

The following table summarizes the consideration paid for ADGE and the amounts of the assets acquired and liabilities assumed recognized at the acquisition date, as well as the fair value at the acquisition date of the noncontrolling interest in American DG New York, LLC, a consolidated subsidiary of ADGE.

Consideration		
Tecogen common stock - 4,662,937 shares	\$	18,745,007
Assumed fully vested equity awards		114,896
	\$	<u>18,859,903</u>
Recognized amounts of identifiable assets acquired and liabilities assumed		
Financial assets	\$	1,542,137
Inventory		75,374
Prepaid and other current assets		358,628
Property, plant and equipment		12,186,664
Investment securities		519,568
Favorable contract asset		1,561,739
Financial liabilities		(1,912,859)
Unfavorable contract liability		(8,341,922)
Other liabilities		(939)
Total identifiable net assets		<u>5,988,390</u>
Noncontrolling interest in American DG New York, LLC		(453,272)
Goodwill		13,324,785
	\$	<u>18,859,903</u>

Goodwill acquired of \$13.3 million arising from the acquisition is primarily attributable to the going concern element of ADGE's business, including its assembled workforce and the long-term contractual nature of its business, as well as expected cost synergies from the merger related primarily to the elimination of administrative overhead and duplicative personnel. None of the goodwill recognized is expected to be deductible for income tax purposes.

The favorable contract asset and the unfavorable contract liability, both of which relate to existing customer contracts, and the estimated amortization are more fully described in Note 6. "Intangible assets and liabilities other than goodwill".

The fair value of the noncontrolling interest in American DG New York, LLC, a consolidated subsidiary of ADGE, was estimated using the income approach. This fair value measurement is based on significant inputs that are not observable in the market and thus represents a fair value measurement categorized within level 3 of the fair value hierarchy described in ASC Section 820-10-35. Key assumptions include a discount rate of 5.61% and the run out of existing contracts at current levels of profitability.

Unaudited Pro Forma Financial Information

The unaudited pro forma financial information in the table below summarizes the combined results of operations for Tecogen and ADGE as though the companies were combined as of the beginning of fiscal 2016. The pro forma financial information for all periods presented also includes the business combination accounting effects resulting from the acquisition including amortization charges and credits from acquired intangible assets and liabilities (certain of which are preliminary), and depreciation adjustments related to fair value as though the aforementioned companies were combined as of the beginning of fiscal 2016. The pro forma financial information as presented below is for informational purposes only and is not indicative of the results of operations that would have been achieved if the acquisition had taken place at the beginning of fiscal 2016.

	Year ended December 31,	
	2017	2016
Total revenues	\$ 36,232,650	\$ 29,674,375
Net income (loss)	113,255	(253,132)
Basic earnings (loss) per share	\$ 0.01	\$ (0.01)
Diluted earnings (loss) per share	\$ 0.01	\$ (0.01)

One-time acquisition-related expenses related to the merger incurred during the period ended December 31, 2017 are not included in the unaudited pro forma financial information as they are not expected to have a continuing impact on the consolidated results.

The unaudited pro forma financial information does not include the revenues or results of operations of a subsidiary previously owned and consolidated by ADGE as that subsidiary was disposed of in 2016 prior to the acquisition by Tecogen and was considered to be a discontinued operation by ADGE. Additionally, the unaudited pro forma financial information does not include a gain recognized on deconsolidation of that same subsidiary by ADGE and an amount of interest cost related to ADGE's long-term debt which was extinguished contemporaneously with the disposition of the subsidiary.

Note 5 – Inventory

Inventories at December 31, 2017 and 2016 consisted of the following.

	2017	2016
Gross raw materials	\$ 5,270,732	\$ 4,658,872
Less - reserves	(283,000)	(266,000)
Net raw materials	4,987,732	4,392,872
Work-in-process	11,852	144,528
Finished goods	131,221	236,864
	<u>\$ 5,130,805</u>	<u>\$ 4,774,264</u>

Note 6 – Intangible Assets and Liabilities Other Than Goodwill

The Company capitalized \$61,053 and \$30,035 of product certification costs during the years ended December 31, 2017 and 2016, respectively. Also included in intangible assets are the costs incurred by the Company to acquire certain patents. These patents, once in service, will be amortized on a straight-line basis over the estimated economic life of the associated product, which range from approximately 7-10 years. The Company capitalized \$181,637 and \$77,240 of patent-related costs during the years ended December 31, 2017 and 2016, respectively. The Company capitalized \$2,375 and \$12,390 in trademarks during the years ended December 31, 2017 and 2016, respectively.

Intangible assets and liabilities at December 31, 2017 and 2016 consist of the following:

Intangible assets	December 31, 2017			December 31, 2016		
	Cost	Accumulated Amortization	Net	Cost	Accumulated Amortization	Net
Product certifications	\$ 605,704	\$ (285,341)	\$ 320,363	\$ 544,651	\$ (233,992)	\$ 310,659
Patents	808,323	(154,972)	653,351	681,155	(123,012)	558,143
Developed technology	240,000	(76,000)	164,000	240,000	(60,000)	180,000
Trademarks	19,540	—	19,540	17,165	—	17,165
In Process R&D	263,001	—	263,001	—	—	—
Favorable contract asset	1,561,739	(85,536)	1,476,203	—	—	—
	<u>\$3,498,307</u>	<u>\$ (601,849)</u>	<u>\$2,896,458</u>	<u>\$1,482,971</u>	<u>\$ (417,004)</u>	<u>\$ 1,065,967</u>
Intangible liability						
Unfavorable contract liability	<u>\$8,341,922</u>	<u>\$ (612,255)</u>	<u>\$7,729,667</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>

The aggregate amortization expense related to intangible assets exclusive of contract related intangibles was \$99,310 and \$98,310 during the years ended December 31, 2017 and 2016, respectively. The net credit to cost of sales related to the amortization of the contract related intangible asset and liability for the years ended December 31, 2017 and 2016 was \$526,719 and \$0, respectively.

Contract Asset and Liability

The favorable contract asset and unfavorable contract liability in the foregoing table represent the fair value of ADGE's customer contracts (both positive for favorable contracts and negative for unfavorable contracts) which were acquired by the Company on May 18, 2017 (see Note 4, "Acquisition of American DG Energy Inc."). These contracts are long-term and provide customers with an alternative source of electrical power in addition to that provided by the local power utility, at rates that are lower than local utilities. This alternative electrical power is typically produced by ADGE owned, operated and maintained natural gas powered systems installed at the customers' sites, with ADGE bearing all costs of operation and maintenance. In addition to the alternative source of electrical power provided by ADGE's systems, customers can opt to add and take advantage of the heat generated in the electrical production process in the form of hot water and/or space heating. Pricing to the customer for electrical power produced and supplied by ADGE under the contracts is under a fixed formula which requires the customer to pay for the kilowatts of electrical power provided at a fixed percentage discount to the local utility's electric rate for that period. As a result, as utility rates for electrical power change, the amount ADGE is able to charge the customer under the contract also changes. There has been a sharp decrease in electric rates over the past several years, subsequent to the vast majority of customer contract dates, causing the billable value of the electrical power generated by ADGE's systems to decrease, resulting in a deterioration of expected profitability. As of the date of acquisition, utility electric rates were significantly below the level anticipated at the time the fixed percentage discounts contained in the vast majority of ADGE's customer contracts were contracted for, thus these contract terms, although they produce cash flow, were considered to be off market in the vast majority of ADGE's customer contracts. Additionally, the demand and volume of kilowatts produced and billed for vary by contract and by period and in certain instances have been significantly below what was originally expected such that had it been known at the time the contract(s) were negotiated, it would have influenced ADGE's determination of the level of the fixed percentage discount in those contracts.

The determination of fair value requires development of an estimate of the price at which an orderly transaction to sell the asset or to transfer the liability would take place between market participants at the measurement date under current market conditions. Contracts are considered to be assets or liabilities by virtue of the rights and obligations inherent in the contract terms. Typically, contracts with terms considered to be at market are considered to have no fair value because in order to be entitled to the rights under the contract performance must occur for which a market rate of return is earned due to the at market terms. The fair value of a contract is primarily a measurement of its off market terms. The obligation to perform under a contract with terms that are unfavorable to market results in a liability to the extent its terms are off market. The resulting liability is an estimate of the price that would need to be paid to a willing market participant to assume the obligations under the contract in order for them to receive a market rate of return for their remaining performance obligation under the contract. The exact opposite holds true in instances where the terms of a contract are considered to be favorable to market. In that case an asset would exist as an estimate of the price that would be received from a willing market participant in order to be entitled to the rights under the contract.

In determining the estimate of fair value of ADGE's customer contracts, the measure of market, and thus the baseline to measure the amount related to any of the off market terms or conditions with respect to the contracts, was considered best determined, given the nature of the services provided under the contracts, by utilizing a benchmark level of profit margin, in this case 35% of revenue which is consistent with the average return on revenue of US investor owned public utilities.

Amortization of intangibles including contract related amounts is calculated using the straight line method over the remaining useful life or contract term and charged against cost of sales in the accompanying consolidated statement of operations and comprehensive loss. Aggregate future amortization over the next five years is estimated to be as follows:

	Non-contract related intangibles	Contract related intangibles	Total
2018	\$ 185,398	\$ (880,776)	(695,378)
2019	168,748	(781,505)	(612,757)
2020	162,591	(729,905)	(567,314)
2021	149,160	(730,478)	(581,318)
2022	142,083	(696,328)	(554,245)
Thereafter	592,733	(2,434,472)	(1,841,739)
	<u>\$ 1,400,713</u>	<u>\$ (6,253,464)</u>	<u>\$ (4,852,751)</u>

Note 7 – Property, plant and equipment

Property, plant and equipment at December 31, 2017 and 2016 consisted of the following:

	Estimated Useful Life (in Years)	2017	2016
Energy systems	1 - 15 years	\$ 12,466,642	\$ —
Machinery and equipment	5 - 7 years	1,215,951	1,009,893
Furniture and fixtures	5 years	205,320	141,874
Computer software	3 - 5 years	115,253	102,415
Leasehold improvements	*	440,519	437,341
		<u>14,443,685</u>	<u>1,691,523</u>
Less - accumulated depreciation and amortization		(2,177,974)	(1,174,380)
Net property, plant and equipment		<u>\$ 12,265,711</u>	<u>\$ 517,143</u>

* Lesser of estimated useful life of asset or lease term

Depreciation and amortization expense on property and equipment for the years ended December 31, 2017 and 2016 was \$1,114,540 and \$165,695, respectively.

Note 8. Goodwill

Changes in the carrying amount of goodwill by reportable segment during the year was as follows:

	Product and Service	Energy Production	Total Company
Balance at December 31, 2016	\$ 40,870	\$ —	\$ 40,870
Acquisitions	—	13,324,785	13,324,785
Balance at December 31, 2017	<u>\$ 40,870</u>	<u>\$ 13,324,785</u>	<u>\$ 13,365,655</u>

See Note 4. "Acquisition of American DG Energy Inc." for discussion of acquisition of goodwill.

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Note 9 – Convertible debentures and loan due to related party

On December 23, 2013, the Company entered into a Senior Convertible Promissory Note (the "Note") with Michaelson Capital Special Finance Fund LP, ("Michaelson"), for the principal amount of \$3,000,000 with interest at 4% per annum for a term of three years. On April 1, 2016, the Company amended the Note increasing the total principal amount to \$3,150,000 increasing the conversion price to \$3.54 from \$3.37, and extending the term until December 23, 2018. The amended Note was a senior secured obligation which paid interest only on a monthly basis in arrears at a rate of 4% per annum, unless earlier converted in accordance with the terms of the agreement prior to such date. The Note was secured by an all asset lien and was senior in right of payment to any unsecured indebtedness that is expressly subordinated in right of payment to the Note.

On December 14, 2017, the Company, through principal payment of \$3,150,000 to Michaelson (the "Payment"), terminated the Senior Convertible Promissory Note with Michaelson. Through the Note, Michaelson was the Company's principle debt holder and a beneficial holder of approximately 5% of the Company's shares outstanding. There were no pre-payment penalties paid by the Company, as Michaelson provided a waiver of the pre-payment penalties that were contained in the Note. By completing the Payment, the Company has satisfied all of its obligations under the Note and the Note was cancelled. Below is a summary of the terms of the Note, as amended.

The Company could prepay all of the outstanding principal and interest due and payable under this Note in full, at any time prior to the maturity date for an amount equal to 120% of the then outstanding principal and interest due and payable as of the date of such prepayment.

In connection with the acquisition of American DG Energy, the Company assumed a loan from John N. Hatsopoulos, the Company's Co-Chief Executive Officer and a Company Director. The loan is in the amount of \$850,000 and bears interest at 6%, payable quarterly, and matures and becomes due and payable on May 25, 2018.

See Note 18. "Subsequent events" for discussion regarding a Summary of Proposed Terms and Conditions with a bank for a senior revolving credit facility of up to \$10 million.

Note 10 – Commitments and contingencies

Operating Lease Obligations

The Company leases office space and warehouse facilities under various lease agreements which expire through March 2024. The Company subleases portions of its corporate offices and manufacturing facility to sub-tenants under annual sublease agreements, on a calendar year basis. Total rent expense for the years ended December 31, 2017 and 2016 amounted to \$700,335 and \$691,769, offset by \$34,995 and \$63,842 in rent paid by sub-lessees, to both related and unrelated parties, for a net amount of \$665,340 and \$627,927, respectively.

The Company leased one passenger vehicle under a lease agreement expiring in 2018. Vehicle rent expense amounted to \$1,571 and \$6,918 during the year ended December 31, 2017 and 2016, respectively.

Future minimum lease payments under all non-cancelable operating leases as of December 31, 2017 consist of the following:

Years Ending December 31,	Amount
2018	\$ 588,021
2019	511,382
2020	513,742
2021	521,375
2022	529,115
2023 and thereafter	671,553
Total	\$ 3,335,188

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Guarantees

The Company guarantees certain obligations of a former subsidiary of ADGE, EuroSite Power Inc. These guarantees include a payment performance guarantee in respect of collateralized equipment financing loans, with a remaining principal amount outstanding subject to the guarantee at December 31, 2017 of approximately \$286,500 due ratably in equal installments through September 2021, and certain guarantees of performance in respect of certain customer contracts. Based on current conditions, the Company does not believe there to be any amounts probable of payment by the Company under any of the guarantees and has estimated the value associated with the non-contingent aspect of the guarantees is approximately \$10,000 which is recorded as a liability in the accompanying financial statements.

Legal Proceedings

The Company is a party to a pending action in the United States District Court for the District of Massachusetts, described below, related to the Merger.

Massachusetts Superior Court Action

On or about February 6, 2017, ADGE, John Hatsopoulos, George N. Hatsopoulos, Charles T. Maxwell, Deanna M. Petersen, Christine Klaskin, John Rowe, Joan Giacinti, Elias Samaras, Tecogen, and Merger Sub were served with a Verified Complaint by William C. May ("May"), individually and on behalf of the other shareholders of ADGE as a class. The action was commenced in the Business Litigation Session of the Superior Court of the Commonwealth of Massachusetts, Civil Action No. 17-0390. The complaint alleged class action claims arising out of the proposed Merger. On May 31, 2017, May voluntarily dismissed the action and consolidated his claims with the pending federal action in the United States District Court for the District of Massachusetts. If the complaint in the federal court is dismissed, it is possible that May or another plaintiff will recommence an action in state court with similar claims to those asserted by May.

United States District Court Action

On or about February 15, 2017, a lawsuit was filed in the United States District Court for the District of Massachusetts by Lee Vardakas ("Vardakas"), individually and on behalf of other stockholders of ADGE, naming ADGE, John N. Hatsopoulos, George N. Hatsopoulos, Benjamin Locke, Charles T. Maxwell, Deanne M. Petersen, Christine M. Klaskin, John Rowe, Joan Giacinti, Elias Samaras, Tecogen, Merger Sub., and Cassel Salpeter and Co., LLC, as defendants. The action is captioned *Vardakas v. American DG Energy, Inc.*, Case No. 17-CV-10247(LTS). At the time Vardakas commenced the action, his complaint challenged the proposed Merger between Tecogen and ADGE.

Following the consummation of the Merger (and the appointment of May, from the Massachusetts Superior Court Action, as lead plaintiff), Vardakas filed an Amended Class Action Complaint (the "Amended Complaint"). The Amended Complaint discontinued the claims against Cassel Salpeter & Co., LLC but asserted against the remaining defendants claims under Section 14(a) of the Securities Exchange Act of 1934 (the "Exchange Act") and SEC Rule 14a-9; claims against certain defendants for control person liability under § 20(a) of the Exchange Act (collectively, the "Federal Securities Law Claims"); and common law claims for breach of fiduciary duty and aiding and abetting (the "State Law Claims"). The Federal Securities Law Claims allege, in substance, that defendants made material nondisclosure in the proxy statement about the process leading to the Merger and about the fairness opinion relied upon by ADGE's Board of Directors in recommending the Merger to shareholders. The State Law Claims assert, in substance, that defendants breached their fiduciary duties in negotiating and approving the Merger, which, plaintiff claims, deprived ADGE's non-affiliated shareholders of fair value for their shares.

On July 19, 2017, defendants moved to dismiss the Amended Complaint. In their motion filings, defendants contend that the Federal Securities Law Claims are not sufficiently pleaded and fail to state a viable claim. Defendants also assert that if the Federal Securities Law Claims are dismissed, the district court must also dismiss the State Law Claims because it would lack subject matter jurisdiction.

On February 28, 2018 the parties presented their oral arguments on the defendant's motion to dismiss. On March 2, 2018 the district court rendered its decision, dismissing the Federal Securities Law Claims, but retaining the State Law Claims. The district court exercised supplemental jurisdiction over the State Law Claims and ordered the Defendants to file an answer to the Amended Complaint addressing the State Law Claims. On March 12, 2018 the Defendants filed their answer.

The Company believes that the lawsuit is without merit and intends to defend vigorously. The Amended Complaint does not specify the amount of damages claimed and the likelihood of an unfavorable outcome is not reasonably estimable.

Note 11 – Product warranty

The Company reserves an estimate of its exposure to warranty claims based on both current and historical product sales data and warranty costs incurred. The majority of the Company's products carry a one-year warranty. The Company assesses the adequacy of its recorded warranty liability annually and adjusts the amount as necessary. The warranty liability is included in accrued expenses on the accompanying consolidated balance sheets.

Changes in the Company's warranty reserve were as follows:

Warranty reserve, December 31, 2015	\$	110,000
Warranty provision for units sold		169,180
Costs of warranty incurred		(131,180)
Warranty reserve, December 31, 2016		148,000
Warranty provision for units sold		128,100
Costs of warranty incurred		(142,600)
Warranty reserve, December 31, 2017	\$	133,500

Note 12 – Stockholders' equity

Common Stock

Beginning on April 11, 2016, through its conclusion on May 3, 2016, the Company entered into numerous private placement share exchange agreements ("Share Exchange Agreements") with shareholders of Ilios ("Exchanging Shareholders"), a majority owned subsidiary of the Company. Pursuant to the Share Exchange Agreements, the Exchanging Shareholders agreed to exchange every 7.86 of their restricted Ilios shares of common stock for 1 share of the Company's restricted common stock. In addition, the Company granted each Exchanging Shareholder registration rights of the Company's common stock they received in exchange for their Ilios shares. The Company issued a total of 670,464 shares of its common stock in exchange for Ilios shares of common stock. Pursuant to the Registration Rights Agreement, the Company filed a registration statement covering the resale of the shares.

Upon execution of the exchange agreements for 100% of the shares of Ilios, the Company no longer had a non-controlling interest in its subsidiary. On April 30, 2016, Ilios was merged into the Company, and accounting for the noncontrolling interest in the subsidiary ended.

As discussed in Note 4, "Acquisition of American DG Energy Inc.", on May 18, 2017, the Company completed the acquisition of ADGE, by means of a stock-for-stock merger, of 100% of the outstanding common shares of ADGE in exchange for 4,662,937 shares of the Company's newly issued common stock.

The holders of Common Stock have the right to vote their interest on a per share basis. At December 31, 2017 and 2016, there were 24,766,892 and 19,981,912 shares of Common Stock outstanding, respectively.

Preferred Stock

On February 13, 2013, the Company authorized 10 million shares of preferred stock. As of December 31, 2017, no preferred shares were issued or outstanding.

Warrants

In December 2015, 900,000 warrants were issued in conjunction with a private placement executed with the Ultra Emissions Joint Venture described in Note 15. In July 2016, the warrant holders exercised a total of 675,000 warrants with a \$4.00 exercise price, resulting in cash proceeds of \$2.7 million to the Company. The remaining 225,000 warrants expired on July 31, 2016. In conjunction with the Ultratek Joint Venture, the Board of Directors granted 250,000 warrants to Dr. Elias Samaras at \$4.00 a share with an expiration date of December 28, 2017. The warrants granted to Dr. Samaras expired unexercised.

Stock-Based Compensation

The Company adopted the 2006 Stock Option and Incentive Plan (the "Plan"), under which the board of directors may grant incentive or non-qualified stock options and stock grants to key employees, directors, advisors and consultants of the Company. The Plan was amended at various dates by the Board of Directors to increase the reserved shares of common stock issuable under the Plan to 3,838,750 as of December 31, 2017, and in June 2017 stockholders approved an amendment to extend the termination date of the Plan to January 1, 2026 and to ratify all Company option grants made after January 1, 2016 (the "Amended Plan").

Stock options vest based upon the terms within the individual option grants, with an acceleration of the unvested portion of such options upon a change in control event, as defined in the Amended Plan. The options are not transferable except by will or domestic relations order. The option price per share under the Amended Plan cannot be less than the fair market value of the

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underlying shares on the date of the grant. The number of shares remaining available for future issuance under the Amended Plan as of December 31, 2017 and 2016 was 2,123,747 and 1,607,357, respectively.

In 2017 the Company granted nonqualified options to purchase an aggregate of 45,000 shares of common stock in a range of \$3.22 and \$3.72 per share to certain employees. These options have a vesting schedule of four years and expire in ten years. The fair value of the options issued in 2017 was \$41,113. The weighted-average grant date fair value of stock options granted during 2017 was \$0.91 per option.

In 2016, the Company granted nonqualified options to purchase an aggregate of 207,701 shares of common stock for between \$0.79 and \$4.27 per share to certain employees and a director. Of these options, 82,701 fully vested options were issued in conjunction with the merger of Ilios as replacement options for those previously granted Ilios options in Ilios. The remaining 125,000 options have a vesting schedule of four years and expire in ten years. The fair value of the options issued in 2016 was \$236,315. The weighted-average grant date fair value of stock options granted during 2016 was \$1.14 per option.

Stock option activity for the year ended December 31, 2017 was as follows:

<i>Common Stock Options</i>	Number of Options	Exercise Price Per Share	Weighted Average Exercise Price	Weighted Average Remaining Life	Aggregate Intrinsic Value
Outstanding, December 31, 2016	1,117,918	\$0.79-\$5.39	\$ 3.10	5.00 years	\$ 1,415,150
Granted	45,000	\$3.22-\$3.72	3.35		
Assumed in merger	156,124	\$3.15-\$30.33	10.35		
Exercised	(122,043)	\$0.79-\$2.00	1.47		
Canceled and forfeited	(135,447)	\$2.60-30.33	9.28		
Outstanding, December 31, 2017	1,061,552	\$0.79-\$18.15	\$ 3.60	4.95 years	\$ 291,449
Exercisable, December 31, 2017	874,202		\$ 3.46		\$ 291,449
Vested and expected to vest, December 31, 2017	1,033,450		\$ 3.58		\$ 291,449

Using the Company's historical forfeiture rate of 15%, the table above uses said rate in the expected to vest calculation. The Company uses the Black-Scholes option pricing model to determine the fair value of stock options granted. Use of a valuation model requires management to make certain assumptions with respect to selected model inputs. Expected volatility was calculated based on the average volatility of four comparable publicly traded companies. The average expected life was estimated using the simplified method to determine the expected life based on the vesting period and contractual terms, since it does not have the necessary historical exercise data to determine an expected life for stock options. The Company uses a single weighted-average expected life to value option awards and recognizes compensation on a straight-line basis over the requisite service period for each separately vesting portion of the awards. The risk-free interest rate is based on U.S. Treasury zero-coupon issues with a remaining term which approximates the expected life assumed at the date of grant.

The weighted average assumptions used in the Black-Scholes option pricing model for options granted in 2017 and 2016 are as follows:

Stock option awards:	2017	2016
Expected life	6.25 years	6.25 years
Risk-free interest rate	1.86%	1.22%
Expected volatility	23.10%	32.80%

The Company granted restricted stock awards to its employees and directors. The performance based awards have vesting schedules of 25% or 33% per year beginning one year after the Company's IPO in 2014.

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Restricted stock activity for the year ended December 31, 2017 was as follows:

	Number of Restricted Stock	Weighted Average Grant Date Fair Value
Unvested, December 31, 2016	77,508	\$ 1.31
Granted	—	—
Vested	(34,587)	1.31
Forfeited	—	—
Unvested, December 31, 2017	42,921	\$ 1.31

During the years ended December 31, 2017 and 2016, the Company recognized stock-based compensation of \$183,768 and \$165,931, respectively, related to the issuance of stock options and restricted stock. No tax benefit was recognized related to the stock-based compensation recorded during the years. At December 31, 2017 and 2016, the total compensation cost related to unvested restricted stock awards and stock option awards not yet recognized is \$281,554 and \$444,939, respectively. This amount will be recognized over a weighted average period of 1.57 years.

Note 13 – Fair value measurements

The fair value topic of the FASB Accounting Standards Codification defines fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. The accounting guidance also establishes a fair value hierarchy which requires an entity to maximize the use of observable inputs, where available, and minimize the use of unobservable inputs when measuring fair value. There are three levels of inputs that may be used to measure fair value:

Level 1 - Unadjusted quoted prices in active markets for identical assets or liabilities. The Company currently does not have any Level 1 financial assets or liabilities.

Level 2 - Observable inputs other than quoted prices included in Level 1. Level 2 inputs include quoted prices for identical assets or liabilities in non-active markets, quoted prices for similar assets or liabilities in active markets and inputs other than quoted prices that are observable for substantially the full term of the asset or liability.

Level 3 - Unobservable inputs reflecting management's own assumptions about the input used in pricing the asset or liability. The Company currently does not have any Level 3 financial assets or liabilities.

The following table presents the asset reported in the consolidated balance sheet measured at its fair value on a recurring basis as of December 31, 2017 by level within the fair value hierarchy.

	Total	Quoted prices in active markets for identical assets			Significant other observable inputs	Significant unobservable inputs	Total gains (losses)
		Level 1	Level 2	Level 3			
December 31, 2017							
Recurring fair value measurements							
Available-for-sale equity securities							
EuroSite Power Inc.	\$ 354,251	\$ —	\$ 354,251	\$ —	\$ —	\$ (165,317)	
Total recurring fair value measurements	\$ 354,251	\$ —	\$ 354,251	\$ —	\$ —	\$ (165,317)	

The Company utilizes a Level 2 category fair value measurement to value its investment in EuroSite Power Inc. as an available-for-sale security at period end. That measurement is equal to the quoted market closing price at period end. Since this security is not actively traded we are classifying as Level 2.

Note 14 – Retirement plans

The Company has a defined contribution retirement plan (the "Plan"), which qualifies under Section 401(k) of the Internal Revenue Code (IRC). Under the Plan, employees meeting certain requirements may elect to contribute a percentage of their salary up to the maximum allowed by the IRC. The Company matches a variable amount based on participant contributions up to a maximum of 4.5% of each participant's salary. The Company contributed approximately \$231,945 and \$96,641 to the Plan in 2017 and 2016, respectively.

Note 15 – Related party transactions

The Company has two affiliated companies, namely Ultra Emissions Technologies S.ar.L, and TTcogen LLC. These companies are related because either several of the major stockholders of those companies have a significant ownership position in the Company or they are joint ventures between Tecogen and other parties.

In January of 2017, prior to its acquisition of American DG Energy, the Company purchased a large quantity of used equipment from ADGE for approximately \$985,000. Tecogen sold the majority of this equipment to specific customers during the year and plans to sell the remainder in the coming year.

In connection with the acquisition of American DG Energy, the Company assumed a loan from John N. Hatsopoulos, the Company's Co-Chief Executive Officer and a Company Director. The loan is in the amount of \$850,000 and bears interest at 6%, payable quarterly, and matures and becomes due and payable on May 25, 2018.

Ultra Emissions Technologies S.ar.L

On December 28, 2015, the Company entered into a joint venture agreement relating to the formation of a joint venture company (the "JV") organized to develop and commercialize Tecogen's patented technology ("Ultra® Technology") designed to reduce harmful emissions generated by engines using fossil fuels. The joint venture company, called Ultra Emissions Technologies S.ar.L, formerly known as "Ultra Emissions Technologies Limited" ("Ultratek"), was originally organized under the laws of the Island of Jersey, Channel Islands.

The Company received a 50% equity interest in the JV in exchange for a fully paid-up worldwide license to use Tecogen's Ultra emissions control technology in the field of mobile vehicles burning fossil fuels. The other half of the joint venture equity interests were purchased for \$3,000,000 by a small group of non US investors. Warrants to purchase additional equity securities in the JV were granted to all parties pro rata. If the venture is not successful, all licensed intellectual property rights will revert to Tecogen.

On August 2, 2016, Tecogen exercised 2,000,000 warrants (the "Ultratek Warrants"), to purchase shares of the JV, at \$1.00 per share, for an aggregate amount of \$2 million. The funds used to exercise the Ultratek Warrants were acquired by the Company from the holders of certain Company warrants (the "Tecogen Warrant Holders"), when they partially exercised their Tecogen warrants (the "Tecogen Warrants"), in July of 2016. The Tecogen Warrant Holders exercised a total of 675,000 Tecogen Warrants with a \$4.00 exercise price, resulting in cash proceeds of \$2,700,000 to the Company, which the Company then used in part to invest in the JV. An additional \$8,500,000 was raised from other outside investors for a total equity investment in the JV to date of \$13,500,000. Due to this investment, Tecogen's ownership decreased to 43%.

By unanimous written consent on October 24, 2017, the shareholders of Ultratek voted to dissolve Ultratek, thus terminating the joint venture agreement dated December 28, 2015 and the license agreement between the Company and Ultratek. This joint venture agreement and license agreement is described in its entirety on the Company's Form 8-K that was filed with the Securities and Exchange Commission on December 31, 2015.

Pursuant to the unanimous shareholder consent dissolving Ultratek, the Company received its full \$2,000,000 investment in Ultratek upon the completion of the liquidation process. Further, upon termination of the license agreement all intellectual property immediately reverted to the Company. Upon dissolution, the Company purchased all of the remaining assets of Ultratek, including new intellectual property that Ultratek developed and other assets, for a total purchase price of \$400,000. The net amount due from Ultratek as of December 31, 2017 and 2016 was \$0 and \$65,631, respectively.

TTcogen LLC

On May 19, 2016, the Company along with Tedom a.s., an unrelated corporation incorporated in the Czech Republic and a European combined heat and power product manufacturer ("Tedom"), entered into a joint venture, pursuant to which the Company held a 50% participating interest and the remaining 50% interest was held by Tedom. As part of the joint venture, the parties agreed to create a Delaware limited liability company, TTcogen LLC ("TTcogen"), to carry out the business of the venture. Tedom granted TTcogen the sole and exclusive right to market, sell, offer for sale, and distribute certain products as agreed to by the parties throughout the United States. The product offerings of the joint venture expand the current Tecogen product offerings to

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the MicroCHP of 35kW to large 4,000kW plants. Tecogen agreed to refer all appropriate sales leads to TTcogen regarding the products agreed to by the parties, and Tecogen had the first right to repair and maintain the products sold by TTcogen.

The Company accounts for its interest in TTcogen's operations using equity method accounting. Any initial operating losses of TTcogen are to be borne and funded by Tedom. To the extent any such losses are borne and funded solely by Tedom, the Company will not recognize any portion of such losses because the Company did not guarantee the obligations of the joint venture nor commit to provide funding to the joint venture.

On September 22, 2017, the Company notified Tedom and Tedom USA Inc., a Delaware subsidiary of Tedom ("Tedom USA") that it was exercising its rights under the Joint Venture Agreement dated May 19, 2016 ("JVA") and the TTcogen LLC Operating Agreement ("LLC Operating Agreement"), to terminate the JVA and LLC Operating Agreement. This notice began the dissolution process under the LLC Operating Agreement. The Company is working with Tedom to wind up TTcogen as provided for in the JV Agreement and LLC Operating Agreement.

Revenue from sales of cogeneration and chiller systems, parts, installations and service to TTcogen during the years ended December 31, 2017 and 2016 amounted to \$347,275 and \$93,143, respectively. The amounts due to Tecogen from TTcogen and Tedom USA as of December 31, 2017 was \$585,492 and \$10,259, respectively. The amounts due to Tecogen from TTcogen and Tedom USA as of December 31, 2016 was \$107,377 and \$692, respectively. These amounts are recorded in the accompanying consolidated balance sheets as due from related parties.

During the years ended December 31, 2017 and 2016, the Company had a loan with John N. Hatsopoulos, the Co-Chief Executive Officer of both companies. Details of these transactions can be found in Note 9. "Convertible debentures and loan due to related party".

On December 23, 2013, the Company entered into a Senior Convertible Promissory Note with Michaelson Capital Special Finance Fund LP. On April 1, 2016, this note was amended to extend the maturity date and revise the security and conversion price. On December 14, 2017 the note was discharged. Details of this payoff and discharge can be found in Note 9. "Convertible debentures and loan due to related party".

John N. Hatsopoulos' salary is \$1.00 per year. On average, Mr. Hatsopoulos spends approximately 50% of his business time on the affairs of the Company; however such amount varies widely depending on the needs of the business and is expected to increase as the business of the Company develops.

The Company subleases portions of its corporate offices and manufacturing facility to sub-tenants under annual sublease agreements. For the years ended December 31, 2017 and 2016, the Company received \$34,995 and \$48,092, respectively, from ADGE pre-merger and others.

Note 16 – Segments

As of December 31, 2017, the Company was organized into two operating segments through which senior management evaluates the Company's business. These segments, as described in more detail in Note 1, are organized around the products and services provided to customers and represent the Company's reportable segments. Prior to the acquisition of ADGE (see Note 4. "Acquisition of American DG Energy Inc."), the Company's operations were comprised of a single segment. The following table presents information by reportable segment for the years ended December 31, 2017 and 2016:

	Products and Services	Energy Production	Corporate, other and elimination (1)	Total
Year ended December 31, 2017				
Revenue - external customers	\$ 29,368,726	\$ 3,833,940	\$ —	\$ 33,202,666
Intersegment revenue	750,692	—	(750,692)	—
Total revenue	<u>30,119,418</u>	<u>3,833,940</u>	<u>(750,692)</u>	<u>33,202,666</u>
Gross profit	<u>11,154,982</u>	<u>1,799,422</u>	<u>—</u>	<u>12,954,404</u>
Identifiable assets	<u>24,234,505</u>	<u>26,436,571</u>	<u>—</u>	<u>50,671,076</u>
Year ended December 31, 2016				
Revenue - external customers	\$ 24,490,386	\$ —	\$ —	\$ 24,490,386
Intersegment revenue	—	—	—	—
Total revenue	<u>24,490,386</u>	<u>—</u>	<u>—</u>	<u>24,490,386</u>
Gross profit	<u>9,300,678</u>	<u>—</u>	<u>—</u>	<u>9,300,678</u>
Identifiable assets	<u>15,674,327</u>	<u>—</u>	<u>8,067,034</u>	<u>23,741,361</u>

(1) Corporate, intersegment revenue, other and elimination includes various corporate assets.

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Note 17 – Income taxes

A reconciliation of the federal statutory income tax provision to the Company's actual provision for the years ended December 31, 2017 and 2016 is as follows:

	2017	2016
Pre-tax book income (loss)	\$ 97,697	\$ (1,161,245)
Expected tax at 34%	33,217	(394,823)
Permanent differences:		
Machinery & equipment	10,888	5,459
Stock compensation	(179,084)	—
Non-deductible interest	10,788	—
Other	26	754
State taxes:		
Current	—	—
Deferred	(24,960)	(96,754)
Other items:		
Federal research and development credits	(33,406)	(15,996)
Change in valuation allowance	277,000	96,754
Deferred tax past year true-up's	191,355	(8,584)
ADGE deferred tax assets and liabilities at purchase	(3,702,013)	—
ADGE other post-closing adjustments	(1,330,665)	—
Change in statutory tax rate for deferred tax assets-Federal	4,914,329	—
Change in statutory tax rate for deferred tax assets-State	(167,475)	—
Unbenefitted operating losses	—	413,190
Income tax provision	\$ —	\$ —

The components of net deferred tax assets recognized in the accompanying consolidated balance sheets at December 31, 2017 and 2016 are as follows:

	2017	2016
Net operating loss carryforwards	\$ 7,429,000	\$ 6,885,000
R&D and ITC credit carryforwards	203,000	145,000
Accrued expenses and other	879,000	1,740,000
Accounts receivable	6,000	11,000
Inventory	73,000	208,000
Property, plant and equipment	801,000	125,000
Deferred tax assets	9,391,000	9,114,000
Valuation allowance	(9,391,000)	(9,114,000)
Deferred tax assets, net	\$ —	\$ —

At December 31, 2017, the Company had approximately \$30,982,000 of Federal Loss Carryforwards that expire beginning in the year 2021 through 2037. In addition, the Company has varying amounts of state net operating losses, expiring at various dates starting in 2018 through 2037.

The Tax Cuts and Jobs Act was enacted on December 22, 2017. A significant provision of the act was to reduce the statutory Federal tax rate from 34% to 21%. During 2017, the Company's valuation allowance increased by \$277,000. This increase is net of a \$4,747,000 decrease attributable to the reduction in tax rates, and was otherwise significantly affected by the absorption of deferred tax attributes associated with its acquisition of American DG Energy, Inc.

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In accordance with the provisions of the Income Taxes topic of the Codification, the Company has evaluated the positive and negative evidence bearing upon the realizability of its deferred tax assets, which are comprised principally of net operating losses. Management has determined that it is more likely than not that the Company will not recognize the benefits of federal and state deferred tax assets and, as a result, a full valuation allowance has been established for 2016 and 2017 respectively.

Utilization of the NOL and research and development credit carryforwards are subject to a substantial annual limitation due to ownership changes, as provided by Section 382 of the Internal Revenue Code of 1986, as well as similar state provisions. Ownership changes may limit the amount of NOL and tax credit carryforwards that can be utilized to offset future taxable income and tax, respectively. In general, an ownership change, as defined by Section 382, results from transactions increasing the ownership of certain shareholders or public groups in the stock of a corporation by more than 50 percentage points over a three-year period.

The Company acquired a new subsidiary, American DG Energy, Inc. during 2017, by acquiring 100 percent of the company's stock. Accordingly, utilization of their consolidated and/or separately computed NOL and/or tax credit carryforwards will be subject to an annual limitation under Internal Revenue Code Section 382. Any such limitation may result in expiration of a portion of the NOL or tax credit carryforwards before utilization. The extent of the limitation, and related allocation and impact upon the NOL and credit carryforwards, has not been determined as of the financial statement reporting date.

A full valuation allowance has been provided against the Company's loss carryforwards and, if an adjustment is required under Section 382, it would be offset by a corresponding adjustment to the valuation allowance. Thus, there would be no impact to the balance sheet or statement of operations if an adjustment were required.

The Company has not recorded any amounts for unrecognized tax benefits as of December 31, 2017 or 2016.

The Company files tax returns as prescribed by the tax laws of the jurisdiction in which it operates. In the normal course of business the Company is subject to examination by federal and state jurisdictions, where applicable. There are currently no pending tax examinations. The Company is thus still open to examination from tax year 2014 for both federal and state jurisdictions.

Note 18 – Subsequent events

On February 26, 2018, the Company signed a Summary of Proposed Terms and Conditions ("Term Sheet") with a bank, which, upon successful due diligence and the successful execution of a loan agreement, is expected to provide a senior revolving credit facility of up to \$10 million to provide working capital to the Company for a period of three years, with interest at LIBOR plus 3.0%.

The Company has evaluated subsequent events through the date of this report and determined that there are no additional subsequent events that have occurred that would require recognition in the consolidated financial statements or disclosure in the notes thereto.

TECOGEN INC.

2006 STOCK INCENTIVE PLAN

(As Amended and Restated on November 1, 2016)

1. Purpose of the Plan. This 2006 Stock Incentive Plan (the "Plan"), as amended to date, is intended to provide incentives (a) to the officers and employees of Tecogen Inc., a Delaware corporation (the "Company"), and any parent or subsidiary of the Company, by providing such officers and employees with opportunities to purchase stock in the Company pursuant to options granted hereunder which qualify as "incentive stock options" under Section 422(b) of the Internal Revenue Code of 1986, as amended (the "Code") ("ISO" or "ISOs"); (b) to directors, officers, employees, consultants and advisors of the Company and any present or future parent, subsidiary or affiliate of the Company (hereinafter collectively "Related Corporations") by providing them with opportunities to purchase stock in the Company pursuant to options granted hereunder which do not qualify as ISOs ("Non-Qualified Option" or "Non-Qualified Options"); (c) to directors, officers, employees, consultants and advisors of the Company and Related Corporations by providing them with opportunities to receive awards of stock in the Company whether such stock awards are in the form of bonus shares, deferred stock awards, or of performance share awards ("Awards"); and (d) to directors, officers, employees, consultants and advisors of the Company and Related Corporations by providing them with opportunities to make direct purchases of restricted stock in the Company ("Restricted Stock Purchases"). Both ISOs and Non-Qualified Options are referred to hereafter individually as an "Option" and collectively as "Options". Options, Awards and authorizations to make Restricted Stock Purchases are referred to hereafter individually as a "Stock Right" and collectively as "Stock Rights". As used herein, the terms "parent" and "subsidiary" mean "parent corporation" and "subsidiary corporation", respectively, as those terms are defined in Section 424 of the Code.

2. Administration of the Plan

- a. *Board or Committee Administration.* This Plan shall be administered by the Board of Directors of the Company (the "Board"). The Board may appoint a Compensation Committee or Human Resources Committee (as the case may be, the "Committee") of two (2) or more of its members to administer this Plan and to grant Stock Rights hereunder, provided such Committee is delegated such powers in accordance with applicable state law. (All references in this Plan to the "Committee" shall mean the Board if no such Compensation Committee or Stock Incentive Plan Committee has been so appointed). If the Company or any Related Corporation registers any class of any equity security pursuant to Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), this Plan shall be administered in accordance with the applicable rules set forth in Rule 16b-3 or any successor provisions of the Exchange Act ("Rule 16b-3"). From and after the date the Company becomes subject to Section 162(m) of the Code with respect to compensation earned under this Plan, each member of the Committee shall also be an "outside director" within the meaning of Section 162(m) of the Code and the regulations promulgated thereunder.
- b. *Authority of Board or Committee.* Subject to the terms of this Plan, the Committee shall have the authority to: (i) determine the employees of the Company and any Related Corporation (from among the class of employees eligible under paragraph 3 to receive ISOs) to whom ISOs may be granted, and to determine (from among the class of individuals and entities eligible under paragraph 3 to receive Non-Qualified Options and Awards and to make Restricted Stock Purchases) to whom Non-Qualified Options, Awards and authorizations to make Restricted Stock Purchases may be granted; (ii) determine the time or times at which Options or Awards may be granted or Restricted Stock Purchases made; (iii) determine the exercise price of shares subject to each Option, which price shall not be less than the minimum price specified in paragraph 6, and the purchase price of shares subject to each Restricted Stock Purchase; (iv) determine whether each Option granted shall be an ISO or a Non-Qualified Option; (v) determine (subject to paragraph 8) the time or times when or what conditions must be satisfied before each Option shall become exercisable and the duration of the exercise period; (vi) determine whether restrictions such as transfer restrictions, repurchase options and "drag along" rights and rights of first refusal are to be imposed on shares subject to Options, Awards and Restricted Stock Purchases and the nature of such restrictions, if any; (vii) impose such other terms and conditions with respect to capital stock issued pursuant to Stock Rights not inconsistent with the terms of this Plan as it deems necessary or desirable; and (viii) interpret the Plan and prescribe and rescind rules and regulations relating to it.

If the Committee determines to issue a Non-Qualified Option, the Committee shall take whatever actions it deems necessary, under the Code and the regulations promulgated thereunder, to ensure that such Option is not treated as an ISO. The interpretation and construction by the Committee of any provisions of the Plan or of any Stock Right granted under it shall be final unless otherwise determined by the Board. The Committee may from time to time adopt such rules and regulations for carrying out the Plan as it may deem best. No member of the Board or the Committee shall be liable for any action or determination made in good faith with respect to the Plan or any Stock Right granted under it.

- c. *Delegation of Authority to Grant Awards to Officer.* Without limiting the foregoing, the Board, in its discretion, may also delegate to a single officer of the Company who is a member of the Board (to the extent consistent with state law) all or part of the Board's or Committee's authority and duties with respect to the granting of Stock Rights to individuals who are not subject to the reporting and other provisions of Section 16 of the Exchange Act or "covered employees" within the meaning of Section 162(m) of the Code, subject to such limitations as the Board or the Committee deems appropriate, including without limitation as to the amount of Stock Rights that may be granted during the period of delegation, and guidelines as to the determination of the exercise price of any Option, the purchase price of other Stock Rights and the setting of vesting schedules or criteria. Such officer (the "Delegated Officer") shall act as a one member committee of the Board, and shall in any event be subject to the same limitations as are applicable to the Committee. References to the Committee in this Plan shall also include the Delegated Officer, but only to the extent consistent with the authorities and duties delegated to the Delegated Officer by the Board. The Board may revoke or amend the terms of a delegation at any time but such action shall not invalidate any prior actions of the Delegated Officer that were consistent with the terms of this Plan.

- d. *Committee Actions.* The Committee may select one of its members as its chairman and shall hold meetings at such time and places as it may determine. Acts by a majority of the Committee, acting at a meeting (whether held in person or by teleconference), or acts reduced to or approved in writing by all of the members of the Committee, shall be the valid acts of the Committee. From time to time the Board may increase the size of the Committee and appoint additional members thereof, remove members (with or without cause) and appoint new members in substitution therefor, fill vacancies however caused, or remove all members of the Committee and thereafter directly administer this Plan, subject to compliance with paragraph 2(a).
- e. *Grant of Stock Rights to Board Members.* Stock Rights may be granted to members of the Board, subject to compliance with Rule 16b-3 when required by paragraph 2(a). All grants of Stock Rights to members of the Board shall in all respects be made in accordance with the provisions of this Plan applicable to other eligible persons.
3. Eligible Employees and Others. ISOs may be granted to any employee of the Company or any parent or subsidiary of the Company. Those officers and directors of the Company who are not employees of the Company or any parent or subsidiary of the Company may not be granted ISOs under this Plan. Non-Qualified Options, Awards and authorizations to make Restricted Stock Purchases may be granted to any employee, officer or director (whether or not also an employee) of or consultant or advisor to the Company or any Related Corporation. The Committee may take into consideration a recipient's individual circumstances in determining whether to grant a Stock Right. Granting a Stock Right to any individual or entity shall neither entitle that individual or entity to, nor disqualify him or her from, participation in any other grant of Stock Rights.
4. Stock. The stock subject to Stock Rights shall be the authorized but unissued shares of Common Stock of the Company (the "Common Stock"), or shares of Common Stock reacquired by the Company in any manner. The aggregate number of shares of Common Stock which may be issued pursuant to this Plan is 3,838,750 subject to adjustment as provided in paragraph 13 or amendment as provided in Section 15. Any such shares may be issued pursuant to the exercise of Stock Rights, so long as the aggregate number of shares so issued does not exceed the number of such shares authorized under this paragraph 4.
5. Granting of Stock Rights. Stock Rights may be granted under this Plan at any time on or after January 1, 2006 and prior to January 1, 2026. The date of grant of a Stock Right under this Plan will be the date specified by the Committee at the time it grants the Stock Right or such date that is specified in the instrument or agreement evidencing such Stock Right; provided, however, that such date shall not be prior to the date on which the Committee acts to approve the grant and that with respect to an ISO grant such date shall not be earlier than the date of commencement of employment of the employee granted the ISO. The Committee shall have the right, with the consent of the optionee, to convert an ISO granted under this Plan to a Non-Qualified Option pursuant to paragraph 17.
6. Minimum Option Price; ISO Limitations
- a. *Price for ISOs.* The exercise price per share specified in the agreement relating to each ISO granted under this Plan shall not be less than the fair market value per share of Common Stock on the date of such grant. In the case of an ISO to be granted to an employee owning stock possessing more than ten percent (10%) of the total combined voting power of all classes of stock of the Company, the price per share specified in the agreement relating to such ISO shall not be less than one hundred ten percent (110%) of the fair market value per share of Common Stock on the date of grant.
- b. *\$100,000 Annual Limitation on ISOs.* Each eligible employee may be granted ISOs only to the extent that, in the aggregate under this Plan and all other incentive stock option plans of the Company and any parent or subsidiary of the Company, such ISOs do not become exercisable for the first time by such employee during any calendar year in a manner which would entitle the employee to purchase more than \$100,000 in fair market value (determined at the time the ISOs were granted) of Common Stock in that year. Any Options granted to an employee in excess of such amount will be granted as Non-Qualified Options.
- c. *Determination of Fair Market Value.* If, at the time an Option is granted under the Plan, the Common Stock is publicly traded, "fair market value" shall be determined as of the last business day for which the prices or quotes discussed in this sentence are available prior to the date such Option is granted and shall mean (i) the average (on that date) of the high and low prices of the Common Stock on the principal national securities exchange on which the Common Stock is traded, if the Common Stock is then traded on a national securities exchange; or (ii) the last reported sale price (on that date) of the Common Stock on the NASDAQ National Market List, if the Common Stock is not then traded on a national securities exchange; or (iii) the closing bid price (or average of bid prices) last quoted (on that date) by an established quotation service for over-the-counter securities, if the Common Stock is not then traded on a national securities exchange and is not reported on the NASDAQ National Market List. However, if the Common Stock is not publicly traded at the time an Option is granted under the Plan, "fair market value" shall be deemed to be the fair value of the Common Stock as determined by the Committee after taking into consideration all factors in good faith it deems appropriate, including, without limitation, recent sale and offer prices of the Common Stock in private transactions negotiated at arm's length, if any.
7. Option Duration. Subject to earlier termination as provided in paragraphs 9, 10, and 13(b), each Option shall expire on the date specified by, or shall have such duration as may be specified by, the Committee and set forth in the original stock option agreement granting such Option, but not more than ten years from the date of grant. Notwithstanding the foregoing, in the case of ISOs granted to an employee owning stock possessing more than ten percent (10%) of the total combined voting power of all classes of stock of the Company, such ISOs shall expire not more than five years from the date of grant. Non-Qualified Options shall expire on the date specified in the agreement granting such Non-Qualified Options, subject to extension as determined by the Committee. ISOs, or any part thereof, that have been converted into Non-Qualified Options may be extended as provided in paragraph 17.
8. Exercise of Options. Subject to the provisions of paragraphs 9 through 13, each Option granted under the Plan shall be exercisable as follows:
- a. *Vesting.* As set forth in paragraph 2(b), and subject to paragraphs 9 and 10 with respect to ISOs, the Committee shall determine the time or times when or what conditions must be satisfied before each Option shall become exercisable and the duration of the exercise period. The Committee may also specify such other conditions precedent as it deems appropriate to the exercise of an Option.

- b. *Full Vesting of Installments.* Once an installment becomes exercisable it shall remain exercisable until expiration or termination of the Option, unless otherwise specified by the Committee.
 - c. *Partial Exercise.* Each Option or installment may be exercised at any time or from time to time, in whole or in part, for up to the total number of shares with respect to which it is then exercisable, provided that the Committee may specify a certain minimum number or percentage of the shares issuable upon exercise of any Option that must be purchased upon any exercise.
 - d. *Acceleration of Vesting.* The Committee shall have the right to accelerate the date of exercise of any installment of any Option, despite the fact that such acceleration may (i) cause the application of Sections 280G and 4999 of the Code if a Change in Control Event, as defined below in paragraph 13(b), occurs, or (ii) disqualify all or part of the Option as an ISO.
9. Termination of Employment. Subject to the provisions of paragraph 13(b), if an ISO optionee ceases to be employed by the Company and all Related Corporations other than by reason of death or disability as defined in paragraph 10, no further installments of his or her ISOs shall become exercisable following the date of such cessation of employment, and his or her ISOs shall terminate after the passage of ninety (90) days from the date of termination of his or her employment, but in no event later than on their specified expiration dates, except to the extent that such ISOs (or unexercised installments thereof) have been converted into Non-Qualified Options pursuant to paragraph 17. Nothing in this Plan shall be deemed to give any grantee of any Stock Right the right to be retained in employment or other service by the Company or any Related Corporation for any period of time.

Notwithstanding anything contained in this paragraph 9 to the contrary, the Board or Committee may establish rules in particular stock option agreements with respect to Misconduct, as defined below, committed by a grantee of a Stock Right.

10. Death; Disability

- a. *Death.* If an ISO optionee ceases to be employed by the Company and all Related Corporations by reason of his or her death, or if the employee dies within the thirty (30) day period after the employee ceases to be employed by the Company and all Related Corporations, any ISO of his or hers may be exercised, to the extent of the number of shares with respect to which he or she could have exercised it on the date of his or her death, by his or her estate, personal representative or beneficiary who has acquired the ISO by will or by the laws of descent and distribution, at any time prior to the earlier of the specified expiration date of the ISO or one (1) year from the date of such optionee's death.
 - b. *Disability.* If an ISO optionee ceases to be employed by the Company and all Related Corporations by reason of his or her disability, he or she shall have the right to exercise any ISO held by the optionee on the date of termination of employment, to the extent of the number of shares with respect to which he or she could have exercised it on that date, at any time prior to the earlier of the specified expiration date of the ISO or one (1) year from the date of the termination of the optionee's employment. For the purposes of the Plan, the term "disability" shall mean "permanent and total disability" as defined in Section 22(e)(3) of the Code or successor statute.
11. Assignability. Except for Non-Qualified Options which may be transferred for estate planning purposes to the extent provided in the instrument or agreement granting such Non-Qualified Options, no Stock Right shall be assignable or transferable by the grantee except by will or by the laws of descent and distribution, and during the lifetime of the grantee each Stock Right shall be exercisable only by the optionee. No Stock Right, and no right to exercise any portion thereof, shall be subject to execution, attachment, or similar process, assignment, or any other alienation or hypothecation. Upon any attempt so to transfer, assign, pledge, hypothecate, or otherwise dispose of any Stock Right, or of any right or privilege conferred thereby, contrary to the provisions thereof or hereof or upon the levy of any attachment or similar process upon any Stock Right, right or privilege, such Stock Right and such rights and privileges shall immediately become null and void. The foregoing shall not be construed to restrict the ability to assign or transfer shares of Common Stock issued upon the exercise or award of a Stock Right to the extent that the instrument or agreement granting such Stock Right permits such assignment or transfer.
12. Terms and Conditions of Stock Rights. Stock Rights shall be evidenced by instruments (which need not be identical) in such forms as the Committee may from time to time approve. Such instruments shall conform to the terms and conditions set forth in paragraphs 6 through 11 hereof to the extent applicable and may contain such other provisions as the Committee deems advisable which are not inconsistent with this Plan. Without limiting the foregoing, such provisions may include transfer restrictions, rights of refusal, vesting provisions, repurchase rights, lock-up provisions and drag-along rights with respect to shares of Common Stock issuable upon exercise of Stock Rights, and such other restrictions applicable to shares of Common Stock as the Committee may deem appropriate. In granting any Non-Qualified Option, the Committee may specify that such Non-Qualified Option shall be subject to the restrictions set forth herein with respect to ISOs, or to such other termination, cancellation or other provisions as the Committee may determine. The Committee may from time to time confer authority and responsibility on one or more of its own members and/or one or more officers of the Company to execute and deliver such instruments. The proper officers of the Company are authorized and directed to take any and all action necessary or advisable from time to time to carry out the terms of such instruments.
13. Adjustments. Upon the occurrence of any of the following events, an optionee's rights with respect to Options granted to the optionee hereunder shall be adjusted as hereinafter provided, unless otherwise specifically provided in the written agreement between the optionee and the Company relating to such Option:
- a. *Stock Dividends and Stock Splits.* If the shares of Common Stock subject to Options granted under this Plan shall be subdivided or combined into a greater or smaller number of shares or if the Company shall issue any shares of Common Stock as a stock dividend on its outstanding Common Stock, the number of shares of Common Stock deliverable upon the exercise of Options shall be appropriately increased or decreased proportionately, and appropriate adjustments shall be made in the purchase price per share to reflect such subdivision, combination or stock dividend.

- b. *Acquisitions and Change in Control Events.* If the Company is to be subject to or engage in (x) a merger (or reverse merger), consolidation, or other similar event affecting the Company in which outstanding shares of Common Stock are exchanged for cash, securities, and/or other property of another entity, or (y) the sale or lease of all or substantially all of the Company's assets to another person or entity (any such event in such clauses (x) and (y) an "Acquisition"), the Committee or the Board shall (i) provide that the entity that survives the Acquisition or purchases or leases the Company's assets in the Acquisition or any affiliate of such entity (the "Surviving Entity") shall assume the Options granted pursuant to this Plan or substitute options to purchase securities of the Surviving Entity (or an affiliate thereof) on an equitable basis, (ii) upon written notice to the optionees, provide that all Options will become exercisable in full subject to the consummation of the Acquisition as of a specified time prior to the Acquisition and will terminate immediately prior to the consummation of such Acquisition or within a specified period of time after the Acquisition, and will not be exercisable after such termination, or (iii) in the event of an Acquisition under the terms of which holders of Common Stock will receive upon consummation thereof an amount of cash, securities and/or other property for each share of Common Stock surrendered pursuant to such Acquisition (the amount of cash plus the fair market value reasonably determined by the Committee of any securities and/or other property received by holders of Common Stock in exchange for each share of Common Stock shall be the "Acquisition Price"), provide that all outstanding Options shall terminate upon consummation of such Acquisition and that each optionee shall receive, in exchange for all vested shares of Common Stock under such Option on the date of the Acquisition, a payment in cash or in kind having a fair market value reasonably determined by the Committee or the board of directors of the Surviving Entity equal to the amount (if any) by which (A) the Acquisition Price multiplied by the number of such vested shares of Common Stock exceeds (B) the aggregate exercise price of such shares. If the Committee chooses under clause (iii) in the preceding sentence that all outstanding Options shall terminate upon consummation of an Acquisition and that each optionee shall receive a payment for the optionee's vested shares, with respect to any optionee whose stock option agreement specifies that no shares are vested until the first anniversary of the commencement of the optionee's employment, if the consummation of the Acquisition occurs prior to such first anniversary, then the number of vested shares under such Option shall be deemed to be equal to the product of (x) the number of shares of stock subject to the Option that otherwise would vest on the first anniversary and (y) the quotient obtained by dividing the number of days the optionee was employed by the Company, by 365. For purposes hereof, an Option shall be considered to be assumed or substituted "on an equitable basis" (without limiting other ways in which an Option may be assumed or substituted on an equitable basis hereunder) if, following consummation of the Acquisition, the assumed or substituted option confers the right to purchase, for each share of Common Stock subject to the Option immediately prior to the consummation of the Acquisition, the consideration received as a result of the Acquisition by the holders of Common Stock for each share of Common Stock held immediately prior to the consummation of the Acquisition (and if holders of Common Stock were offered a choice of consideration, the type of consideration chosen by the holders of a majority of the outstanding shares of Common Stock); provided, however, that if the consideration received as a result of the Acquisition Event is not solely Common Stock of the Surviving Entity (or an affiliate thereof), the Company may, with the consent of the Surviving Entity, provide for the consideration to be received upon the exercise of each share of Common Stock subject to the Option to consist solely of Common Stock of the Surviving Entity (or an affiliate thereof) having a fair market value as reasonably determined by the Committee or the board of directors of the Surviving Entity equal to the Acquisition Price.

If a Change in Control Event, as defined below, occurs that either (a) does not also constitute an Acquisition or (b) does constitute an Acquisition and clause (i) of the preceding paragraph is elected, and the optionee's employment with the Company, the Related Corporation or the Surviving Entity is terminated on or prior to the six month anniversary of the date of the consummation of such Change in Control Event either by the optionee for Good Reason, as defined below, or by the Company, the Related Corporation or the Surviving Entity for reason(s) other than Misconduct, as defined below, then all of the Options, or the equivalent to such Options in the form of assumed or substituted options granted in the Surviving Entity, that but for such termination and such Change in Control Event would vest on or prior to the next following annual anniversary of the Grant Date thereafter shall become immediately exercisable in full and any repurchase provisions applicable to Common Stock issued upon exercise thereof shall lapse, provided, however, that in particular stock option agreements issued pursuant to this Plan, the Board may provide that the Options or assumed or substituted options covered by such agreement shall become immediately exercisable upon the consummation of such Change in Control Event without regard to termination of employment, and that any repurchase provisions applicable to Common Stock issued upon exercise thereof shall lapse.

A "Change in Control Event" shall occur upon the occurrence of (i) an Acquisition after which holders of the Common Stock before the Acquisition do not beneficially own, directly or indirectly, at least 50% of the combined voting power of the then-outstanding securities of the Surviving Entity entitled to vote generally in the election of directors immediately after the consummation of the Acquisition, (ii) a single transaction or a series of transactions pursuant to which any person (within the meaning of Section 13(d) or Section 14(d)(2) of the Securities Exchange Act of 1934), excluding any employee benefit plan sponsored by the Company and any affiliates of the Company prior to such transaction or transactions, acquires the beneficial ownership, directly or indirectly, of at least 50% of the combined voting power of the then-outstanding securities of the Company or the Surviving Entity, as the case may be, entitled to vote generally in the election of directors immediately after the consummation of the transaction or transactions, except that any acquisitions of securities directly from the Company shall be disregarded for purposes of this clause (ii), or (iii) the liquidation or dissolution of the Company.

If, in connection with a Change in Control Event, a tax under Section 4999 of the Code would be imposed on the grantee of any Stock Right (after taking into account the exceptions set forth in Sections 280G(b)(4) and 280G(b)(5) of the Code), and the grantee, on an after-tax basis (taking into account such tax) would receive greater net compensation by not having any or all of such Stock Rights accelerate, then at the discretion of the Committee, the number of Stock Rights of any such grantee which shall become immediately exercisable, realizable or vested as provided in this Section 13 (or such provision of any other agreement or instrument governing such Stock Right that provides for such an acceleration in connection with a Change in Control Event) may be reduced (or delayed), to the extent necessary to maximize such net compensation. For purposes of determining "net compensation" under this paragraph, the amount of compensation considered to be realized by the grantee of any Stock Right as a result of the acceleration of the vesting of such Stock Right shall be determined in accordance with the principles set forth in the proposed Treasury Regulations under Section 280G of the Code (or any final or temporary Treasury Regulations replacing such proposed Treasury Regulations) for determining the amount of any "parachute payment" resulting from the acceleration of vesting of restricted stock, a stock option or any other unvested stock right.

- c. *Recapitalization or Reorganization.* If a recapitalization or reorganization of the Company (other than a transaction described in subparagraph (b) above) occurs, pursuant to which securities of the Company or another entity are issued with respect to the outstanding shares of Common Stock, an optionee, upon exercising an Option, shall be entitled to receive for the purchase price paid upon such exercise the securities he or she would have received if he or she had exercised his or her Option prior to such recapitalization or reorganization and had been the owner of the Common Stock receivable upon such exercise at such time.
- d. *Modification of ISOs.* Notwithstanding the foregoing, any adjustments made pursuant to the foregoing subparagraphs (a), (b) or (c) with respect to ISOs shall be made only after the Committee, after consulting with counsel for the Company, determines whether such adjustments would constitute a "modification" of such ISOs (as that term is defined in Section 424 of the Code or any successor thereto) or would cause any adverse tax consequences for the holders of such ISOs. If the Committee determines that such adjustments made with respect to ISOs would constitute a modification of such ISOs, it may refrain from making such adjustments.
- e. *Issuances of Securities and Non-Stock Dividends.* Except as expressly provided herein, no issuance by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, of the Company shall affect, and no adjustment by reason thereof shall be made with respect to, the number or price of shares subject to Options. No adjustments shall be made for dividends paid in cash or in property other than securities of the Company (and, in the case of securities of the Company, such adjustments shall be made pursuant to the foregoing subparagraph (a)).
- f. *Fractional Shares.* No fractional shares shall be issued under this Plan, and the optionee shall receive from the Company cash in lieu of such fractional shares.
- g. *Adjustments.* Upon the happening of any of the foregoing events described in subparagraphs (a), (b) or (c) above, the class and aggregate number of shares set forth in paragraph 4 hereof that are subject to Stock Rights which previously have been or subsequently may be granted under this Plan shall also be appropriately adjusted to reflect the events described in such subparagraphs. The Committee or the board of directors of the Surviving Entity (the "Successor Board"), as applicable, shall determine the specific adjustments to be made under this paragraph 13 and its determination shall be conclusive.

If any person or entity owning Common Stock obtained by exercise of a Stock Right made hereunder receives shares or securities or cash in connection with a corporate transaction described in subparagraphs (a), (b) or (c) above as a result of owning such Common Stock, except as otherwise provided in subparagraph (b), such shares or securities or cash shall be subject to all of the conditions and restrictions applicable to the Common Stock with respect to which such shares or securities or cash were issued, unless otherwise determined by the Committee or the Successor Board.

- 14. Means of Exercising Options. An Option (or any part or installment thereof) shall be exercised by giving written notice to the Company at its principal office address. Such notice shall identify the Option being exercised and specify the number of shares as to which such Option is being exercised, accompanied by full payment of the purchase price therefor either (a) in United States dollars in cash or by check, or (b) at the discretion of the Committee, by delivery of an irrevocable and unconditional undertaking, satisfactory in form and substance to the Company, by a creditworthy broker to deliver promptly to the Company sufficient funds to pay the exercise price, or delivery to the Company of a copy of irrevocable and unconditional instructions, satisfactory in form and substance to the Company, to a creditworthy broker to deliver promptly to the Company cash or a check sufficient to pay the exercise price, or (c) at the discretion of the Committee, by delivery of the grantee's personal recourse note bearing interest payable not less than annually at no less than 100% of the applicable Federal rate, as defined in Section 1274(d) of the Code, or (d) at the discretion of the Committee, by any combination of (a), (b) and (c) above. The holder of an Option shall not have the rights of a stockholder with respect to the shares covered by his or her Option until the date of issuance of a stock certificate to the optionee for the shares subject to the Option. Except as expressly provided above in paragraph 13 with respect to changes in capitalization and stock dividends, no adjustment shall be made for dividends or similar rights for which the record date is before the date such stock certificate is issued.
- 15. Term and Amendment of Plan. This Plan was originally adopted by the stockholders of the Company and the Board on December 22, 2005. This Plan shall expire on January 1, 2026 (except as to Options outstanding on that date). Subject to the provisions of paragraph 5 above, Options may be granted under this Plan prior to the date of stockholder approval of this Plan. The Board may terminate or amend this Plan in any respect at any time, except that (a) the total number of shares that may be issued under this Plan may not be increased without stockholder approval (except by adjustment pursuant to paragraph 13); (b) the provisions of paragraph 3 regarding eligibility for grants of ISOs may not be modified; (c) the provisions of paragraph 6(b) regarding the exercise price at which shares may be offered pursuant to ISOs may not be modified (except by adjustment pursuant to paragraph 13); and (d) the expiration date of this Plan may not be extended without the approval of the stockholders obtained within 12 months before or after the Board adopts a resolution authorizing any of the foregoing actions.
- 16. Section 162(m). Notwithstanding anything in this Plan to the contrary, no Stock Right shall become exercisable, vested or realizable if such Stock Right is granted to an employee that is a "covered employee" as defined in Section 162(m) of the Code and the Committee has determined that such Stock Right should be structured so that it is not "applicable employee remuneration" under such Section 162(m) unless and until the terms of this Plan, including any amendment hereto, have been approved by the Company's stockholders in the manner and to the extent required under such Section 162(m).
- 17. Amendment of Stock Rights. The Board or Committee may amend, modify or terminate any outstanding Stock Rights including, but not limited to, substituting therefor another Stock Right of the same or a different type, changing the date of exercise or realization, and converting an ISO to a Non-Qualified Option, provided, that, except as otherwise provided in paragraphs 9 or 10, the grantee's consent to such action shall be required unless the Board or Committee determines that the action, taking into account any related action, would not materially and adversely affect the grantee.
- 18. Application of Funds. The proceeds received by the Company from the sale of shares pursuant to Stock Rights issued or granted under this Plan shall be used for general corporate purposes.

19. Governmental Regulation. The Company's obligation to sell and deliver shares of the Common Stock under this Plan is subject to the approval of any governmental authority required in connection with the authorization, issuance or sale of such shares.
20. Withholding of Additional Income Taxes. Upon the exercise of a Non-Qualified Option, the making of a Restricted Purchase of Common Stock for less than its fair market value, the granting of an Award, the making of a Disqualifying Disposition (as defined in paragraph 21) or the vesting of restricted Common Stock acquired on the exercise of a Stock Right hereunder, the Company, in accordance with Section 3402(a) of the Code, may require the optionee or purchaser to pay additional withholding taxes in respect of the amount that is considered compensation includible in such person's gross income. The Committee in its discretion may condition (i) the exercise of an Option, (ii) the making of a Restricted Stock Purchase of Common Stock for less than its fair market value, or (iii) the granting of an award, or (iv) the vesting of restricted Common Stock acquired by exercising a Stock Right, on the grantee's payment of such additional withholding taxes.
21. Notice to Company of Disqualifying Disposition. Each employee who receives an ISO must agree to notify the Company in writing immediately after the employee makes a Disqualifying Disposition of any Common Stock acquired pursuant to the exercise of an ISO. A "Disqualifying Disposition" is any disposition (including any sale) of such Common Stock before the later of
 - a. two years after the date the employee was granted the ISO, or
 - b. one year after the date the employee acquired Common Stock by exercising the ISO. If the employee has died before such stock is sold, these holding period requirements do not apply and no Disqualifying Disposition can occur thereafter.
22. Governing Law; Construction. The validity and construction of this Plan and the instruments evidencing Stock Rights shall be governed by the laws of the State of Delaware.

LIST OF SUBSIDIARIES

TECOGEN INC.

a Delaware Corporation

<u>Subsidiaries</u>	<u>Jurisdiction</u>
TTcogen LLC	Delaware
American DG Energy Inc.	Delaware
Ultra Technologies Inc.	Delaware
American DG New York, LLC	Delaware

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement (No. 333-187928) on Form S-8 and Registration Statements (Nos. 333-199634, 333-205147 and 333-212433) on Form S-3 of Tecogen Inc. of our report dated March 21, 2018, relating to our audit of the consolidated financial statements, appearing in this Annual Report on Form 10-K of Tecogen Inc. for the year ended December 31, 2017.

/s/ Wolf & Company, P.C.
Boston, Massachusetts
March 21, 2018

**TECOGEN INC.
CERTIFICATION**

I, John N. Hatsopoulos, certify that:

1. I have reviewed this Annual Report on Form 10-K of Tecogen Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 21, 2018

/s/ John N. Hatsopoulos
John N. Hatsopoulos
Co-Chief Executive Officer

**TECOGEN INC.
CERTIFICATION**

I, Benjamin M. Locke, certify that:

1. I have reviewed this Annual Report on Form 10-K of Tecogen Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 21, 2018

/s/ Benjamin M. Locke
Benjamin M. Locke
Co-Chief Executive Officer

**TECOGEN INC.
CERTIFICATION**

I, Bonnie J. Brown, certify that:

1. I have reviewed this Annual Report on Form 10-K of Tecogen Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 21, 2018

/s/ Bonnie J. Brown
Bonnie J. Brown
Chief Accounting Officer

TECOGEN INC.
CERTIFICATION PURSUANT TO 18 U.S.C. SEC. 1350

Each of John N. Hatsopoulos, Benjamin M. Locke, and Bonnie J. Brown, or the Company, certify, pursuant to Section 1350, Chapter 63 of Title 18, United States Code, that, to his or her knowledge:

1. The Annual Report on Form 10-K of the Company for the year ended December 31, 2017, or the Report, fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)); and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 21, 2018

/s/ John N. Hatsopoulos

John N. Hatsopoulos
Co-Chief Executive Officer

/s/ Benjamin M. Locke

Benjamin M. Locke
Co-Chief Executive Officer

/s/ Bonnie J. Brown

Bonnie J. Brown
Chief Accounting Officer

The foregoing certification is being furnished solely pursuant to 18 U.S.C. § 1350 and is not being filed as part of the Report or as a separate disclosure document.

A signed original of this written statement required by 18 U.S.C. § 1350 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

