SmallCAPS Investment Research

Tecogen Inc. (TGEN)

Company Report – June 11, 2016

Tecogen Inc. designs, manufactures and sells industrial and commercial CHP (Combined Heat & Power), or cogeneration, systems that produce combinations of electricity, hot water, and air conditioning. Tecogen is a well-established company, as it has already shipped over 2,300 units so far, some of which have been operating for almost 25 years.

About a month ago Tecogen's sales backlog of equipment and installations was $13.1 million. Significantly above the Company's goal of consistent quarterly backlog of at least $10 million. Noteworthy is that the backlog does not include service contract revenues which were more than one third of the Company's revenues in 2015.

A couple of weeks ago, Tecogen formed a 50/50 joint venture corporation with the Czech CHP manufacturer TEDOM. The JV, coined TTcogen LLC, offers a complete package of 27 different CHP modules ranging in size from 35 kW up to 4 MW. TTcogen in fact is now the premier packaged CHP provider with the widest product range available in the United States. Thanks to the much expanded offering, TTcogen is quadrupling Tecogen's addressable market for CHP.

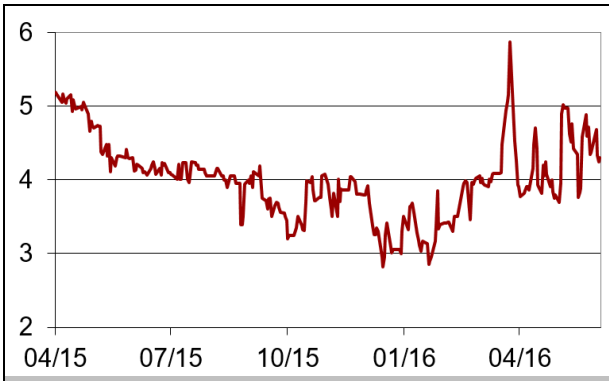
Based on the intrinsic value of Tecogen's shares derived from our model, we reiterate our buy recommendation for Tecogen Inc. with a price target of $8.94, which is 97% above today's stock price.

Tecogen
Advanced Modular CHP Systems

- These are very exciting times for Ultratek, a 50/50 joint venture, which was formed with a group of strategic investors, to test, verify and develop the Company's Ultera near-zero emissions technology for vehicular applications.

  Initial tests on a gasoline powered light duty vehicle conclusively proved the Ultera technology to be highly effective in reducing pollutants. Top level findings showed the cutting-edge system reduced levels of carbon monoxide emitted by as much as 90 percent, and cut non-methane hydrocarbons (NMOG) by as much as 80 percent in excess of current available technology.

  Adapting the Ultera technology to gasoline fueled engines, represents an exciting and game-changing new market for Tecogen.



Market Data	
Price	$4.52
Sector	Technology
52-Week Price Range	$2.46 - $6.50
Shares Issued (m)	18.48
Market Cap (m)	$83.53
Listings	TGEN (NASDAQ)
Website	www.tecogen.com

THE COMPANY

Tecogen designs, manufactures and sells industrial and commercial cogeneration systems that produce combinations of electricity, hot water, and air conditioning using engines that have been specially adapted to run on natural gas. This technology is called cogeneration, or Combined Heat and Power (CHP).

Cogeneration systems are efficient because they drive electric generators or compressors, which reduce the amount of electricity purchased from the utility. Plus they use the engine's waste heat for water heating, space heating, and/or air conditioning at the customer's building, vastly improving fuel efficiency.

Existing customers for these CHP 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.

The main drivers for end users to opt for a CHP system are a significant reduction in energy costs, fuel efficiency, emissions reduction, and backup power generation and Microgrid capabilities that allow for participation in demand response and load shaving incentive programs.

The Company's products are sold directly to end-users by its own sales team and by established sales agents and representatives, who are compensated by commissions. Various agreements are in place with distributors and outside sales representatives for certain territories and product lines.

The Company is supported by an established network of engineering, sales, and service personnel across the United States. Service contracts make up a reliable and growing part of the Company's total sales. In 2015, approximately 36.5% of total sales were derived from service contracts.

Tecogen is a well-established and respected company in the industry, as it has already shipped over 2,300 units so far, some of which have been operating for almost 25 years.

Tecogen manufactures and maintains four types of products:

- Combined heat and power (CHP) units that supply electricity and hot water;
- Chillers that provide air-conditioning and hot water; and
- High-efficiency water heaters, developed and distributed through the Company's subsidiary Ilios.
- Emissions control technology used on Tecogen equipment and/or sold as a Retrofit Kit for use on third party equipment.

In May, Tecogen formed a 50/50 joint venture corporation with the Czech CHP manufacturer TEDOM. The JV, coined TTcogen LLC, offers a complete package of 27 different CHP modules ranging in size from 35 kW up to 4 MW. **TTcogen in fact is now the premier packaged CHP provider with the widest product range available in the United States**. Thanks to the much expanded offering, TTcogen is quadrupling Tecogen's addressable market for CHP (Also read Growth Drivers).

Tecogen also markets the Ultera, a muffler-like kit that dramatically reduces an engine's harmful emissions such as NOx, CO, and hydrocarbons. In 2012, a 75 kW CHP unit equipped with the Ultera system became the first unit to obtain a conditional air permit in Southern California, an area with one of the strictest emissions regulations worldwide.

Since then, the Ultera technology has been installed on hundreds of cogeneration systems and functions impeccably. **There is no comparable technology on the market today. It truly sets Tecogen apart from its competition**.

In 2015, following Volkswagen's emissions scandal, Tecogen started researching the feasibility of adapting the Ultera technology

for gasoline engines. Last month, the first phase of testing on a gasoline powered light duty vehicle was completed.

The results conclusively proved the Ultera technology to be highly effective in reducing pollutants from the test vehicle. Top level findings show the cutting-edge system reduced levels of carbon monoxide emitted from a gasoline powered test vehicle by as much as 90 percent during simulated driving cycles prescribed by federal regulations for vehicle certification. In addition, Ultera was found to decrease levels of non-methane hydrocarbons (NMOG) by as much as 80 percent.

This is the first time Ultera has been tested on traditional gas powered engines, confirming the technology can be used for gasoline automotive applications (Also read Ultratek JV).

Tecogen's net sales for the first three months of 2016 faced some headwinds due to a couple of temporary measures and a one-time event. Despite these challenges, the Company posted modest improvements over fourth quarter 2015 revenues. Moreover, the current sales backlog of equipment and installations as of Friday May 6, 2016 was $13.1 million. Significantly above Tecogen's goal of delivering product backlog greater than $10 million. Noteworthy is that the backlog does not include service contract revenues which were more than one third of the Company's revenues in 2015 (Also read Financials).

As of year-end 2015, Tecogen had 72 full-time employees and 3 part-time employees, including 6 sales and marketing personnel and 31 service personnel.

Case Study – Toren Tower

The Company's business model, and its benefits for all parties involved, will become even clearer on the basis of a case study.

Toren, designed by Skidmore, Owings and Merrill, an architectural firm known internationally for their cutting edge skyscrapers, is an iconic glass landmark that has forever changed downtown Brooklyn. The 37 story building offers 240 condominium homes with breathtaking floor-to-ceiling views of the Manhattan skyline and New York Harbor as well as the opportunity to live in the most environmentally advanced high-rise residential building in New York, perhaps even in the U.S.

Tecogen's cogeneration system reduces Toren's carbon footprint by more than 2000 tons of CO_2 each year while providing an annual energy cost savings of $540,000.

Toren was designed and built using strategies aimed at improving performance across all the metrics that matter most: energy savings, water efficiency, CO_2 emissions reduction, improved indoor environmental quality, and stewardship of resources.

Toren's super-efficient, ultraclean mechanical systems, designed by Energy Concepts Engineering, uses five Tecogen InVerde 100kW cogeneration modules, located on-site, to meet much of the building's energy needs. At Toren, the cogen modules provide electricity and the waste heat they produce is recovered and used to heat interior spaces,

provide domestic hot water, heat the pool and even run the air conditioning.

Toren's CHP plant is designed to automatically follow the building's electric demand. As demand for electricity increases and decreases within the building, the electrical output from each of the five CHP modules will also increase and decrease. Through highly sophisticated load control software built into each unit, the amount of electricity being purchased from Consolidated Edison, the electric utility in Brooklyn, can be maintained at less than 20kW. "For a building of this size, and with its luxury features, to be consuming less than 20kW from Con Edison is extremely satisfying" says Bill Cristofaro from Energy Concepts Engineering.

Another innovative, unique and very desirable feature of Toren's cogen system is that it is a "Microgrid" with the ability to run independent from the grid in "Island Mode", providing power for the building if New York should ever experience a blackout like the one in 2002.

Nationwide Factory Service

Besides selling machines, which in many cases are one-off deals, Tecogen generates plenty of revenues through service contracts. This is a reliable and growing part of the Company's total sales. In fact, more than half of Tecogen's installed units have a service contract.

Tecogen's experts are available to provide a wide array of useful services to its customers:

- **Application Support** – Tecogen can help a potential customer decide if the facility is a good fit for CHP, by analyzing the current utility bills and loads. It can also quantify the environmental and economic benefits, so that the end user knows exactly how much the facility will benefit. In addition, assistance can be given with the engineering and permitting process.

- **Full "Turnkey" Installation, or Just Partial Installation Support** – Tecogen's 25+ years of practical application and installation experience means that it can provide a completely installed and working system, including all engineering, and utility interface. Tecogen's turnkey capabilities ensure that a facility gets the full benefits of CHP, with single-point responsibility and expert management of the entire process.

- **Factory Service** – For customers selecting long term maintenance agreements, Tecogen's expert factory technicians will ensure that a customer's equipment is properly taken care of throughout its lifetime.

- **Parts Support** – Tecogen provides a full range of spare parts for all the equipment it sells.

Most of the service revenue is in the form of annual service contracts. Customers are invoiced in level, predictable amounts base on equipment run-time hours without unforeseen add-ons for such items as unscheduled repairs or engine replacements.

Tecogen offers service support on all its CHP products nationwide through a network of nine field service centers in California, the Midwest, and the Northeast. In addition, the Company plans a 10th service center in the southeast of the US.

These centers are staffed by full-time Tecogen technicians and have been an essential part of Tecogen's growth and success through the years, as good factory support from Tecogen allows its customers to focus on their core missions and businesses. Factory service also keeps Tecogen in close touch with its customers and their specific site issues.

Competition

Tecogen's 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.

The Company's CHP products use reciprocating engines originally designed for gasoline fuel and modified to run on natural gas. Although gas-fueled CHP units are

relatively common, Tecogen is confident that no other company has developed a product that competes with its inverter-based InVerde e+ CHP, which is highly efficient, facilitates battery or solar array integration, and is compliant with the NFPA 110 standard for emergency and standby power systems.

If competitors wanted to develop a similar product, development time and costs would be significant. In addition, certain Tecogen patents and licenses for microgrid software would prevent others from offering certain important functions.

TECHNOLOGY

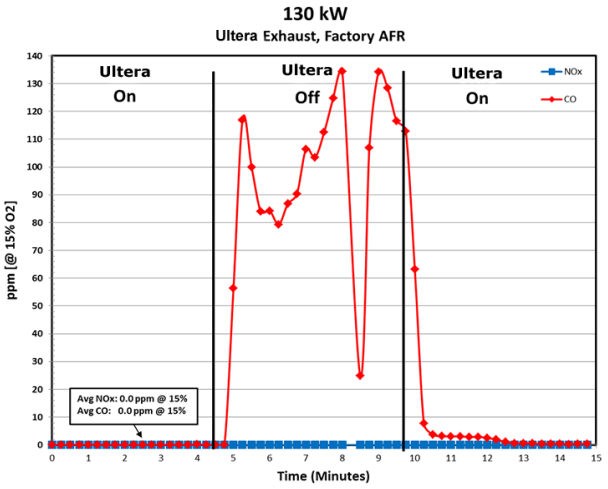
Combined Heat & Power (CHP) is truly a way to get "two for the price of one". It makes the electricity or cooling power that a customer needs, and it captures much of the thermal energy that is normally lost during the energy conversion into power. With CHP, the "waste" thermal energy gets captured and put to good use on site, for heating water or building spaces. Waste heat captured from the cogeneration system can even be fed into a device called an absorption chiller, which is able to convert the waste heat into cooling. As such, a normally very energy intensive task, such as heating and cooling, is now accomplished at no additional cost to the customer or environment.

Tecogen's products also address the global objective of reducing greenhouse gas emissions. When burned to generate power, natural gas produces lower carbon emissions per unit of energy than any fossil fuel, according to the EPA combined heat and power emissions calculator.

The Company's products, in addition to using the lowest amount of carbon fuel, further reduce CO_2 emissions (greenhouse gases) because of a CHP's higher efficiency. The graph below compares the CO_2 output of a Tecogen product to that of the national electric grid and other generation technologies. It's clear that the Tecogen systems are far superior to the grid and even outperform the CHP technologies of fuel cells and microturbines at a fraction of the cost.

Furthermore, one Tecogen 100-kW CHP unit will reduce carbon emissions by 390 tons per year (based on 8,000 run-hours), which, according to the EPA website's calculator, is the equivalent of removing 64 cars from the road. A microturbine of the same size would reduce carbon emissions by only 245 tons per year, the equivalent of 41 cars, which is less than two-thirds the emissions reduction of Tecogen's CHP product.

In addition to reducing greenhouse gases, Tecogen CHP units fitted with the Ultera low-emission controls improve air quality by reducing such pollutants as hydrocarbons, NOx and CO. The annual output of emissions of the InVerde unit equipped with the Ultera technology is extremely low and compares favorably with alternative energy technologies producing the equivalent energy output on an annual basis (100 kW, 670,000 Btu/hr).



The Ultera system's impact on emissions when switched on and off. NOx emissions (blue) and CO emissions (red).

Following is an overview of the three types of CHP systems that Tecogen offers. Also, the highly efficient Ultera system that makes CHPs meet the most stringent emissions standards is detailed below.

Combined Heat and Power

Tecogen's premier cogeneration product is the recently launched InVerde e+ CHP system. The revolutionary unit combines the best technologies in the field, and features a unique set of proprietary innovations by the Tecogen team.

The InVerde 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 maximize efficiency at varying loads. The inverter then converts the generator's variable output to the constant-frequency power required by customers (50 or 60 Hertz).

The new InVerde e+ CHP combines the best technologies in the field, along with a unique set of proprietary innovations by the Tecogen team.

Thanks to the cutting edge inverter technology, an innovative power control, and a new and improved engine, the InVerde e+ reaches an electrical efficiency of 33%, while its nearest competitor achieves efficiencies between 27 and 29 percent.

Note that this efficiency only refers to the produced electricity and that the harvested heat to produce thermal energy is not taken into account. A Tecogen CHP system that also uses the recovered heat, achieves efficiency between 80 to 90 percent.

The DC input capability, facilitating battery or solar array integration, is another huge innovation. It allows for a seamless transfer of energy between the CHP unit, other energy generators, such solar panels, windmills, and backup batteries, eliminating the need for costly converters.

This way, the CHP unit basically becomes a complete **Building Energy Management System**. We're not aware of any CHP competitor having this feature.

Moreover, the new units automatically start up within 10 seconds in the event of a full blackout of the grid, making the CHP units compliant with the new strict Type 110 standard for emergency and standby power systems by the National Fire Protection Association (NFPA). This is yet another innovation that very few competitors offer.

BUILDING ENERGY MANAGEMENT SYSTEM (BEMS)

An energy management system (BEMS) is a sophisticated method to monitor and control a building's energy needs. Next to energy management, the system can control and monitor a large variety of other aspects of the building regardless of whether it is residential or commercial. Examples of these functions are heating, ventilation and air conditioning (HVAC), lighting or security measures.

The global market for building energy management systems continues to grow as technologies reach maturity and customers gain understanding of the business value generated by investment. According to Navigant Research, the global BEMS market reached $2.4 billion in 2015 and is expected to grow to $10.8 billion by 2024. Although Tecogen is a smaller player in this market, it does indicate the strong demand and growth potential.

The NFPA 110 standard covers performance requirements for emergency and standby power systems providing an alternate source of electrical power in buildings and facilities in the event that the normal electrical power source fails. Amongst these requirements is that the backup equipment needs to supply electrical power within 10 seconds of the blackout in order for it to qualify.

This is also the first engine-driven product to carry full UL 1741 Certification for "utility-safe" interconnection. So it doesn't need any additional permitting for interconnecting to the electric grid, speeding the installation process.

The best applications for Tecogen cogeneration systems are in facilities that

have consistent electrical and thermal needs such as hospitals, nursing homes, colleges, schools, recreational facilities, government buildings, large residential facilities, industrial facilities, hotels, and ice rinks.

Ilios High-Efficiency Water Heaters

The Ilios water heater product operates like an electric heat pump but uses 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. Heat pumps extract heat from outside and move it indoors. In both cases, fluids move the heat around by flowing through heat exchangers. At various points the fluids are compressed or expanded, which absorbs or releases heat.

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.

An Ilios multi-unit installation.

The net effect is that the efficiency of an Ilios' heat pump far surpasses that of conventional boilers for water heating. This translates directly to lower fuel consumption and, for heavy use customers, significantly lower operating costs. Gas engine heat pumps can deliver efficiencies in excess of 200%.

The Ilios market continues to expand both geographically and into different end-market segments. The high-efficiency water heater is ideal for locations with a gas demand of at least 4000 Therms/month, such as water parks, swimming pools, hotels, hospitals, apartment buildings and recreation centers. The Ilios system also attracts customers that consistently have the simultaneous need for heating and cooling, such as manufacturing and R&D type facilities.

Chillers

TECOCHILL natural gas engine-driven chillers provide building owners with a reliable, proven, efficient, and cost-effective alternative to conventional electric motor-powered chillers. It's the only natural gas engine-driven chiller on the North American market in its size range.

This technology was 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 hot water or heating. 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 TECOCHILL's benefits are significant. It cuts a building's cooling costs in half, by eliminating most of the electrical demand (kW) associated with providing cooling. In addition, it offers optional "waste" heat that is always available at the same time. This high-quality heat source (up to 230°F hot water) literally comes for free, whenever the chiller is running.

The TECOCHILL chillers are available in capacities ranging from 25 to 400 tons, with the smaller units air-cooled and the larger ones water-cooled. They are ideal in facilities where new chilling capacity is desired, as replacements for aging electric chilling equipment, where the local electric utility's kW demand charges are high, or where the site's electrical capacity is limited.

Basically, they make sense wherever large chillers are needed, including hospitals,

colleges, schools, office buildings, aquariums, government buildings, large residential facilities, industrial facilities, hotels, and ice rinks.

Ultera

In 2008 there was a dramatic change in the air quality regulations in Southern California. At that time no technology could meet the new, stricter, emission standards.

The Ultera Emissions System mounted to a CHP unit. The Ultera is designed to deliver simple, cost-effective solutions for natural gas engines to meet stringent emissions standards.

In reaction to the new regulations, Tecogen developed the Ultera technology between 2009 and 2010 as part of a research effort funded by the California Energy Commission and Southern California Gas Company. The objective was to bring emissions from natural-gas engines and CHP systems into compliance with California's standards, which are now the most stringent in the United States.

Tecogen decided to look at the chemistry of emissions instead of the mechanical controls of the engine to simultaneously get rid of NOx compounds, CO and hydrocarbons. They broke the catalyst process into two steps and ran each step at a different temperature.

By controlling the temperature in the first stage, the system could achieve very low NOx emissions. In a second stage process the remaining pollutants were oxidized by injecting a little air between the first and second stages and altering the process conditions.

Tecogen conducted three validation programs for its revolutionary technology:

- **Third-party laboratory verification** - The AVL California Technology Center, a long-standing research and technology partner with the international automotive industry, confirmed Ultera's results in their state-of-the-art dynamometer test cell, which was outfitted with sophisticated emissions measurement equipment.

- **Verifying longevity and reliability in the field** - One of Tecogen's 75-kW units, already operating at a customer location in Southern California, was equipped with the Ultera low-emissions technology and a device to monitor emissions continuously. 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.

- **Additional independent tests** - During the field test, two companies, licensed in California to test emissions, each verified the results at different times. The results from one of these tests (obtained in August 2011) enabled the Company to qualify for New Jersey's fast-track permitting for low emissions equipment. Virtually every state nationwide requires some kind of permit related to local air quality, but New Jersey allows an exemption for systems such as Tecogen's that demonstrate superior emissions performance. This certification was granted in November 2011.

In 2012, a 75 kW CHP unit equipped with the Ultera system became the first unit to obtain a conditional air permit in Southern California since the strict regulations went into place in 2009. A state-certified source test, administered in January 2013, verified that the emissions levels of the system were well below the new permitting requirements, and the final permit version was approved in August 2013.

After a successful field test of more than a year, the Ultera technology was commercially

introduced as an option for all of Tecogen's products under the trade name Ultra, which was recently rebranded to Ultera.

This technology was patented in the United States in October 2013 with many foreign patents granted or applications pending. The Ultera low-emissions technology repositions the Company's engine-driven products in the marketplace, making them comparable environmentally with emerging technologies such as fuel cells, but at a much lower cost and greater efficiency.

Tecogen originally developed and patented the Ultera-low emission control technology for its own CHP products and has since decided to make the technology available for retrofit on non-Tecogen applications.

The Ultera retrofit kits deliver simple, cost-effective and robust solutions for meeting even the most stringent emissions standards. The patented system provides peace of mind to its customers by lowering NOx and CO to near-zero levels without the need for complex additional controls or frequent maintenance.

ULTRATEK JV

Adapting the Ultera technology to gasoline fueled engines, represents an exciting and game-changing new market for Tecogen. The prospect of vehicle and stationary engines, with standard engine technology, but realizing fuel cell like emissions is tremendously compelling from a policy and market standpoint.

In late December 2015, following the outbreak of the Volkswagen emissions scandal, Tecogen formed Ultra Emissions Technologies Ltd (Ultratek), a 50/50 joint venture to pursue this once-in-a-lifetime opportunity.

Tecogen received a 50% equity interest in the new JV in exchange for a fully paid-up worldwide license to use Tecogen's Ultera emissions control technology in the field of mobile vehicles burning fossil fuels. The other half of the joint venture equity interest was purchased for $3,000,000 by a small group of offshore investors. Note that Tecogen retains the rights to its Ultera emissions control technology for all other applications.

In addition to the joint venture agreement financing, the strategic investors have collectively purchased 890,208 shares in Tecogen at a trailing 30 day average price of $3.37, bringing their total initial investment to $6 million.

The investors also received warrants to purchase 900,000 shares of Tecogen's common stock at a $4 strike price, providing Tecogen an additional $3 million in capital if exercised. The warrants expire in June 2016. With this additional financing, the Promissory Note of $3,000,000 that is due at the end of 2016 appears secure thanks to the infusion of capital.

Although the emissions scandal for vehicles has primarily been about diesel engines, for which the Ultera technology is not suited, the emissions performance of gasoline engines has also been brought into question. While there has been no suggestion of improper testing, there is a growing awareness that the pollution output measured in controlled laboratory drive cycles significantly underrepresents the true emissions output of vehicles in real world driving.

Real world test conditions include road conditions (e.g., icy, uphill), high speed or aggressive driving, stop-and-go traffic, cold temperatures, high AC and other accessory load use, the number of passengers and amount of cargo, and many more variables.

Initial Tests at AVL

Actual phase one tests with the Ultera focused on simulated driving cycles prescribed by U.S. federal regulations for vehicle certification. In these tests, criteria pollutants (those contributing to smog and negatively impacting human health) were reduced in all simulated drive conditions beyond levels achieved by

technology currently installed in vehicles today. Ultera benefits were particularly noteworthy during aggressive driving conditions found in certain federal test cycles.

Emissions from carbon monoxide were reduced by as much as 90 percent and levels of non-methane hydrocarbons (NMOG) by as much as 80 percent.

The vehicle used in the tests was a new 2016 model driven for several months to complete its "break in" period, as recommended by the manufacturer's specifications, and was in compliance with emissions regulations as currently tested on federally prescribed simulated driving cycles.

AVL

All these tests were conducted by AVL North America at their state-of-the-art California Technology Center in Lake Forest, CA. Its laboratory, in addition to its ability to accurately replicate driving conditions, can measure pollution output of the vehicle in real time with extreme precision.

AVL is the world's largest independent company for the development, simulation, and testing of powertrain systems for passenger cars, trucks, and large internal combustion engines.

Although initial results are tremendously encouraging, there's still plenty of work to do. All the test results continue to be meticulously analyzed, as the Ultratek team is very careful to ensure that the development process is carefully managed and that any published results are both robust and rigorously tested.

The Company is in the process of evaluating its next steps, and it will undoubtedly announce more news in the coming months.

GOVERNMENT REGULATIONS

Several kinds of government regulations affect the Company's current and future business, such as:

- Air pollution regulations, which govern the emissions allowed in engine exhaust;
- State and federal incentives for CHP technology; and
- Electric utility pricing and related regulations
- Electric grid interconnection regulations

Strict regulations that control **air quality and greenhouse gases** increasingly favor Tecogen's low-emission products. In some states that have strict emissions regulations, such as California, the pollution from natural gas engines presents a challenge.

However, the development of the Ultera low-emissions technology has addressed this issue. In January 2013, a state-certified source test at a customer's site verified that emissions levels of a CHP unit equipped with the Ultera technology, were well below the new permitting requirements.

Likewise, in New Jersey, where emissions regulations are trending towards California levels, the Company has already established its Ultera-fitted CHP as a certified technology; a unique status that separates it from the competition.

In addition, there are currently 23 states that recognize CHP as part of their Renewable Portfolio Standards. New York and New Jersey, for example, have **incentive programs** that rebate a significant portion of the CHP project cost.

Similar incentive programs also exist in Massachusetts, Rhode Island, and Maryland albeit with different structures and terms. Massachusetts has an additional CHP incentive in the form of an annual rebate proportional to the carbon savings versus conventional technology.

Finally, the Company is 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 modular units in groups so as to assure redundancy and peak demand savings.

RECENT EVENTS

Tecogen Acquires Remaining Stake in Ilios Dynamics

In April 2016, Tecogen acquired the remaining 35% interest in heat pump manufacturer Ilios Dynamics. The Company already owned 65% of Ilios, and has now completed an agreement with the other shareholders to exchange their Ilios shares to Tecogen shares. For every 7.86 Ilios shares, the shareholders received 1 Tecogen share.

Tecogen issued approximately 670,000 shares to Ilios Dynamics shareholders, valuing the heat pump company at approximately $7.5 million.

The timing of this transaction couldn't have been better, as Ilios' revenues and unit sales more than doubled in 2015 compared with the previous year. In addition, the Ilios market continues to expand geographically with recent sales to the UK, Atlanta, Hawaii, New York City, and Puerto Rico. Moreover, the water heaters are gaining traction in new market segments, with initial sales to the hospitality and medical markets.

Speaking about the transaction, Mr. Locke, the Co-Chief Executive Officer of Tecogen, mentioned, "Ilios is a growing and increasingly important part of Tecogen's product portfolio. We are glad to be bringing this complementary cogeneration technology fully into the Tecogen family, rounding out the product offering."

Tecogen Wins 3 Orders in 3 Weeks

In the first week of June the Company sold a second Tecochill CH-400 chiller to Stanley Black & Decker for use in their manufacturing plant in Reynosa, Mexico. The Tecogen chiller is replacing aging electric chillers and will provide chilled water for both air conditioning and process manufacturing to the approximately 4000 employee manufacturing facility.

The factories located along the US-Mexico border, commonly referred to as maquiladoras, are an excellent market for the Tecochill gas-powered cooling product line. Natural gas is plentiful and inexpensive in Mexico, and the factory operators are very sophisticated relative to managing their operating costs. They are particularly aware that, to meet essential cooling needs, the annual cost can be dramatically reduced by switching from electricity to gas.

The Ultera Emissions System mounted to a CHP unit. The Ultera is designed to deliver simple, cost-effective solutions for natural gas engines to meet stringent emissions standards.

In the last two weeks of May, Tecogen sold a total of three CM-75 combined heat and power (CHP) units. The 75kW system is part of Tecogen's legacy line of induction-based cogeneration equipment. Introduced in the 1980s and among the first packaged combined heat and power units on the market, the efficient units have been reliably meeting customer's energy needs for decades.

First, two units were sold to a new multi-family residential building in Jersey City, NJ. The units will be fitted with Tecogen's Ultera clean emissions system and sit on the roof of the ultra-modern new high-rise tower. The order is worth approximately half a million dollars.

Benjamin Locke mentioned, "This project is notable for a number of reasons. It marks the first complete turnkey installation project Tecogen will undertake for a new-construction building. It is also the third recent order received from the same property developer."

A third CM-75 cogeneration unit was sold to a state university in New England to meet the thermal and electrical demand of the athletic facility. This system will also be equipped with Tecogen's patented Ultera emissions control technology.

The contract was awarded in conjunction with a large engineering services company (ESCO) that Tecogen has worked closely with in the past.

Important to note is that all these sales can be qualified as repeat orders. Stanley Black & Decker ordered its second unit, and the other CHP systems were ordered by a property developer and an ESCO that both had positive prior experiences with Tecogen's energy efficient equipment. A true validation of the Company's technology and service.

GROWTH DRIVERS

TTcogen JV Offers Widest CHP Range Available in United States

In late May 2016, Tecogen formed a 50/50 joint venture corporation with the Czech company TEDOM, one of Europe's largest combined heat and power (CHP) manufacturers.

The new company, called TTcogen LLC offers a complete package of 27 different CHP modules, making it the premier packaged CHP provider with the widest range available in the United States. TTcogen offers a full product portfolio ranging in size from 35 kW up to 4 MW.

This is an exceptionally important event for Tecogen, as the Company often gets inquiries from potential clients who end up not buying a CHP unit from Tecogen because its existing equipment is not an appropriate size for the customer's facility. The building's required load is either too big or too small for Tecogen's equipment. Now, thanks to the much expanded offering, TTcogen is able to service those potential customers, quadrupling Tecogen's addressable market for CHP.

TTcogen will initially be funded by TEDOM and will operate out of Tecogen's Waltham, MA headquarters. A few TEDOM experts will relocate from the Czech Republic to the United States. They will be supplemented by several TEDOM dedicated sales and engineering specialists. Further personnel is expected to be added as the business expands. The machines will be installed and serviced by Tecogen's network of nine existing service centers across the United States.

The Ultera Emissions System mounted to a CHP unit. The Ultera is designed to deliver simple, cost-effective solutions for natural gas engines to meet stringent emissions standards.

Most notably, Tedom's specialized line of cogeneration equipment has the power to operate on biofuel, a renewable energy source with a rapidly growing market. This is an important feature as the United States is expected to implement new regulations in the coming years which require that all food and agricultural waste be recycled.

New York City's zero waste initiative, for example, aims to reduce garbage by 90% in 2030. A substantial aspect of this initiative is the required collection of organic food waste for use in anaerobic digester facilities to fire large-scale CHP systems by using the resulting biogas as a fuel feedstock. Many of these facilities are planned for construction in 2017 and 2018. Those facilities would be ideal for TTcogen's equipment.

The biofuel CHP units could potentially also open up the market for agricultural installations that are starting to use their

agricultural waste as a fuel source. Eventually, it may even open up the wastewater and landfill markets, similar to recent development seen in Europe.

More Chiller Sales to Vast Agriculture Market

Over the past few months, Tecogen has been successful selling natural gas engine-driven chillers to the vast agriculture market.

In February of 2016, the Company sold two 150-ton TECOCHILL chillers to an indoor growing facility in Denver, Colorado; and a few days ago it sold two 50-ton chillers to another indoor growing facility in Canada.

Although these particular customers will use the chillers in the cannabis production industry, there are thousands of farmers with greenhouses or indoor facilities that grow fruits, vegetables, plants or flowers, that could also benefit from a similar installation.

A greenhouse growing a multitude of crops.

Indoor growing facilities often use 1000-watt, high-intensity U.V. lightbulbs. This necessary lighting equipment generates a lot of unwanted heat, which has to be removed from the indoor environment with air conditioners and ventilation systems. The TECOCHILL chillers are especially well suited for this task.

The only natural gas engine-driven chiller on the market, Tecochill cuts costs by as much as 30-60% when compared to conventional electric chillers. According to the customer who purchased the two 150-ton chillers the Tecogen chillers and specified ancillary equipment are expected to save the facility over $100,000 per year by significantly reducing the building's electrical demand and energy usage.

The units also provide free high-quality waste heat from the engines for heating and humidity control. In addition, when fitted with Tecogen's ultra-clean Ultera emissions control technology, this clean exhaust from the units may be recycled for use in plant nourishment to improve growing conditions.

Additionally, many garden facilities were either constructed without large capacity electric infrastructure or are housed in converted warehouses without the necessary wiring for a traditional large scale electric solution. A natural gas powered system allows such facilities to avoid costly upgrades of their building’s electrical infrastructure, saving the operator on both installation and ongoing electric bills.

In the agriculture space, TECOCHILL’s potential uses are unmistakably large. By running on inexpensive and reliable natural gas, the chillers can help agricultural customers avoid punitive peak electrical demand charges. As an added bonus, customers are assured their greenhouses will remain cool and their crops will not experience adverse temperature fluctuations during power outages, because the chillers are fed by reliable natural gas.

FINANCIALS

Product revenue is derived from the sale of the various cogeneration and chiller units. Because the equipment is built to last 20 or more years, most of the product sales are to first time customers. Recurring sales also come from ESCO partners or long time customers, such as the recent TECOCHILL contract mentioned under ‘Recent Events’.

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. The cogeneration and chiller modules are built to order and revenue is recognized upon shipment.

The Company's **service revenue**, however, lends itself to recurring revenues from particular customers. For the last two fiscal years, close to one third of Tecogen's revenues were generated from long-term maintenance contracts, which provide the Company with a somewhat predictable revenue stream.

The service revenue has grown each year since 2005, with New York City/New Jersey, New England and to some extent California experiencing the majority of the growth. This growth is consistent with the sale of new units into those territories.

Tecogen's net sales for the first three months of 2016 were $5.1 million, a decrease of about 17% compared with sales of $6.1 million in the first quarter of 2015. Net loss in the first quarter of 2016 was $893,168, or $.05 per diluted share, compared to a loss of $617,464, or $.04 per diluted share, for the comparable period of 2015.

The financials were adversely affected by a couple of temporary measures and a one-time event. First, there is a temporary suspension of incentive programs in New Jersey for CHP and New York for chillers. These incentives are expected to restart mid-2016. Also, progress on several other installations was slowed due to permitting and other site-readiness issues that were outside of Tecogen's control. And lastly, service costs were impacted by a cost-overrun related to a single legacy installation project. Processes are in place to prevent such overruns in the future.

Despite these challenges, the Company posted modest improvements over fourth quarter 2015 revenues. Moreover, the current sales backlog of equipment and installations as of Friday May 6, 2016 was $13.1 million. Significantly above Tecogen's goal of delivering product backlog greater than $10 million. Noteworthy is that the backlog does not include service contract revenues which were more than one third of the Company's revenues in 2015.

Revenues were helped by 9.5% growth in services related revenues over the prior year period. Total service revenue growth benefited from increasing penetration in service contracts and favorable operating metrics for the installed fleet.

Revenue from long term contracted maintenance and service agreements accounts for over one third of the Company's revenues, providing a reliable annuity-like revenue stream. This stable revenue should continue to grow as the installed base and fleet operating hours grow, helping to smooth the impact of cyclical sales that are typically found in Tecogen's industry.

Amounts in $000's	**03/31/16**	**03/31/15**
Product Revenues	2,266	3,538
Service Revenues	2,809	2,566
Total Revenues	**5,076**	**6,103**
Cost of Sales	3,356	3,878
Operating Expenses	2,626	2,845
(Loss) from Operations	**(907)**	**(620)**
Total Other Expenses	(14)	(3)
Net Loss	**(893)**	**(617)**
Diluted EPS	(0.05)	(0.04)
Diluted Shares Outs.	18,479	16,225

Most important income statement data for the quarters ending March 31, 2016 and March 31, 2015. Source: Company Filing

Product revenues suffered in the first three months of 2016, posting a decline over the prior year comparable quarter of 36%. This decline in total product revenue was impacted by a 12.2% decline in chiller and heat pump sales as well as a decline in cogeneration sales.

General & Administrative expenses fell 13.0% to $1,892,220 for the first quarter of 2016 compared to $2,174,747 in the prior year period ended March 31, 2015. This improvement is a demonstration of management's disciplined expense control and effectiveness of the operating efficiency program.

On a combined basis, operating expenses fell to $2,626,210 for the first quarter 2016 from $2,844,584 in the first quarter of 2015, a 7.7% improvement. The Company's goal is to deliver full year operating expenses near $10 million. With first quarter expenses typically higher than other quarters, management's efforts to reduce OpEx are paying off and the Company is clearly on track to reach its goal.

Overall gross margins in the first quarter of 2016 decreased to 33.9% compared to 36.5% in 2015. The gross margins benefited from continued product-related cost control initiatives, but these improvements were offset by a legacy installation project that unavoidably went over budget.

Balance Sheet as of March 31, 2016

Tecogen finished the first quarter of 2016 with more than $4.2 million in cash. A strong improvement compared with less than $2 million the Company had on its balance sheet a year ago.

In August of last year, Tecogen sold in a single transaction 1.25 million shares of common stock at $4.00 for a total raise of $5,000,000. Moreover, in conjunction with the launch of the Ultratek joint venture, Tecogen raised a further $3 million via private placement, solidifying the balance sheet.

Thanks to these funds, Tecogen is well positioned to fund ongoing operating expenses and future growth initiatives.

Amounts in $000's	03/31/16	03/31/15
Cash and Cash Eq.	4,254	1,984
Accounts Receivable	5,888	5,410
Inventory	5,302	3,756
Total Current Assets	17,547	13,312
Property & equipment	549	627
Total Assets	**19,244**	**15,105**
Accounts Payable	2,377	3,097
Accrued Expenses	1,080	1,278
Total Current Liabilities	4,441	5,119
Promissory Note	2,963	3,000
Total Liabilities	**7,728**	**8,484**
Total Stockholder Equity	11,516	6,621

Most important balance sheet data for the periods ending March 31, 2016 and March 31, 2015. Source: Company Filing

Consolidated working capital on March 31, 2016 was $13,105,989 compared to $8,192,419 on March 31, 2015, a strong increase of $4,913,570. Tecogen has a very solid current ratio of 3.61.

OUTLOOK & VALUATION

Tecogen Inc. continues the tradition of combining ground breaking research with successful technology application and product advancement. The Company's proprietary cogeneration technology, which improves efficiency, emissions, and grid resiliency, is truly disruptive to the traditional methods of heating, cooling, and powering buildings and infrastructure.

Although quarter-to-quarter financials may continue to show some volatility for a while, it's important to note that the delays in product orders should gradually relent in the coming quarters as the substantial backlog is brought into production. Moreover, the Company has redoubled its efforts to improve product margins and reduce SG&A costs as a foundation to build on additional revenue growth in 2016.

Tecogen also opened a new sales office in Florida and added sales representatives in several new territories including Canada, Puerto Rico, Chicago and Atlanta.

In addition, the Company continues to benefit from a growing installed base of units carrying annuity-like long term maintenance agreements with attractive margins; providing a reliable revenue stream that can be used to fund future growth initiatives.

In the coming weeks we should start to see the first results from Tecogen's JV with TEDOM, one of the major European producers of CHP units. To date, TEDOM has produced more than 3,500 CHP units in a power range from 7 kilowatts up to 10 megawatts that are capable of running on natural gas, LPG, biogas, sewage gas, landfill gas, and coal mine gas. These diverse capabilities truly bring TTcogen to the cutting edge of the CHP market in the United States.

The joint venture will bring Tedom's smaller Micro T35 35kW CHP unit to the U.S. market as well as Tedom's line of larger Cento and Quanto units. This will greatly expand Tecogen's market reach, which is currently limited to pipeline natural gas and propane

and to installations in multiples of its 75 kW and 100 kW CHP modules.

The market opportunity in the rapidly-expanding indoor-agriculture segment is significant. The recent chiller orders into the indoor agriculture space clearly demonstrate promising momentum in the segment. In an industry where electricity is often among a customer's highest on-going expenses, the Company's natural gas powered chillers offer an efficient alternative.

Furthermore, we expect significant news in 2016 from the stationary emissions aftertreatment market. A simple natural gas generator that can be permitted without any use restriction has real value in a very large market. Current sales of natural gas engines in the 50 to 500 horsepower range in North America are over 80,000 units, many of which are for backup power.

By retrofitting an Ultera system, which reduces the emissions of pollutants contributing to smog (NOx, CO, and hydrocarbons) to near zero levels, owners in emission-sensitive areas would be able to utilize their otherwise inactive back-up generators to peak shave their electric use, removing the most punitive kilowatt-hours from their monthly utility bill.

We're obviously also very excited about Ultratek, the joint venture with a group of strategic investors, to test, verify and develop the Company's Ultera technology for vehicular applications. Initial tests conclusively prove that the Ultera technology is highly effective in reducing harmful pollutants from a gasoline powered light duty vehicle.

The test results show that the non-invasive Ultera system reduces levels of carbon monoxide emitted from a gasoline powered test vehicle by as much as 90 percent during simulated driving cycles prescribed by federal regulations for vehicle certification. In addition, Ultera decreases levels of non-methane hydrocarbons (NMOG) by as much as 80 percent.

Needless to say these are outstanding initial test results. As far as we know no other technology in the world has ever accomplished similar results with gasoline powered engines.

Valuation

Given the still emerging nature of Tecogen's earnings, a multiple-based valuation is challenging. Instead, we apply a Discounted Cash Flow (DCF) model. The intrinsic value of Tecogen Inc.'s shares derived from our model is $8.94.

Based on these numbers, we reiterate our buy recommendation for Tecogen Inc. with a price target of $4.30, which is 97% above today's stock price.

SHARE DATA & OWNERSHIP

As of March 31, 2016, Tecogen had 18,478,990 common shares outstanding. Note that in April 2016, 670,000 were added to the share count due to the acquisition of the Ilios stake.

In addition, the Company has 1.12 million options outstanding with an average exercise price of $3.02. It also has 900,000 warrants outstanding at an exercise price of $4.00. And finally, Tecogen has $3 million convertible debt, which is convertible into 625,000 shares of common stock.

The principal owners of the Company's common stock are George Hatsopoulos (19.5%), John Hatsopoulos (17.9%), Michaelson Capital Partners (6.5%), Joseph Ritchie (4.9%), and Clear Harbor Asset Management (3.5%).

MANAGEMENT

- **DR. JOHN N. HATSOPOULOS – CO-CHIEF EXECUTIVE OFFICER**

Dr. Hatsopoulos has been the Chief Executive Officer of the Company since the organization of Tecogen in 2000. He has also been the Chief Executive Officer of American DG Energy Inc. since 2000, and the Chairman of EuroSite Power Inc. since 2009. Mr. Hatsopoulos is a co-founder of Thermo Electron Corporation, which is now Thermo Fisher Scientific (NYSE: TMO), and the retired President and Vice Chairman of the Board of Directors of that

company. Mr. Hatsopoulos graduated from Athens College in Greece, and holds a bachelor's degree in history and mathematics from Northeastern University, as well as honorary doctorates in business administration from Boston College and Northeastern University.

- **BEJAMIN LOCKE – CO-CHIEF EXECUTIVE OFFICER**

Mr. Locke was named Co-Chief Executive Officer in October, 2014. He joined Tecogen in June, 2013 as the Director of Corporate Strategy and was promoted to General Manager prior to his appointment as Co-CEO. Previously Mr. Locke was the Director of Business Development and Government Affairs at Metabolix, responsible for developing and executing plans for partnerships, joint ventures, acquisitions, and other strategic arrangements for commercializing profitable clean energy technologies. Mr. Locke has a B.S. in Physics from the University of Massachusetts, an M.S. in Electrical Engineering from Tufts University, and an MBA in Corporate Finance from Boston University.

- **ROBERT PANORA – CHIEF OPERATIONS OFFICER**

Mr. Panora has served as President of Tecogen since 2000. He had been General Manager of Tecogen's Product Group since 1990 and Manager of Product Development, Engineering Manager, and Operations Manager of the Company since 1984. Over his 27-year tenure with Tecogen, he has been responsible for sales and marketing, engineering, service, and manufacturing. Mr. Panora contributed to the development of Tecogen's first product, the CM-60 cogeneration module, and was Program Manager for the cogeneration and chiller projects that followed. Mr. Panora has B.S. and M.S. degrees in Chemical Engineering from Tufts University.

- **DAVID A. GARRISON - CHIEF FINANCIAL OFFICER**

Mr. Garrison has been the Chief Financial Officer, Treasurer and Secretary of Tecogen since August of 2014. Prior to joining Tecogen, Mr. Garrison was Executive Vice President and Chief Financial Officer of Arrhythmia Research Technology, Inc. and its subsidiary Micron Products, Inc. since 2002. Leading the finance department of this NYSE listed company, Mr. Garrison oversaw all aspects of SEC compliance, internal controls and raising capital through debt in a capital intensive medical device manufacturing business. Mr. Garrison hold a B.S. in Finance from Miami University and a Master in Business Administration from Boston University.

- **JOSEPH GEHRET - CHIEF TECHNOLOGY OFFICER**

Mr. Gehret is Tecogen's Chief Technical Officer. He is responsible for leading technology development at Tecogen and defining the Company's research and development efforts. With an expansive depth and breadth of classic as well as cutting edge technology, he has been integral in the development of all Tecogen products and technology for 30 years. He is the primary author on all of Tecogen's major patents. He has a B.S. in Mechanical Engineering as well as an M.S. in Nuclear Engineering, both from the Massachusetts Institute of Technology.

ANNUAL INCOME STATEMENT FY 2013 – Q1 2016

All numbers in thousands

PERIOD ENDING	FY 2013	FY 2014	FY 2015	Q1 2016
Total Revenue	**15,850**	**19,343**	**21,443**	**5,076**
Cost of Revenue	10,820	12,944	13,809	3,356
Gross Profit or (Loss)	**5,030**	**6,399**	**7,633**	**1,719**
Operating Expenses				
General & Administrative	5,931	7,265	7,998	1,892
Selling	1,424	1,796	1,687	515
R&D	1,087	1,041	592	219
Total Operating Expenses	8,700	10,102	10,277	2,626
Operating Income or (Loss)	**(3,670)**	**(3,703)**	**(2,643)**	**(907)**
Other Income or (Expense)				
Interest & Other Income	4	10	14	3
Interest Expense	(141)	(177)	(172)	(42)
Income or (Loss) attributable to the non-controlling interest	357	125	74	53
Net (Loss) attributable to Tecogen Inc.	**(3,449)**	**(3,746)**	**(2,727)**	**(893)**

Annual Income Statement FY 2013 – Q1 2016. Source: Company Filings

NASDAQ: TGEN

Company Headquarters

45 First Avenue
Waltham, MA 02451
United States

Company Contact Information

Ariel F. Babcock, CFA, IR & Media Contact
Phone: + 1 781-466-6413
Email : Ariel.Babcock@tecogen.com

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Contact: editor@smallcaps.us

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