TECOGEN INC
Form S-1/A
April 27, 2012

As filed with the Securities and Exchange Commission on April 27, 2012

Registration No. 333-178697

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

Amendment No. 1 to

FORM S-1

REGISTRATION STATEMENT

UNDER

THE SECURITIES ACT OF 1933

TECOGEN INC.

(Exact name of Registrant as specified in its charter)

Delaware	**3585**	**04-3536131**
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

Tecogen Inc.

45 First Avenue

Waltham, MA 02451

(781) 622-1120

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

John N. Hatsopoulos
Chief Executive Officer
Tecogen Inc.
45 First Avenue
Waltham, MA 02451
(781) 622-1120/Fax: (781) 622-1027
(Name, address, including zip code, and telephone number,

including area code, of agent for service)

Copy to:
Edwin L. Miller, Jr.
Sullivan & Worcester LLP
One Post Office Square
Boston, MA 02109
Tel: (617) 338-2800/Fax: (617) 338-2880

As soon as practicable after the effective date of this Registration Statement.

(Approximate date of commencement of proposed sale to the public)

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box: þ

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ¨

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ¨

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ¨

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company.

Large accelerated filer: ¨ Accelerated filer: ¨ Non-accelerated filer: ¨ Smaller reporting company: þ

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Amount to be Registered [1]	Proposed Maximum Offering Price per Unit	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee
Common Stock	35,376,268	$ 0.80	$ 28,301,014	$ 3,244

[1] The offering price is the stated, fixed price of $0.80 per share until the securities are quoted on the OTC Bulletin Board, a national or international securities exchange for the purpose of calculating the registration fee pursuant to Rule 457. This amount is only for purposes of determining the registration fee, the actual amount received by a selling stockholder will be based upon fluctuating market prices once the securities are quoted on the OTC Bulletin Board, a national, or international securities exchange. The shares being registered hereby consist of 35,376,268 outstanding shares.

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state or other jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED APRIL 27, 2012

PROSPECTUS

35,376,268 SHARES OF COMMON STOCK

Initial Public Offering

This prospectus relates to the resale of up to 35,376,268 shares of Tecogen Inc. Common Stock. These shares will be resold from time to time by the investors listed in the section titled “Selling Security Holders”, and we refer to the investors as the selling stockholders. We are not selling any securities under this prospectus and therefore will not receive any proceeds from the sale of securities by the selling stockholders. All costs associated with this registration will be borne by us.

We currently lack a public market for our Common Stock. Selling stockholders will sell at a price of $0.80 per share until such time as our shares may be quoted on the OTC Bulletin Board or listed on a national or international securities exchange and thereafter at prevailing market prices or privately negotiated prices. The proposed maximum aggregate offering price is $28,301,014.

You should rely only on the information provided in this prospectus or any supplement to this prospectus. We have not authorized anyone else to provide you with different information.

A current prospectus must be in effect at the time of the sale of the shares of Common Stock discussed above. The selling stockholders will be responsible for any commissions or discounts due to brokers or dealers. We will pay all of

the other offering expenses.

Each selling stockholder or dealer selling the Common Stock is required to deliver a current prospectus upon the sale. In addition, for the purposes of the Securities Act of 1933, as amended, or the Securities Act, selling stockholders may be deemed underwriters.

THIS INVESTMENT INVOLVES A HIGH DEGREE OF RISK. YOU SHOULD PURCHASE SHARES ONLY IF YOU CAN AFFORD A COMPLETE LOSS. WE URGE YOU TO READ THE “RISK FACTORS” SECTION BEGINNING ON PAGE 4, ALONG WITH THE REST OF THIS PROSPECTUS BEFORE YOU MAKE YOUR INVESTMENT DECISION.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION, OR THE SEC, NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES, OR DETERMINED IF THIS PROSPECTUS IS TRUTHFUL OR COMPLETE. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

TABLE OF CONTENTS

	Page
Prospectus Summary	1
The Offering	4
Summary Consolidated Financial Data	5
Risk Factors	6
Special Note Regarding Forward Looking Statements	14
Use of Proceeds	15
Determination of Offering Price	15
Dilution	15
Selling Security Holders	16
Plan of Distribution	19
Description of Securities to be Registered	21
Experts	23
Legal Matters	23
Business	24
Market for Common Equity and Related Stockholder Matters	52
Selected Financial Data	54
Management's Discussion and Analysis of Financial Condition and Results of Operations	55
Changes In and Disagreements with Accountants on Accounting and Financial Disclosure	64
Management and Governance	65
Executive Officer and Director Compensation	70

Security Ownership of Certain Beneficial Owners and Management 79

Certain Relationships and Related Transactions 81

Where You Can Find Additional information 84

Financial Statements F-1

You should rely only on the information contained in this Prospectus. We have not authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. No offers are being made hereby in any jurisdiction where the offer or sale is not permitted.

Unless otherwise indicated, information contained in this Prospectus concerning our industry, including our market opportunity, is based on information from independent industry analysts, third-party sources and management estimates. Management estimates are derived from publicly-available information released by independent industry analysts and third party sources, as well as data from our internal research, and are based on assumptions made by us using data and our knowledge of such industry and market, which we believe to be reasonable. In addition, while we believe the market opportunity information included in this Prospectus is generally reliable and is based on reasonable assumptions, such data involves risks and uncertainties and is subject to change based on various factors, including those discussed under the heading “Risk Factors.”

PROSPECTUS SUMMARY

The following summary highlights information contained elsewhere in this prospectus. It is not complete and does not contain all of the information that you should consider before investing in our Common Stock. You should read the entire prospectus carefully, especially the risks of investing in our Common Stock discussed under "Risk Factors" and our consolidated financial statements and accompanying notes. In this prospectus, unless the context otherwise requires, "Tecogen," "Company," "we," "us," or "our," refer to Tecogen Inc. and its subsidiaries.

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. Our reliable and efficient cogeneration systems reduce energy costs, decrease greenhouse gas emissions and decrease reliance on utility-generated electricity. Cogeneration systems are efficient because in addition to supplying mechanical energy to power electric generators or compressors – displacing utility supplied electricity – they provide 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).

Tecogen manufactures and supports three types of CHP products:

- Cogeneration units that supply electricity and heat (traditional CHP).
- Chillers that provide air-conditioning and heat or hot water (MCHP).
- High efficiency water heater (Heat Pump) for general purpose hot water applications (MCHP) offered by our subsidiary Ilios Inc., or Ilios.

Our CHP technology uses low-cost, mass-produced, internal combustion engines manufactured by General Motors Company, or GM, and Ford Motor Company, or Ford, (for the high efficiency water heater). These engines have been modified to run on natural gas and in the case of our established mainstay CHP and chiller products, have been proven to be cost-effective and reliable. In 2009, our internal research team developed a low-cost process of engine after treatment, or Ultra low-emissions technology, that provides our engines with exceptionally low emissions of criteria pollutants (contributors to smog and health concerns). We are awaiting the results of our patent application for this process and have introduced it commercially as an option to all of our products in 2012, under the trade name Ultra. This emissions system technology is important to us as it repositions our products, relative to environmental impact, to be on par with emerging technologies such as fuel cells, but at a much lower cost and greater overall efficiency in CHP applications. With emissions significantly lower than current engine technology, our Ultra low-emissions technology may reset existing natural gas regulations for engines in some areas of the country.

Our products are sold directly to end-users by our in-house marketing team and by established sales agents and representatives. Various agreements are in place with distributors and sales representatives, including three affiliated companies. 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, and military installations. We have an installed base of more than 2,100 units. Many of these have been operating for almost 25 years. Our principal engine supplier is GM and principal generator suppliers are Danotek Motion Technologies, and Marathon Electric. To produce air-conditioning, our engines drive a compressor purchased from J&E Hall International.

Energy cost savings, carbon reduction, grid independence, the country’s vast natural gas reserves, policy initiatives, and social responsibility all are factors driving the need for increased use of reliable, clean, and efficient on-site natural gas cogeneration systems with integral heat recovery.

In 2009 we created a majority-owned subsidiary Ilios to develop and distribute a line of ultra-high-efficiency heating products, including a high efficiency water heater. These products provide twice the efficiency of conventional commercial and industrial boilers (based upon management estimates) utilizing advanced thermodynamic principles. As of the date of this prospectus, we own a 62.5% interest in Ilios.

For each of our last five fiscal years and prior thereto, we have incurred annual operating losses. We expect this trend to continue until such time that we can sell a sufficient number of systems and achieve a cost structure to become profitable. We may not have adequate cash resources to reach the point of profitability, and we may never become profitable. Even if we do achieve profitability, we may be unable to increase our sales and sustain or increase our profitability in the future.

As of the end of the period covered by this report, our principal executive officer and principal accounting officer have performed an evaluation of 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 as when required. Management conducted an evaluation of our internal control over financial reporting and based on this evaluation, management concluded that our internal control over financial reporting was not effective as of December 31, 2011. We currently do not have personnel with a sufficient level of accounting knowledge, experience and training in the selection, application and implementation of generally acceptable accounting principles as it relates to complex transactions and financial reporting requirements. We also have 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.

Tecogen was formed in the early 1960’s as the Research and Development New Business Center of Thermo Electron Corporation, (which is now Thermo Fisher Scientific Inc.). For the next 20 years, this group performed fundamental and applied research in many energy-related fields to develop new technologies. During the late 1970’s, new federal legislation enabled electricity customers to sell power back to their utility. Thermo Electron Corporation saw a fit between the technology and know-how it possessed and the market for cogeneration systems. In 1982, the Research and Development group released its first major product, a 60-kW cogenerator. In the late 1980’s and early 1990’s, air-conditioning and refrigeration products using the same gas engine-driven technology were introduced, beginning with a 150-ton chiller. In 1987, Tecogen was spun out as a separate entity by Thermo Electron Corporation and in 1992 Tecogen became a division of the newly formed Thermo Power Corporation. In 2000, Thermo Power Corporation was dissolved, and Tecogen was sold to private investors including Thermo Electron Corporation’s original founders, Dr. George N. Hatsopoulos and John N. Hatsopoulos.

Tecogen has three affiliated companies, namely American DG Energy Inc., or American DG Energy, EuroSite Power Inc., or EuroSite Power, and GlenRose Instruments Inc., or GlenRose Instruments. These companies are affiliates

because several of the major stockholders of those companies, have a significant ownership position in the Company. American DG Energy, EuroSite Power and GlenRose Instruments do not own any shares of the Company, and the Company does not own any shares of American DG Energy, EuroSite Power or GlenRose Instruments. The business of GlenRose Instruments is not related to the business of the Company, American DG Energy and their other corporate affiliates.

American DG Energy, EuroSite Power and GlenRose Instruments are affiliated companies by virtue of common ownership. The common stockholders include:

- John N. Hatsopoulos, the Company's Chief Executive Officer who is also: (a) the Chief Executive Officer and a director of American DG Energy and holds 12.1% of the company's Common Stock, (b) the Chairman of EuroSite Power, (c) a director of Ilios and holds 7.3% of the company's Common Stock, and (d) the Chairman of GlenRose Instruments and holds 15.7% of the company's Common Stock.

- Dr. George N. Hatsopoulos, who is John N. Hatsopoulos' brother, and is also: (a) a director of American DG Energy and holds 14.7% of the company's Common Stock, (b) an investor in Ilios and holds 2.9% of the company's Common Stock and (c) an investor of GlenRose Instruments and holds 15.7% of the company's Common Stock.

John N. Hatsopoulos is the Company's Chief Executive Officer and is also the Chief Executive Officer of American DG Energy and the Chairman of GlenRose Instruments. On average, Mr. Hatsopoulos spends approximately 20% 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.

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 such revenue from those customers. Our product revenue is such that customers may make a large purchase once and may not likely ever make such a purchase again. Our equipment is built to last 20 or more years, therefore, we do not build our product revenue model depending on recurring transactions from the same customer. Our service revenue may lend itself to recurring revenue from a single customer; however, we currently do not have any service revenue customers who make up more than 10% of our total revenues on an annual basis. American DG Energy has been considered a major customer in certain years as disclosed in the accompanying financial statements, however, we do not consider our business as "dependent" upon its recurrence.

We were incorporated in the State of Delaware on November 15, 2000. Our business and registered office is located at 45 First Avenue, Waltham, MA 02451. Our telephone number is 781-466-6400. Our Internet address is http://www.tecogen.com. The information on, or that may be accessed through, our website is not incorporated by reference into this prospectus and should not be considered a part of this prospectus.

We employ 56 active full-time employees and 4 part-time employees. Our corporate, engineering and manufacturing operations are located in a 24,000 square foot facility in Waltham, Massachusetts.

THE OFFERING

Securities being offered:	Up to 35,376,268 shares of Common Stock.
Common Stock to be outstanding after this offering:	54,243,882 shares
Offering price:	The offering price of the Common Stock is $0.80 per share. There is no public market for our Common Stock. We cannot give any assurance that the shares offered will have a market value, or that they can be resold at the offered price if and when an active secondary market might develop, or that a public market for our securities may be sustained even if developed. The absence of a public market for our stock will make it difficult to sell shares. We intend to apply to the over-the-counter bulletin board, through a market maker that is a licensed broker dealer, to allow the trading of our Common Stock upon our becoming a reporting entity under the Exchange Act. If our Common Stock becomes so quoted and a market for the stock develops, the actual price of stock will be determined by prevailing market prices at the time of sale or by private transactions negotiated by the selling stockholders. The offering price would thus be determined by market factors and the independent decisions of the selling stockholders.
Securities issued and to be issued:	54,243,882 shares of our Common Stock are issued and outstanding as of the date of this prospectus, 35,376,268 of which are being offered pursuant to this prospectus. Because all of the Common Stock to be sold under this prospectus will be sold by existing shareholders, there will be no increase in our issued and outstanding shares as a result of this offering.
Use of proceeds:	We will not receive any proceeds from the sale of the Common Stock by the selling stockholders.

SUMMARY CONSOLIDATED FINANCIAL DATA

The summary consolidated statements of operations data for each of the years ended December 31, 2011 and 2010 have been derived from our audited consolidated financial statements that are included elsewhere in this prospectus. You should read this information together with the consolidated financial statements and related notes and other information under "Management's Discussion and Analysis of Financial Condition and Results of Operations" included elsewhere in this prospectus. Operating results for the year ended December 31, 2011 are not necessarily indicative of the results that may be expected for the year ended December 31, 2012.

	December 31,	
Consolidated Statement of Operations Data:	2011	2010
Revenues	$11,065,210	$11,311,229
Cost of sales	6,179,098	6,597,205
Gross profit	4,886,112	4,714,024
Operating expenses		
General and administrative	5,986,762	4,973,794
Selling	782,252	290,505
	6,769,014	5,264,299
Loss from operations	(1,882,902)	(550,275)
Other income (expense)		
Interest and other income	38,402	23,574
Interest expense	(40,294)	(37,280)
	(1,892)	(13,706)
Loss before income taxes	(1,884,794)	(563,981)
Provision for state income taxes	-	-
Consolidated net loss	(1,884,794)	(563,981)
Less: Loss attributable to the noncontrolling interest	310,293	208,673
Net loss attributable to Tecogen Inc.	$(1,574,501)	$(355,308)
Net loss per share - basic and diluted	$(0.03)	$(0.01)
Weighted average shares outstanding - basic and diluted	48,211,652	45,882,631

	December 31,	
Consolidated Balance Sheet Data:	2011	2010
Cash and cash equivalents	$3,018,566	$1,828,173

Short-term investments	683,428	85,000
Working capital	4,935,145	2,485,926
Total assets	8,745,492	5,876,422
Total liabilities	3,522,328	2,884,743
Stockholders' equity	$5,223,164	$2,991,679

5

RISK FACTORS

The securities offered herein are highly speculative and should only be purchased by persons who can afford to lose their entire investment in us. You should carefully consider the following risk factors and other information in this prospectus before deciding to become a holder of our Common Stock. If any of the following risks actually occur, our business and financial results could be negatively affected to a significant extent.

Risks Relating to our Business

Our business faces many risks. If any of the events or circumstances described in the following risks occurs, 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 ‘‘Warning Concerning Forward-Looking Statements’’ before deciding whether to invest in our Common Stock.

Our operating history is characterized by net losses. We anticipate further losses, and we may never become profitable.

For each of our last five fiscal years and prior thereto, we have incurred annual operating losses. We expect this trend to continue until such time that we can sell a sufficient number of systems and achieve a cost structure to become profitable. We may not have adequate cash resources to reach the point of profitability, and we may never become profitable. Even if we do achieve profitability, we may be unable to increase our sales and sustain or increase our profitability in the future.

We may be unable to fund our future operating requirements, which could force us to curtail our operations.

To the extent that our funds are insufficient to fund our future operating requirements, we would need to raise additional funds, through further public or private equity or debt financings depending upon prevailing market conditions. These financings may not be available, or if available, may be on terms that are not favorable to us and could result in dilution to our stockholders and reduction of the trading price of our stock. The state of worldwide capital markets could also impede our ability to raise additional capital on favorable terms or at all. If adequate capital were not available to us, we likely would be required to significantly curtail our operations or possibly even cease our

operations. We believe that our existing resources, including cash and cash equivalents and future cash flows from operations, are sufficient to meet the working capital requirements of our existing business until March 31, 2013. Beyond March 31, 2013, as we continue to grow our business our cash requirements may increase. 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.

If we experience growth in our business, our production capabilities or operational, financial and management information systems may become inadequate, which would impair our results of operations.

If we are successful in executing our business plan, we will experience growth in our business that could place a significant strain on our business operations, management and other resources. Our ability to manage such growth would require us to expand our production capabilities, continue to improve our operational, financial and management information systems, and to motivate and effectively manage our employees. We cannot provide assurance that our systems, procedures and controls or financial resources will be adequate, or that our management would keep pace with the growth that may occur.

The execution of our growth strategy is dependent upon the continued availability of third-party financing arrangements for our customers and is affected by general economic conditions.

The recent recessionary condition of the general economy and limited availability of credit and liquidity could materially and adversely affect our business and results of operations. Purchasers of our systems may require third party financing. Given the recent recession and the restricted credit markets, certain of our customers may be unable or unwilling to finance the cost to purchase our products or may be forced to cancel previously submitted orders or delay taking shipment until suitable credit is again available. Collecting payment from customers facing liquidity challenges may also be difficult. These factors could materially and adversely affect our business and financial condition.

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. Some of our competitors and potential competitors are much larger than we are. 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. 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 develop and provide innovative products that meet the changing needs of our customers. This requires that we successfully anticipate and respond to technological changes in design and manufacturing processes in a cost-effective and timely manner. As a result, we continually evaluate the advantages and feasibility of new product design and manufacturing processes. We cannot, however, assure you that our process improvement efforts will be successful. The introduction of products embodying new technologies and shifting of customer demands or changing industry standards could render our existing products obsolete and unmarketable. Our future success will depend upon our ability to continue to develop and introduce a variety of new products and product enhancements to address the increasingly sophisticated needs of our customers. 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.

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

We use third-party suppliers for components in many of our systems. From time to time, shipments can be delayed because of industry-wide or other shortages of necessary materials and components from third-party suppliers. 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.

We may not be able to maintain the confidentiality of our proprietary knowledge.

In addition to our patent rights, we also rely on treatment of our technology as trade secrets through confidentiality agreements, which our employees and vendors are required to sign. Our employees have agreed not to disclose any trade secrets or confidential information without our prior written consent. We also rely on non-disclosure agreements with others that have or may have access to confidential information to protect our trade secrets and proprietary knowledge. These agreements may be breached, and we may not have adequate remedies for any breach. Our trade secrets may also be or become known without breach of these agreements or may be independently developed by competitors. Failure to maintain the proprietary nature of our technology and information could harm our results of operations and financial condition.

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

We believe that we do not infringe the proprietary rights of others and, to date, no third parties have asserted an infringement claim against us, but we may be subject to infringement claims in the future. 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. Although we currently pay certain royalties, 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 may 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.

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 achieve rapid market penetration, we may be required to deliver even larger volumes of technically complex products or components to our customers on a timely basis at reasonable costs to us. We have limited experience in ramping up our manufacturing capabilities to meet large-scale production requirements and delivering large volumes of our power control products. If we were to commit to deliver large volumes of our power control products, we cannot assure you that we will be able to satisfy large-scale commercial production on a timely and cost-effective basis or that such growth will not strain our operational, financial and technical resources.

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 or manufacture

of products or improper use of products by end users. We currently maintain a moderate level of product liability insurance, and 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 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 incurrence 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.

Businesses and consumers might not adopt cogeneration solutions as a means for obtaining their electricity and power needs.

On-site distributed power generation solutions, such as ours, provide an alternative means for obtaining electricity and are relatively new methods of obtaining electrical power that businesses may not adopt at levels sufficient to grow our business. Traditional electricity distribution is based on the regulated industry model whereby businesses and consumers obtain their electricity from a government regulated utility. For alternative methods of distributed power to succeed, businesses and consumers must adopt new purchasing practices and must be willing to rely upon less traditional means of purchasing electricity. We cannot assure you that businesses and consumers will choose to utilize on-site distributed power at levels sufficient to sustain our business in this area. The development of a larger market for our products may be impacted by many factors which are out of our control, including, market acceptance, cost competitiveness, regulatory requirements and the emergence of newer, more competitive technologies and products. If a larger market fails to develop or develops more slowly than we anticipate, we may be unable to recover the losses we will have incurred to develop these products.

We operate in a highly regulated business environment, and changes in regulation could impose significant costs on us or make our products less economical, thereby affecting demand for our products.

Our products are subject to federal, state, local and foreign laws and regulations governing, among other things, emissions and occupational health and safety. Regulatory agencies may impose special requirements for the implementation and operation of our products or that may significantly affect or even eliminate some of our target markets. We may incur material costs or liabilities in complying with government regulations. In addition, potentially significant expenditures could be required in order to comply with evolving environmental and health and safety laws, regulations and requirements that may be adopted or imposed in the future. Furthermore, our potential utility customers must comply with numerous laws and regulations. The deregulation of the utility industry may also create challenges for our marketing efforts. For example, as part of electric utility deregulation, federal, state and local governmental authorities may impose transitional charges or exit fees, which would make it less economical for some potential customers to switch to our products. We can provide no assurances that we will be able to obtain these approvals and changes in a timely manner, or at all. Non-compliance with applicable regulations could have a material adverse effect on our business and financial condition. The market for electricity and cogeneration products is influenced by federal and state government regulations and policies. The deregulation and restructuring of the electric industry in the United States and elsewhere may cause rule changes that may reduce or eliminate some of the advantages of such deregulation and restructuring. We cannot determine how any deregulation or restructuring of the electric utility industry may ultimately affect the market for our products. Changes in regulatory standards or policies could reduce the level of investment in the research and development of alternative power sources, including our products. Any reduction or termination of such programs could increase the cost to our potential customers, making our systems less desirable, and thereby adversely affect our business and financial condition.

Utility companies or governmental entities could place barriers to our entry into the marketplace, and we may not be able to effectively sell our products.

Utility companies or governmental entities could place barriers on the installation of our products or the interconnection of the products with the electric grid. Further, they may charge additional fees to customers who install on-site generation or have 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 products or increase the cost to our potential customers for using our systems. This could make our systems less desirable, thereby adversely affecting our revenue and other operating results. In addition, utility rate reductions make our products less competitive. The cost of electric power generation bears a close relationship to natural gas and other fuels. However, changes to electric utility tariffs often require lengthy regulatory approval and include a mix of fuel types as well as customer categories. Potential customers may perceive the resulting swings in natural gas and electric pricing as an increased risk of investing in on-site generation.

We depend upon the development of new products and enhancements of existing products.

Our operating results depend on our ability to develop and introduce new products, enhance existing products and reduce the costs to produce our products. The success of our products is dependent on several factors, including proper product definition, product cost, timely completion and introduction of the products, differentiation of products from those of our competitors, meeting changing customer requirements, emerging industry standards and market acceptance of these products. 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.

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 cannot provide assurance that we will be able to achieve any such production cost reductions. Our failure to achieve such cost reductions could have a material adverse effect on our business and results of operations.

We have granted sales representation rights to an affiliated company which restricts our distribution.

We have granted to American DG Energy, an affiliated company, sales representation rights to our products and services in certain areas. In New England, American DG Energy has exclusive sales representation rights to our cogeneration products not including chillers. When Tecogen sells its cogeneration products in New England, Tecogen pays a commission to American DG Energy. American DG Energy has granted us sales representation rights to its On-Site Utility energy service in California; however, as of the date of this registration statement, this agreement has not materialized into any significant revenues. American DG Energy also has exclusive rights to our Ultra low-emissions technology if it is applied to engines from other CHP manufacturers used for their specific energy projects. In other words, American DG Energy could purchase CHP products from suppliers other than us and license that supplier to incorporate our Ultra low-emissions technology as long as the CHP system is owned and operated American DG Energy. As a result of those agreements we have no control over our distribution in certain areas and this could have a material adverse effect on our business and results of operations.

Commodity market factors impact our costs and availability of materials.

Our products contain a number of commodity materials, from metals, which include steel, special high temperature alloys, copper, nickel and molybdenum, to computer components. The availability of these commodities could impact our ability to acquire the materials necessary to meet our requirements. The cost of metals has historically fluctuated. The pricing could impact the costs to manufacture our products. If we are not able to acquire commodity materials at prices and on terms satisfactory to us or at all, our operating results may be materially adversely affected.

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 the prices of these components creates a risk that our projects will be uneconomic.

The economic viability of our distributed generation products is dependent upon the price spread between fuel and electricity prices. Volatility in one component of the spread, the cost of natural gas and other fuels (e.g., propane or distillate oil) can be managed to a greater or lesser extent by means of futures contracts. However, the regional rates charged for both base load and peak electricity services may decline periodically due to excess capacity arising from over-building of utility power plants or recessions in economic activity. Any sustained weakness in electricity prices could significantly limit the market for our 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 that could harm our financial performance.

In order to expedite development of our corporate infrastructure, particularly with regard to equipment installation and service functions, we anticipate the future acquisition of complementary businesses. Risks associated with such acquisitions include the 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.

Our ability to access capital for the repayment of debts and for future growth is limited because the financial markets are currently in a period of disruption and recession and the Company does not expect these conditions to improve in the near future.

Our ability to continue to access capital could be impacted by various factors including general market conditions and the continuing slowdown in the economy, interest rates, the perception of our potential future earnings and cash distributions, any unwillingness on the part of lenders to make loans to us and any deterioration in the financial position of lenders that might make them unable to meet their obligations to us.

Our business is affected by general economic conditions and related uncertainties affecting markets in which we operate. The current economic conditions including the global recession could adversely impact our business in 2012 and beyond.

The current economic conditions including the global recession could adversely impact our business in 2012 and beyond, resulting in reduced demand for our products, increased rate of order cancellations or delays, increased risk of excess and obsolete inventories, increased pressure on the prices for our products and services; and greater difficulty in collecting accounts receivable.

Risks Related to Ownership of our Common Stock

We could issue additional Common Stock, which might dilute the book value of our Common Stock.

Our board of directors has the authority, without action or vote of our stockholders, to issue all or a part of any authorized but unissued shares. Such stock issuances may be made at a price that reflects a discount from the then-current trading price of our Common Stock. We may issue securities that are convertible into or exercisable for a significant amount of our Common Stock. These issuances would dilute your percentage ownership interest, which would have the effect of reducing your influence on matters on which our stockholders vote, and might dilute the book value of our Common Stock. You may incur additional dilution of net tangible book value if holders of stock options, whether currently outstanding or subsequently granted, exercise their options or if warrant holders exercise their warrants to purchase shares of our Common Stock. There can be no assurance that any future offering will be consummated or, if consummated, will be at a share price equal or superior to the price paid by our investors even if we meet our technological and marketing goals.

Our quarterly operating results are subject to fluctuations, and if we fail to meet the expectations of securities analysts or investors, our share price may decrease significantly.

Our annual and quarterly results may vary significantly depending on various factors, many of which are beyond our control. If our earnings do not meet the expectations of securities analysts or investors, the price of our stock could decline. Also, because our sales are primarily made on a purchase order basis, customers may generally cancel, reduce or postpone orders, resulting in reductions to our net sales and profitability.

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.

Future sales of 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 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 do not intend to pay cash dividends, our stockholders will 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 all of our future earnings, if any, to fund the development and growth of our business. In addition, the terms of any future debt or credit facility may preclude us from paying these dividends. As a result, capital appreciation, if any, of our Common Stock will be your sole source of gain for the foreseeable future.

We are controlled by a small group of majority stockholders, and our minority stockholders will be unable to effect changes in our governance structure or implement actions that require stockholder approval, such as a sale of the Company.

George Hatsopoulos and John Hatsopoulos, who are brothers, beneficially own approximately 53.7% of our outstanding shares of Common Stock. These stockholders have the ability to control various corporate decisions, including our direction and policies, the election of directors, the content of our charter and bylaws and the outcome of any other matter requiring stockholder approval, including a merger, consolidation and sale of substantially all of our assets or other change of control transaction. The concurrence of our minority stockholders will not be required for any of these decisions.

There has been 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 of the end of the period covered by this report, our principal executive officer and principal accounting officer have performed an evaluation of 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 as 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, 2011. The Company currently does not have personnel with a sufficient level of accounting knowledge, experience and training in the selection, application and implementation of generally acceptable accounting principles as it relates to complex transactions and financial reporting requirements. The Company also 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.

Trading of our Common Stock may be restricted by the SEC's, "penny stock" regulations which may limit a stockholder's ability to buy and sell our stock.

The SEC has adopted regulations which generally define "penny stock" to be any equity security that has a market price less than $5.00 per share or an exercise price of less than $5.00 per share, subject to certain exceptions. Our securities may be covered by the penny stock rules, which impose additional sales practice requirements on broker-dealers who sell to persons other than established customers and accredited investors. The penny stock rules require a broker-dealer, prior to a transaction in a penny stock not otherwise exempt from the rules, to deliver a standardized risk disclosure document in a form prepared by the SEC that provides information about penny stocks and the nature and level of risks in the penny stock market. The broker-dealer also must provide the customer with current bid and other quotations for the penny stock, the compensation of the broker-dealer and its salesperson in the transaction and monthly account statement showing the market value of each penny stock held in the customer's account. The bid and offer quotations, and the broker-dealer and salesperson compensation information, must be given to the customer orally or in writing prior to effecting the transaction and must be given to the customer in writing before or with the customer's confirmation. In addition, the penny stock rules require that prior to a transaction in a penny stock not otherwise exempt from these rules, the broker-dealer must make a special written determination that the penny stock is a suitable investment for the purchaser and receive the purchaser's written agreement to the transaction. These disclosure and suitability requirements may have the effect of reducing the level of trading activity in the secondary market for a stock that is subject to these penny stock rules. Consequently, these penny stock rules may affect the ability of broker-dealers to trade our securities. We believe that the penny stock rules may discourage investor interest in and limit the marketability of our capital stock. Trading of our capital stock may be restricted by the SEC's "penny stock" regulations which may limit a stockholder's ability to buy and sell our stock.

13

SPECIAL NOTE REGARDING FORWARD LOOKING STATEMENTS

This prospectus contains forward-looking statements that involve substantial risks and uncertainties. All statements, other than statements of historical facts, contained in this prospectus, including statements regarding our strategy, future operations, future financial position, future revenues, projected costs, prospects, plans and objectives of management, are forward-looking statements. The words “anticipate,” “believe,” “estimate,” “expect,” “intend,” “may,” “plan,” “predict,” “project,” “target,” “potential,” “will,” “would,” “could,” “should,” “continue,” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

The forward-looking statements in this prospectus include, among other things, statements about:

- our future financial performance, including our revenue, cost of revenue, operating expenses and ability to achieve and maintain profitability;
- our ability to market, commercialize and achieve market acceptance for our combined heat and power systems or any other product candidates or products that we may develop;
- our ability to innovate and keep pace with changes in technology;
- the success of our marketing and business development efforts;
- our ability to maintain, protect and enhance our intellectual property;
- the effects of increased competition in our market;
- our ability to effectively manage our growth and successfully enter new markets; and
- the attraction and retention of qualified employees and key personnel.

We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. We have included important factors in the cautionary statements included in this prospectus, particularly in the “Risk factors” section, that we believe could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we may make.

You should read this prospectus and the documents that we reference in this prospectus and have filed as exhibits to the registration statement of which this prospectus is a part completely and with the understanding that our actual

future results may be materially different from what we expect. The forward-looking statements contained in this prospectus are made as of the date of this prospectus, and we do not assume any obligation to update any forward-looking statements except as required by applicable law.

USE OF PROCEEDS

We will not receive any proceeds from the sale of shares of Common Stock by the selling stockholders which are offered in this prospectus.

DETERMINATION OF OFFERING PRICE

The offering price for the shares in this offering was determined by our management. In determining the initial public offering price of the shares we considered several factors including the following:

- our status of business development;
- our new business structure and operations;
- prevailing market conditions, including the history and prospects for our industry;
- our future prospects and the experience of our management; and
- our capital structure.

Therefore, the public offering price of the shares does not necessarily bear any relationship to established valuation criteria and may not be indicative of prices that may prevail at any time or from time to time in the public market for the Common Stock. You cannot be sure that a public market for any of our securities will develop and continue or that the securities will ever trade at a price at or higher than the offering price in this prospectus.

DILUTION

We are not selling any of the shares of our Common Stock in this offering. All of the shares sold in this offering will be held by the selling stockholders at the time of the sale, so that no dilution will result from the sale of the shares.

SELLING SECURITY HOLDERS

The 35,376,268 common shares being offered for resale pursuant to this registration statement, or Common Shares, may be sold from time to time for the account of the selling security holders named in the following table. However, the selling security holders are not obligated to sell any of our Common Shares offered by this prospectus.

Beneficial ownership is determined in accordance with the rules of the SEC. These rules generally attribute beneficial ownership of securities to persons who possess sole or shared voting power or investment power with respect to those securities. Except as otherwise indicated, all persons listed below have sole voting and investment power with respect to the shares beneficially owned by them, subject to applicable community property laws. The information is not necessarily indicative of beneficial ownership for any other purpose. With respect to selling stockholders that are entities, the individuals who have voting or investment power over the shares, as indicated, disclaim beneficial ownership of the securities except for their pecuniary interest therein.

None of the selling stockholders is in the business of buying and selling securities. However, Mr. Michael Zuk is affiliated with Oppenheimer & Co. The aforementioned investor purchased the securities in the ordinary course of his personal investment activities (or for his investment accounts) and at the time of the purchase he did not have any agreements or understandings directly or indirectly with any person to distribute the securities. If any shares of our Common Stock are sold by the aforementioned investor pursuant to this prospectus, he may be deemed an underwriter with respect thereto under the Securities Act. No other selling stockholders are themselves, or are affiliated with, a broker-dealer.

The table below contains information, to our knowledge, regarding each selling security holder's beneficial ownership of our Common Shares as of the date of this prospectus, and as adjusted to reflect the sale of the shares offered hereby, assuming that all of the shares offered hereby will be sold.

	Shares Beneficially Owned Prior to Offering			Shares Beneficially Owned After Offering	
Selling stockholder	Number	Percentage	Shares Being Offered (1)	Number (2)	Percentage
John N. Hatsopoulos (3)	14,875,350	27.42 %	14,875,350	-	*
George N. Hatsopoulos (4)	14,206,077	26.04 %	14,206,077	-	*
RBC Cees Nominees Ltd. (5)	3,616,418	6.67 %	2,847,188	769,230	1.42 %
Nettlestone Enterprises Limited (6)	1,394,231	2.57 %	625,000	769,231	1.42 %
Southern California Gas Company (7)	769,231	1.42 %	769,231	-	*
Robert A. Panora (8)	653,400	1.20 %	653,400	-	*
Charles T. Maxwell (9)	300,000	*	300,000	-	*
Bruno Meier	250,000	*	250,000	-	*

JNH 1989 Family Trust f/b/o Nia Marie Hatsopoulos (Nikolaidis Trustee) (10)	226,678	*	60,011	166,667	*
JNH 1989 Family Trust f/b/o Alexander Hatsopoulos (Nikolaidis Trustee) (11)	226,678	*	60,011	166,667	*
Jeremy Benjamin	200,000	*	200,000	-	*
Martin J. McDonough (12)	200,000	*	200,000	-	*
Ahmed Ghoniem (13)	100,000	*	100,000	-	*
Angelina Galiteva (14)	100,000	*	100,000	-	*
Michael Zuk, Jr. & Gayle Line Zuk (15)	70,000	*	20,000	50,000	*
Anthony S. Loumidis (16)	60,000	*	60,000	-	*
Bonnie Brown (17)	50,000	*	50,000	-	*
Total	37,298,063		35,376,268	1,921,795	

16

*	Represents beneficial ownership of less than 1% of our outstanding Common Stock.
+	Member of our Board of Directors.
#	Executive Officer

1. Shares beneficially owned by our security holders and offered hereby consist of 35,376,268 outstanding shares of Common Stock.
2. The number assumes each selling security holder sells all of its shares being offered pursuant to this prospectus.
3. Includes: (a) 225,000 shares of Common Stock, directly held by Mr. John N. Hatsopoulos; (b) 4,948,165 shares of Common Stock; held by John N. Hatsopoulos and his wife, Patricia L. Hatsopoulos, as joint tenants, each of whom share voting and investment power; (c) 5,742,750 shares of Common Stock held by John N. Hatsopoulos and his wife, Patricia L. Hatsopoulos, as joint tenants with rights of survivorship, each of whom share voting and investment power; and (d) 3,959,435 shares of Common Stock held by The John N. Hatsopoulos Family Trust 2008 for the benefit of: (1) Patricia L. Hatsopoulos, (2) Alexander J. Hatsopoulos, and (3) Nia Marie Hatsopoulos, for which Mr. John N. Hatsopoulos is the trustee. This amount does not include: (a) 333,334 shares of Common Stock issuable upon conversion of $100,000 principal amount of 6% convertible debentures; and (b) 120,022 shares of Common Stock held by The John N. Hatsopoulos 1989 Family Trust for the benefit of: (1) Alexander J. Hatsopoulos, and (2) Nia Marie Hatsopoulos, for whom Mr. Paris Nikolaidis is the trustee. Mr. Hatsopoulos disclaims beneficial ownership of the shares held by that trust. Mr. John N. Hatsopoulos is the Chief Executive Officer of the Company and a director.
4. Includes: (a) 5,968,504 shares of Common Stock, directly held by Dr. George N. Hatsopoulos; (b) 7,934,350 shares of Common Stock; held by Dr. Hatsopoulos and his wife, Daphne Hatsopoulos, as joint tenants, each of whom share voting and investment power; and (c) 303,223 shares of Common Stock issuable upon conversion of $90,967 principal amount of 6% convertible debentures. This amount does not include 2,272,391 shares held in the 1994 Hatsopoulos Family Trust for the benefit of Dr. and Mrs. Hatsopoulos' adult children, for whom Ms. Daphne Hatsopoulos and Mr. Gordon Erhlich are the trustees. Dr. Hatsopoulos disclaims beneficial ownership of the shares held by this trust. Dr. George N. Hatsopoulos is a director of the Company.
5. Includes 3,616,418 shares of Common Stock held by RBC cees Nominees Ltd. The address of RBC cees Nominees Ltd. is 19-21 Broad Street, St. Hellier, Jersey JE1 3PB, Channel Islands. Messrs. Gordon Campbell and Michael James Evans are the authorized signatories of the company and may be deemed to exercise voting and/or dispositive power with respect to these shares.
6. Includes 1,394,231 shares of Common Stock held by Nettlestone Enterprises Limited. The address of Nettlestone Enterprises Limited is P.O. Box 665 Roseneath, The Grange, St. Peter Port, Guernsey GY1-3SJ, Channel Islands. Messrs. M.T.R Betley, M.S Heyworth and J.R Plimley are the directors of the company and may be deemed to exercise voting and/or dispositive power with respect to these shares.
7. Includes 769,231 shares of Common Stock held by the Southern California Gas Company. The address of the company is 8326 Centura Park Court, San Diego, California, 92123, and the directors of that company are the authorized signatories and may be deemed to exercise voting and/or dispositive power with respect to these shares.
8. Includes 653,400 shares of Common Stock, directly held by Mr. Panora, who is the Chief Operating Officer and President of the Company.
9. Includes 300,000 shares of Common Stock, directly held by Mr. Maxwell, who is a director of the Company.

10. Includes: (a) 60,011 shares of Common Stock; and (b) 166,667 shares of Common Stock issuable upon conversion of $50,000 principal amount of 6% convertible debentures held by Paris and Aliki Nikolaidis as trustees for the John N. Hatsopoulos 1989 Family Trust for the benefit of Nia Marie Hatsopoulos. Mr. Hatsopoulos disclaims beneficial ownership of those shares.
11. Includes (a) 60,011 shares of Common Stock; and (b) 166,667 shares of Common Stock issuable upon conversion of $50,000 principal amount of 6% convertible debentures held by Paris and Aliki Nikolaidis as trustees for the John N. Hatsopoulos 1989 Family Trust for the benefit of Alexander J. Hatsopoulos. Mr. Hatsopoulos disclaims beneficial ownership of those shares.
12. Includes 200,000 shares of restricted stock issued to Mr. McDonough that vest 25%, 180 days after an initial public offering and then an additional 25% of the shares vesting on each of the subsequent four anniversaries.
13. Includes 100,000 shares of Common Stock, directly held by Dr. Ghoniem, who is a director of the Company.
14. Includes 100,000 shares of Common Stock, directly held by Ms. Galiteva, who is the Chairperson of the Board of the Company.
15. Includes 70,000 shares of Common Stock held by Mr. Michael Zuk & Gayle Line Zuk. Mr. Michael Zuk is affiliated with Oppenheimer & Co. The seller purchased the securities to be resold in the ordinary course of business and at the time of the purchase, the seller had no agreements or understandings directly or indirectly, with any person to distribute the securities.
16. Includes 60,000 shares of Common Stock, directly held by Mr. Loumidis, who is a Vice President and Treasurer of the Company.
17. Includes 50,000 shares of Common Stock, directly held by Ms. Brown, who is the Chief Financial Officer of the Company.

Except for the current directors and officers as set forth in this Section and in the footnotes to the table above, other than Mr. Paris Nikolaidis, a former director of the Company who resigned from our Board of Directors on July 15, 2010, none of the selling stockholders has held any position or office, or had any other material relationship with the company within the past three years. See “Certain Relationships and Related Transactions” for a discussion of certain of the selling security holders’ relationship to us and our affiliates.

PLAN OF DISTRIBUTION

The selling security holders may, from time to time, sell, transfer, or otherwise dispose of any or all of their Common Shares on any stock exchange, market, or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices. The selling security holders will initially sell shares of our Common Stock at $0.80 per share, until such time as shares of our Common Stock may be quoted on the OTC Bulletin Board or listed on a national or international securities exchange. The selling security holders may use any one or more of the following methods when disposing of their Common Shares:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- broker-dealers may agree with the selling security holders to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of sale; and
- any other method permitted by applicable law.

The selling security holders may, from time to time, pledge or grant a security interest in some or all of the Common Shares owned in their name and, if they default in the performance of the secured obligations, the pledgees or secured parties may offer and sell the Common Shares, from time to time, under this prospectus, or under an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act to include the pledgee,

transferee or other successors in interest as the selling security holders under this prospectus. The selling security holders also may transfer the Common Shares in other circumstances, in which case the transferees, pledges, or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

In connection with the sale of our Common Shares, the selling security holders may enter into hedging transactions with broker-dealers or other financial institutions and may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of Common Shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The aggregate proceeds to the selling security holders from the sale of the Common Shares offered by them will be the purchase price of the Common Shares less discounts or commissions, if any. The selling security holders reserve the right to accept and, together with their respective agents from time to time, to reject, in whole or in part, any proposed purchase of Common Shares to be made directly or through agents.

The selling security holders also may resell all or a portion of the Common Shares in transactions on the OTC Bulletin Board a national, or international securities exchange, if and when our shares are quoted on the OTC Bulletin Board or listed on a national, or international securities exchange, in reliance upon Rule 144 under the Securities Act, provided that such transaction meets the criteria and conforms to the requirements of that rule.

Any underwriters, broker-dealers, or agents that participate in the sale of the Common Shares may be “underwriters” within the meaning of Section 2(11) of the Securities Act. Any discounts, commissions, concessions, or profit they earn on any resale of the shares may be underwriting discounts and commissions under the Securities Act.

To the extent required, the Common Shares to be sold, the name of the selling stockholder, the respective purchase prices and public offering prices, the names of any agent, dealer, or underwriter, any applicable commissions or discounts with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement that includes this prospectus.

In order to comply with the securities laws of some states, if applicable, the Common Shares may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the Common Shares may not be sold unless it has been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

We have advised the selling security holders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the selling security holders and their affiliates. In addition, to the extent applicable we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the selling security holders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling security holders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act.

DESCRIPTION OF SECURITIES TO BE REGISTERED

Up to 35,376,268 shares of our Common Stock may be sold by the selling security holders pursuant to this prospectus. The shares of common shares being offered for resale pursuant to this prospectus may be sold from time to time for the account of the selling security holders named in the *"Selling Security Holders"* section of this prospectus.

General

The following description of our capital stock and provisions of our amended and restated certificate of incorporation and bylaws are summaries and are qualified by reference to the charter and the bylaws that will be in effect upon the effectiveness of this registration statement. These documents are filed as exhibits hereto.

Upon the effectiveness of this registration statement, our authorized capital stock will consist of 100,000,000 shares of Common Stock, par value $0.001 per share.

The following description summarizes information about our capital stock. You can obtain more comprehensive information about our capital stock by reviewing our certificate of incorporation and bylaws as well as the Delaware General Corporation Law.

Common Stock

General. As of the date of this prospectus, there were 54,243,882 shares of our Common Stock outstanding, held of record by 107 stockholders.

Voting Rights. Each holder of Common Stock is entitled to one vote per share on all matters properly submitted to a vote of the stockholders, including the election of directors. Our charter will not provide for cumulative voting rights. Because of this, but subject to the rights of any then outstanding shares of preferred stock, the holders of a majority of the shares of Common Stock entitled to vote in any election of directors can elect all of the directors standing for election, if they should so choose. An election of directors by our stockholders is determined by a plurality of the votes cast by stockholders entitled to vote on the election.

Dividends. Subject to preferences that may be applicable to any then outstanding preferred stock, the holders of our outstanding shares of Common Stock are entitled to receive dividends, if any, as may be declared from time to time by our Board of Directors out of legally available funds.

Liquidation. In the event of our liquidation, dissolution or winding up, holders of Common Stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities, subject to the satisfaction of any liquidation preference granted to the holders of any outstanding shares of preferred stock.

Rights and Preferences. Holders of our Common Stock have no preemptive, conversion or subscription rights, and there are no redemption or sinking fund provisions applicable to our Common Stock with the exception of the investment of Southern California Gas Company on June 13, 2011, which has certain stockholder rights and a redemption right whereby the investor may redeem the shares for cash until the earlier of, the initiation of a public offering of the Company by filing a registration statement with the SEC, or five years, whatever comes first. The rights, preferences and privileges of holders of Common Stock are subject to and may be adversely affected by the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future. The filing of our registration statement on Form S-1 on December 22, 2011, resulted in the expiration of the rights and preferences of the Southern California Gas Company; therefore as of December 31, 2011, we do not have any rights or preferences outstanding.

Stock Options

As of December 31, 2011, we had 4,381,000 options outstanding under our Stock Plan, each with a weighted average exercise price of $0.48 per share.

Warrants

As of December 31, 2011, there were no warrants outstanding.

Registration Rights

The Company is not a party to any registration rights agreements.

Delaware Anti-Takeover Law and Charter and Bylaws Provisions

Delaware Anti-Takeover Law. We are subject to Section 203 of the Delaware General Corporation Law. Section 203 of that law generally prohibits a public Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the interested stockholder attained such status with the approval of our Board of Directors, the business combination is approved in a prescribed manner or the interested stockholder acquired at least 85% of our outstanding voting stock in the transaction in which it became an interested stockholder. A "business combination" includes, among other things, a merger or consolidation involving us and the "interested stockholder" and the sale of more than 10% of our assets. In general, an "interested stockholder" is any entity or person beneficially owning 15% or more of our outstanding voting stock and any entity or person affiliated with or controlling or controlled by such entity or person.

Certificate of Incorporation and Bylaws. Provisions of our certificate of incorporation and bylaws may delay or discourage transactions involving an actual or potential change of control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares, or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our Common Stock if and when it becomes tradable. Among other things, our charter and bylaws:

- authorize the issuance of "blank check" preferred stock, the terms of which may be established and shares of which may be issued without stockholder approval;
- eliminate the ability of stockholders to call a special meeting of stockholders; and
- establish advance notice requirements for nominations for election to the Board of Directors or for proposing matters that can be acted upon at stockholder meetings.

The amendment of any provisions of our charter by the stockholders would require the approval of the holders at least two-thirds of our then outstanding Common Stock. Our by-laws may be amended or repealed by a majority vote of our Board of Directors or by the affirmative vote of the holders of at least two-thirds of our then outstanding Common Stock.

Over-the-Counter (OTC) Bulletin Board and National, or International Securities Exchange

Following the effectiveness of this registration statement, we intend to arrange for the quotation of our Common Stock on the OTC Bulletin Board or the listing of our Common Stock on a national or international securities exchange.

Authorized but Unissued Shares

The authorized but unissued shares of Common Stock and preferred stock are available for future issuance without stockholder approval, subject to any limitations imposed by regulatory authorities. These additional shares may be used for a variety of corporate finance transactions, acquisitions and employee benefit plans. The existence of authorized but unissued and unreserved Common Stock and preferred stock could make it more difficult or discourage an attempt to obtain control of us by means of a proxy contest, tender offer, merger or otherwise.

Transfer Agent and Registrar

The transfer agent and registrar for our Common Stock will be Continental Stock Transfer and Trust Company.

EXPERTS

The consolidated financial statements as of and for the periods ended December 31, 2011 and 2010, appearing in this registration statement and Prospectus have been audited by McGladrey & Pullen, LLP, an independent registered public accounting firm, as stated in their report appearing elsewhere herein, and are included in reliance upon such report and upon the authority of such firm as experts in accounting and auditing.

No expert or counsel named in this prospectus as having prepared or certified any part of this prospectus or having given an opinion upon the validity of the securities being registered or upon other legal matters in connection with the registration or offering of the Common Stock was employed on a contingency basis, or had, or is to receive, any interest, directly or indirectly, in our Company or any of our parents or subsidiaries. Nor was any such person connected with us or any of our parents or subsidiaries, if any, as a promoter, managing or principal underwriter, voting trustee, director, officer, or employee.

LEGAL MATTERS

The validity of our Common Stock offered under this prospectus will be passed upon by Sullivan & Worcester LLP, Boston, Massachusetts.

23

BUSINESS

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. Our reliable and efficient cogeneration systems reduce energy costs, decrease greenhouse gas emissions and decrease reliance on utility-generated electricity. Cogeneration systems are efficient because in addition to supplying mechanical energy to power electric generators or compressors – displacing utility supplied electricity – they provide 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).

Tecogen manufactures and supports three types of CHP products:

- Cogeneration units that supply electricity and heat (traditional CHP).
- Chillers that provide air-conditioning and heat or hot water (MCHP).
- High efficiency water heater (Heat Pump) for general purpose hot water applications (MCHP), offered by our Ilios subsidiary.

Our CHP technology uses low-cost, mass-produced, internal combustion engines manufactured by GM and Ford (for our high efficiency water heater). These engines have been modified to run on natural gas and in the case of our established mainstay CHP and chiller products, have been proven to be cost-effective and reliable. In 2009, our internal research team developed a low-cost process of engine after treatment, or Ultra low-emissions technology, that provides our engines with exceptionally low emissions of criteria pollutants (contributors to smog and health concerns). We are awaiting the results of our patent application for this process and have introduced it commercially as an option to all of our products in 2012, under the trade name Ultra. This emissions system technology is important to us as it repositions our products, relative to environmental impact, to be on par with emerging technologies such as fuel cells, but at a much lower cost and greater overall efficiency in CHP applications. With emissions significantly lower than current engine technology, our Ultra low-emissions technology may reset existing natural gas regulations for engines in some areas of the country.

Our products are sold directly to end-users by our in-house marketing team and by established sales agents and representatives. Various agreements are in place with distributors and sales representatives, including three affiliated companies. 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, and military installations. We have an installed base of more than 2,100 units. Many of these have been operating for almost 25 years. Our principal engine supplier is GM and principal generator suppliers are Danotek Motion Technologies, and Marathon Electric. To produce air-conditioning, our engines drive a compressor purchased from J&E Hall International.

Energy cost savings, carbon reduction, grid independence, the country's vast natural gas reserves, policy initiatives, and social responsibility all are factors driving the need for increased use of reliable, clean, and efficient on-site natural gas cogeneration systems with integral heat recovery.

In 2009 we created a majority-owned subsidiary Ilios, to develop and distribute a line of ultra-high-efficiency heating products, including a high efficiency water heater. These products provide twice the efficiency of conventional commercial and industrial boilers (based upon management estimates) utilizing advanced thermodynamic principles. As of the date of this prospectus, we own a 62.5% interest in Ilios.

Tecogen was formed in the early 1960's as the Research and Development New Business Center of Thermo Electron Corporation, (which is now Thermo Fisher Scientific Inc.). For the next 20 years, this group performed fundamental and applied research in many energy-related fields to develop new technologies. During the late 1970's, new federal legislation enabled electricity customers to sell power back to their utility. Thermo Electron Corporation saw a fit between the technology and know-how it possessed and the market for cogeneration systems. In 1982, the Research and Development group released its first major product, a 60-kW cogenerator. In the late 1980's and early 1990's, air-conditioning and refrigeration products using the same gas engine-driven technology were introduced, beginning with a 150-ton chiller. In 1987, Tecogen was spun out as a separate entity by Thermo Electron Corporation and in 1992 Tecogen became a division of the newly formed Thermo Power Corporation. In 2000, Thermo Power Corporation was dissolved, and Tecogen was sold to private investors including Thermo Electron Corporation's original founders, Dr. George N. Hatsopoulos and John N. Hatsopoulos.

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 such revenue from those customers. Our product revenue is such that customers may make a large purchase once and may not likely ever make such a purchase again. Our equipment is built to last 20 or more years, therefore, we do not build our product revenue model depending on recurring transactions from the same customer. Our service revenue may lend itself to recurring revenue form a single customer; however, we currently do not have any service revenue customers who make up more than 10% of our total revenues on an annual basis. American DG Energy has been considered a major customer in certain years as disclosed in the accompanying financial statements, however, we do not consider our business as "dependent" upon its recurrence.

We were incorporated in the State of Delaware on November 15, 2000. Our business and registered office is located at 45 First Avenue, Waltham, MA 02451. Our telephone number is 781-466-6400. Our Internet address is http://www.tecogen.com. The information on, or that may be accessed through, our website is not incorporated by reference into this prospectus and should not be considered a part of this prospectus.

We employ 56 active full-time employees and 4 part-time employees. Our corporate, engineering and manufacturing operations are located in a 24,000 square foot facility in Waltham, Massachusetts.

Industry background

In the 20th century, the evolution of fossil fuel power plants in the United States and elsewhere was moving toward increasingly large and complex central stations utilizing high-temperature steam turbines. This technology, although steadily refined, reached a plateau of about 40% efficiency that persists to this day. According to the Environmental Protection Agency, or EPA, the present average efficiency of fossil-fueled power plants in the United States, including additional transmission losses, is 33% and has remained virtually unchanged for four decades[1].

The efficiency limitation reached in steam power plant design is universal in all devices converting the chemical energy from a burned fuel to electric power. This upper limit, due to practical design limitations, but also fundamental thermodynamic barriers[2] inherent in energy conversion, can only be improved incrementally and at significant cost. The very best commercial efficiency obtainable is about 50% from either a combined cycle steam turbine or a fuel cell. A combined cycle steam turbine incorporates a second, low-temperature turbine powered by spent exhaust gases from the first, a very expensive addition with only small benefit. Fuel cells, on the other hand, remain very expensive, and are generally confined to highly subsidized proof of concept projects.

[1] http://www.epa.gov/chp/basic/efficiency.html. This website address and any other website addresses included in this registration statement are included as textual references only and the information in such websites is not incorporated by reference into this registration statement.

[2] An ideal heat engine, defined by Nicolas Léonard Sadi Carnot, in his development of the concept of entropy, as being reversible and without friction, has an efficiency bound by the relative extremes of its heat sink temperatures. In this case, these are the fuel's combustion temperature relative to our local ambient condition. For fossil fuels the ideal maximum is about 70%, a theoretical device which cannot be constructed. For direct chemical conversion to electricity (fuel cells), the upper limit for efficiency is defined by Josiah Willard Gibbs' "free energy" which is maximized at 82%. Again this is an ideal device operating at an infinitely low output and fueled with hydrogen, which must be manufactured from fossil fuels with a considerable energy cost.

The efficiency limitation in centralized power production is essentially immovable; incremental improvement can only be made by large scale replacement of the existing stations with combined cycle or similar technology. This would take decades and would require significant costs and yield marginal benefits.

However, harnessing the waste energy that exits the fossil fuel power generation process in the form of hot water or low pressure steam, and using it purposefully for nearby process heating (i.e. CHP) can boost the efficiency to approaching 90%, a better than two-fold improvement. Given the thermodynamic limits on energy conversion, no other methodology for obtaining this level of efficiency gain exists or will ever exist from power generation sourced from fossil fuels. The implications of this process approach are significant. If CHP were applied in a large scale, global fuel usage would be curtailed dramatically, while implementation would require smaller, decentralized power systems in sizes on par with boilers and furnaces ranging from residential to the largest industrial process.

In order to properly service heating loads, CHP small-scale power generation technologies are located close to the load being served. According to a report by the International Energy Agency, or IEA, the attractiveness of CHP systems to end-users and policy makers stems from the fact that these systems are "inherently energy efficient and produce energy where it is needed.[3]

The report lists the benefits succinctly as follows: (1) dramatically increased fuel efficiency, (2) reduced emissions of CO_2 and other pollutants, (3) cost savings for the energy consumer (4) reduced need for transmission and distribution networks; and (5) beneficial use of local energy resources (particularly through the use of waste, biomass, and geothermal resources in district heating systems), providing a transition to a low-carbon future.

This IEA report agrees with many other reports regarding CHP. The EPA's has created a Combined Heat and Power Partnership that seeks to reduce the environmental impact of power generation by fostering the use of highly-efficient CHP. The following statement is found on the EPA web site:

"Combined heat and power systems offer considerable environmental benefits when compared with purchased electricity and onsite-generated heat. By capturing and utilizing heat that would otherwise be wasted from the production of electricity, CHP systems require less fuel than equivalent separate heat and power systems to produce the same amount of energy. Because less fuel is combusted, greenhouse gas emissions, such as carbon dioxide (CO_2), as well as criteria air pollutants like nitrogen oxides (NO_x) and sulfur dioxide (SO_2), are reduced.[4]

While CHP eliminates transmission and distribution losses (an efficiency benefit), it also offsets capital expenditures involved in upgrading or expanding the utility infrastructure (transmission & distribution/power plants). The national electric grid infrastructure is challenged to keep up with the growing US energy demand. The grid consists of the power generation plants as well as the transmission and distribution network of substations and wires. Power plants

are aging and plans for new ones are on the decline (see Figure 1). The U.S. Energy Information Administration Form EIA-860 Annual Electric Generator Report shows that the average age of a US coal-fired power plant is 43 years, which comprises approximately 30% of the nation's capacity.[5]

[3] International Energy Agency, Cogeneration and District Energy – Sustainable energy technologies for today and tomorrow, 2009, page 13. http://www.iea.org/files/CHPbrochure09.pdf. This website address and any other website addresses included in this registration statement are included as textual references only and the information in such websites is not incorporated by reference into this registration statement.

[4] http://www.epa.gov/chp/basic/environmental.html. This website address and any other website addresses included in this registration statement are included as textual references only and the information in such websites is not incorporated by reference into this registration statement.

[5] U.S Energy Information Administration, "Existing Units by Energy Source" 2010 (Excel file) http://www.eia.gov/electricity/annual. This website address and any other website addresses included in this registration statement are included as textual references only and the information in such websites is not incorporated by reference into this registration statement.

In addition, the distribution networks' transmission and distribution is operating at capacity in urban areas. Therefore, the distributed energy model of decentralizing power generation not only relieves the capacity constraints of existing power plants, but also unburdens the transmission and distribution systems, which ultimately improves the overall grid reliability and reduces the need for costly infrastructure upgrades. Consolidated Edison, Inc., the electric utility of New York City and surrounding areas, stated in their 2010 electric system long range plan: "Over the next 20 years we will seek to integrate energy efficiency, distributed generation and demand response to further our goals of deferring new infrastructure investments and providing safe, reliable, and reasonably priced service that is environmentally responsible.

Figure 1 – Proposed U.S. New Capacity: Coal, Natural Gas, Wind, and Nuclear[6]

Tecogen's Solution

Our CHP products address this inherent efficiency limitation of central power plants by fulfilling the growing market need for the production of small scale power generation located close to the loads being served, thus allowing energy intensive facility owners to reduce energy costs and operate with a lower carbon footprint. Furthermore, with recent technology innovations just within the last two years, our products now improve local air quality.

Our products provide our customer with the means to produce energy at their facility in a manner that is significantly more efficient than fossil-fueled central station power. Their high efficiency translates directly into lower energy consumption and, since they address shortcomings in the electricity production process, their benefit is enhanced (not redundant) by other onsite upgrades made to reduce usage, such as insulation, lighting upgrades, etc. According to our estimates and public sources, our cogeneration systems convert more than 80% (based on HHV) or 90% (based on LHV[7]) of the natural gas fuel to useful energy in the form of electricity and hot water or space heat compared to less than 40% for conventional power plant production. Our engine-driven chillers, when the waste heat is effectively used, offer similar efficiency benefits when compared with the conventional alternative (an electric chiller and onsite heater).

[6] National Energy Technology Laboratory Presentation, Tracking New Coal Fired Power Plants, July 2011, page 23. http://www.netl.doe.gov/coal/refshelf/ncp.pdf. This website address and any other website addresses included in this registration statement are included as textual references only and the information in such websites is not incorporated by reference into this registration statement.

[7] We use the higher heating value (HHV) of fuels for calorific content for all of our efficiency calculations. This convention reports efficiency at 10% lower than the other common convention, lower heating value (or LHV). Either is valid but it is important to be specific about which one is being used, especially when comparing different technologies reported from different sources.

Our cogeneration and chiller products can often reduce customer operating costs by 30% to 60% which provide an excellent rate of return for their increased capital costs in many areas of the country with high electric tariffs.[8] Our chillers are especially suited to regions where tariffs are structured to bias electricity billing for peak usage charges (commonly called “demand” charges) or have other penalties associated with utility interconnection (see detailed discussion in section on government regulations). In these cases the chiller products target electricity costs at the most costly time of year (summer) while avoiding any negative aspects of utility interconnection, as our chillers run only on natural gas and have no tie to the electric grid.

Our heat pump product, recently introduced by our Ilios subsidiary, operates like an electric heat pump but utilizes a natural gas engine instead of the conventional electric motor to power the system. As such, the engine’s waste heat can be incorporated into the process, unlike its electric counterpart, which suffers upstream losses from the grid’s transmission and central station losses – 60% or greater. The net effect is that our heat pumps have efficiency far surpassing conventional boilers or electric heat pumps by that amount and more, in the case of a conventional heater. This improved efficiency translates directly to lower fuel consumption and for heavy use applications, significantly reduces operating costs.

Our products also address the worldwide objective of reducing greenhouse gas emissions. Natural gas outputs the lowest carbon dioxide emissions (CO_2 or carbon) per unit of energy of all the primary fossil fueling sources for power generation. According to the EPA website[9], a comparison of the CO_2 emissions for each fuel is as follows:

Natural Gas: 117.7 lbs CO_2/MMBtu (117.7million British Thermal Units)
Distillate Oil: 160.9 lbs CO_2/MMBtu
Coal: 206.7 lbs CO_2/MMBtu

In addition to using the lowest carbon content fuel, our products reduce CO_2 emissions further because of their improved efficiency. Figure 2 provides a comparison of the relative CO_2 output of our products compared to the national electric power grid (inclusive of all forms of power including wind, hydro, nuclear, natural gas and coal) and other energy sources. Our products are far superior to the grid and any other fossil fuel options available, including fuel cells and microturbines. Furthermore, using the carbon calculator on the EPA website, one Tecogen 100 kW CHP unit will reduce carbon emissions by 390 tons per year, or the equivalent of 64 cars (based on 8,000 run hours), compared to a microturbine of the same size that will reduce carbon emissions by 245 tons per year, or the equivalent of 41 cars, nearly 40% less than our CHP products. Our Ilios Heat Pump also offers CO_2 savings in proportion to its fuel savings of 60% or more.

[8] The Economics of Cogeneration, William Ryan, Ph.D., P.E., ASHRAE Journal, October 2002, American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

[9] http://www.epa.gov/chp/basic/calculator.html. This website address and any other website addresses included in this registration statement are included as textual references only and the information in such websites is not incorporated by reference into this registration statement.

Figure 2 – Comparison of Carbon Emissions (GHG) for Various Sources Including

Tecogen's CHP and Chiller Products

(1) Average U.S. Powerplant CO_2 emission rate of 1,293 (lb/MWh) from USEPA eGrid 2010

(2) Coal Combined Cycle emissions based upon 50% efficiency (assumed to be the same as NG - see reference below)and coal CO2 emission rate from EPA website

(3) "Best in Class" NG combined cycle plant emissions based upon 50% efficiency (Northwest Power Planning Council "Natural Gas Combined-cycle Gas Turbine Power Plants), August 2002

(4) Fuel Cell and Microturbine emissions based upon calculations from efficiency data listed in the California Energy Commission, PIER Program, Combined Heat and Power Market Assessment, 2010 by ICF International

In addition to reductions in greenhouse gases, our products can benefit local air quality with regard to pollutant emissions. With the assistance of sponsored research funding from the California Energy Commission and the Southern California Gas Company, in 2010 we developed an advanced technology for controlling engine emissions. This patented Ultra low-emissions technology keeps our CHP systems compliant with air quality regulations over the long term. After a successful field test for more than a year, we shipped the first commercial Ultra low-emissions technology equipped units to the Sacramento Municipal Utility District in California in mid-2011.

With the new emission control technology, our products improve local air quality relative to either the conventional process (water heater with grid supplied power) or even the water heater alone. Figure 3 presents the annual emissions (lbs/year) from an Ultra CHP (labeled D), operating at 100 kW and producing 670,000 Btu/hr of heat for 6000 hours per year. Also shown are the annual emissions produced by a power plant (labeled A) and a gas boiler (labeled B) for the same energy production. As shown, the Ultra emissions (D) are significantly less than the combination of the power plant and boiler (A + B).

Figure 3 also compares the Ultra emission control technology to the Best Available Control Technology[10] (BACT) for natural gas engines as currently defined by the EPA. This illustrates the degree of improvement of the emissions output with the Ultra system. The BACT emission levels (labeled C) are indicative of the negative perception engines have historically had with respect to air quality. Engines have been actually more detrimental to the local environment when it is considered that a power plant is typically remotely sited, rendering it inconsequential to the local pollutant levels. This just leaves the gas boiler (B) affecting local air quality which is much more favorable than engine BACT (C). The Ultra technology can now transform the engine's reputation to a clean source of energy generation.

[10] Best available control technology (BACT) is a pollution control standard mandated by the United States Clean Air Act. See section under Government Regulations for detailed discussion.

Figure 3 –Emissions Levels of Criteria Pollutants from Various Sources Compared to

Tecogen's Ultra Low-Emissions Technology

(1) Based upon an output of 100 kW and 670,000 Btu/hr of heat.

(2) Average U.S. powerplant NOx emission rate of 1.7717 lb/MWh from (USEPA eGrid 2010)

(3) Gas boiler efficiency of 75% with emissions of 20 ppm @ 3% O2 (California Regulation SCAQMD Rule 1146.2)

Lastly, since the U.S. supply of natural gas has grown dramatically in the past few years, our natural gas engine-driven CHP systems contribute to energy security. They also help relieve grid congestion by minimizing peak demand on the utility system and by supplying electricity at customer sites, so utilities need not transmit the additional power.

Our Products and Services

Products

We manufacture natural gas engine-driven cogeneration systems and chillers, all of which are CHP systems that deliver more than one form of energy. We have simplified CHP technology for inexperienced customers. Our cogeneration products are all standard, modular units that come pre-packaged from the factory. They include everything the customer needs to minimize the cost and complexity of installing the equipment at their site. The package incorporates the engine, generator, heat-recovery equipment, system controls, electrical switchgear, emission controls, and modem for remote monitoring and data logging.

All of our cogeneration systems and most of our chillers use the same engine, the TecoDrive 7400 model supplied by the GM and modified by us to use natural gas fuel. The small 25 ton chiller uses a similar GM engine, the 3000 model. We have worked closely with GM and the gas industry (including The Gas Research Institute) in the 1980's and 1990's in funded research programs to develop the modifications to the engine and validate its durability. For the Ilios Heat Pump, we have introduced a more modern Ford engine that is enhanced for industrial gas applications.

Our commercial product line includes:

InVerde®

Our premier cogeneration product is the InVerde system, a 100 kW inverter-based CHP system that not only provides electricity and hot water for conventional cogeneration, but also satisfies the growing customer demand for "black-start" capability (operation during utility outage) as a result of its inverter-based (power electronics) technology. An inverter is an electrical device that converts direct current, or DC, to alternating current, or AC. The converted AC can be at any required voltage and frequency with the use of appropriate transformers, switching, and control circuits. Power electronics convert a variable-frequency permanent magnet generator's output to high-quality, 60-Hertz power (see Figure 4). This technology was developed for the renewable power generation industry (solar, wind), with the InVerde being the first commercial engine-based CHP system to use an inverter. It is considered a safe technology by electrical utilities, specifically with certification to the Underwriters Laboratory[11] Standard 1741 interconnection standard, a status the InVerde has acquired. This qualifies the product for a much simpler permitting process and is a mandatory requirement in some regions of the country (such as New York City and California). 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 also operate as a standalone microgrid, equipped with licensed software that will allow a cluster of units to effortlessly and seamlessly align themselves to share the load (both real and reactive power) without complex controls. The InVerde CHP system was developed in 2007 and begun shipping in 2008. Our largest fleet installation for this product is twelve units for 1.2 MW of onsite power generation, 8.5 MMBtu/hr of heat (700,000 Btu/hr per unit).

Figure 4 - Diagram of InVerde CHP System

TECOGEN®

The TECOGEN® cogeneration system is the original model introduced back in the 1980's, which is available in sizes of 60 kW and 75 kW, with up to 500,000 Btu/hr of hot water. This technology is based upon conventional induction generators[12], so it is meant only for grid-connected operation and does not have universal interconnection acceptance as compared to the InVerde. While this product has the longest legacy and population, its production has been offset with the introduction of the InVerde.

[11] Underwriters Laboratory is a global independent safety science company offering expertise across five key strategic businesses: product safety, environment, life and health, knowledge services and verification services.

[12] An induction generator or asynchronous generator is a type of AC electrical generator that uses the principles of induction motors to produce power. Induction generators operate by mechanically turning their rotor in generator mode, giving negative slip. In most cases, a regular AC asynchronous motor is used as a generator, without any internal modifications.

TECOCHILL® Chillers

Our TECOCHILL® natural gas engine-driven chiller products are available in capacities ranging from 25 to 400 tons, with the smaller units air-cooled and the larger ones water-cooled. This technology was developed in 1987. The engine's mechanical energy is used to drive a compressor that makes chilled water, while the engine's free waste heat can be recovered to satisfy simultaneous building heating needs. This is sometimes referred to as "mechanical" cogeneration.

A gas chiller reduces most of the electrical demand (kW) associated with providing cooling for a building, thus reducing on-peak electrical demand (kW) and energy (kWh) charges, especially in the summer when electricity rates are at their highest, but when natural gas is "off-peak" and quite affordable. This also frees up electric capacity to use for other building loads.

Ilios High Efficiency Water Heater (Heat Pump)

The Ilios high efficiency water heater utilizes a heat pump cycle that takes the naturally occurring energy from the environment (low temperature) and with mechanical work of a compressor, pumps this heat to higher temperature using a standard vapor compression refrigeration cycle. Heat exchangers are used to extract energy from the cold source and deliver it to the warmed media. While heat pumps can be configured many different ways, in the case of Ilios, the cold source is the outdoor environment and the warmed media is the building's hot water. In a conventional heat pump, the compressor is driven by an electric motor. But with Ilios, a natural gas fired engine provides the shaft power. As a result, the refrigeration cycle heat is supplemented with the engine waste heat for added efficiency. The modular product, with an output of 500,000-700,000 Btu/hr, is designed to serve several common applications (potable water, space heating, pools, etc.). The first Ilios Heat Pump was sold at the end of 2011 and is currently operating at a site.

Ultra Low-Emissions Technology

All of our CHP products are now available with the Ultra low-emissions technology. This breakthrough technology was developed in 2010 as part of a funded research effort sponsored by the California Energy Commission and Southern California Gas Company. The objective of the research and development was to bring our emissions control systems in compliance with the California Air Resources Board, or CARB, emission regulations, the most stringent standard in the United States. We were able to exceed the regulation limits with a system that is cost-effective, robust, and reliable. Given the proprietary nature of this work, we filed for a patent in 2010.

In an effort to properly vet this technology, we identified and fulfilled three validation efforts. The first was to obtain third-party laboratory verification. AVL California Technology Center, a long-standing research and technology partner with the international automotive industry, confirmed our results in their state-or the art dynamometer test cell, which was outfitted with sophisticated emissions measurement equipment. The second validation effort was to verify the longevity and reliability in the field. We did so by equipping one of our TECOGEN 75 kW units, already operating at a customer location in Southern California, with the Ultra low-emissions technology and a continuous emissions monitoring device. To date, it has successfully operated over 13,000 hours (1 ½ years) and has consistently maintained CARB compliance. Lastly, we had two separate source test companies, licensed in California to perform emissions tests conforming to local regulations, each verify the results at different times during this ongoing field test. In fact, the results from the latter of these tests obtained in August 2011 were submitted to the State of New Jersey in an application to obtain air permit exemption. This certification was granted in November 2011. Since then we have sold Ultra systems to various customers.

Reliability

Our product lines have had 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 (among other information) their availability, which is a percentage of the amount of time a unit is able to operate in a time period. Figure 5 shows the cumulative data for a monitored fleet of 365 units. It illustrates that >80% of the units operate at > 90% availability, with the average being 93.5%. By comparison, the average availability for fossil fueled power plants in the United States is 87.5% (NERC average, 2006-2010, <100 MW)[13], validating that our CHP reliability surpasses typical power plants.

Figure 5 - Tecogen Product Reliability

Product Service

We provide long-term maintenance contracts, ongoing parts sales, and turnkey installation through a network of eight well-established field service centers in California, the Midwest, and the Northeast. These centers are staffed by full-time Tecogen technicians, working from local leased facilities. The facilities provide office space and warehouse space for parts inventory.

Our service managers, supervisors and technicians work exclusively 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 manufacturing facility in Waltham, Massachusetts.

R&D Capabilities

Our research and development tradition and ongoing research have allowed us to cultivate deep engineering expertise and maintain continuity over several decades. We have sustained a strong core technical knowledge that is critical to ongoing product support and enhancements. Our TecoDrive engine, cogeneration and chiller products, InVerde, and most recently the InVerde Ultra and Ilios Heat Pump, were all created and optimized with the support of both public and private funding sources.

At this time, we have two funded research and development contracts. The first is a $1 million program with the California Energy Commission, awarded in 2009, to develop a small CHP engine (<50 HP) that utilizes advanced automotive technology for a nearly 20% fuel efficiency gain over our current TecoDrive technology. Once an endurance test is completed later this year, we expect to introduce this engine into the Ilios Heat Pump. The second contract is a Department of Energy contract through the Lawrence Berkeley National Laboratory for microgrid development work related to the InVerde that was awarded in 2012.

[13] North American Electric Reliability Corporation, “Generating Availability Report”, All Fossil Fuel Type plants, AF (Availability Factor), 2006 -2010 average, < 100 MW. http://www.nerc.com/page.php?cid=4|43|47. This website address and any other website addresses included in this registration statement are included as textual references only and the information in such websites is not incorporated by reference into this registration statement.

Distribution methods

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, including three affiliated companies, for certain territories and product lines. For example, we have sales representatives for the chiller market in the New York City/New Jersey territory; however, we do not have a sales representative for our cogeneration products in this territory. Sales sold through our in-house sales team or for those sales that are not covered by a sales representative's territory, are sold without commission or with a fractional commission amount.

American DG Energy has sales representation rights to our products and services. In New England, American DG Energy has exclusive sales representation rights to our cogeneration products not including chillers. When Tecogen sells its cogeneration products in New England, Tecogen pays a commission to American DG Energy. American DG Energy has granted us sales representation rights to its On-Site Utility energy service in California; however, as of the date of this registration statement, this agreement has not materialized into any significant revenues. American DG Energy also has exclusive rights to our Ultra low-emissions technology if it is applied to engines from other CHP manufacturers used for their specific energy projects. In other words, American DG Energy could purchase CHP products from suppliers other than us and license that supplier to incorporate our Ultra low-emissions technology as long as the CHP system is owned and operated American DG Energy.

Summary of advantages of our products

- Our CHP products provide an efficient onsite solution to power generation as the market seeks cost savings and clean alternatives to centralized grid power.

- Our CHP products are all standard, modular units that come pre-packaged from the factory to simplify installation and grid connection. The systems are supported in the field by a nationwide network of experienced professional staff. Standardized CHP units offer many compelling advantages, including lower cost, better quality control, higher reliability, easier service, integrated emission controls, and complete system warranty and maintenance support, than custom CHP systems.

- Our recent technology development of the Ultra low-emissions technology now eliminates the air quality concerns typically associated with engines. Our units comply with the most rigorous air quality regulations and may give us a significant advantage in California markets.

- Our cogeneration systems and chillers use standard, well-proven equipment made by reputable, well-established manufacturers. These components include rugged automotive-type engines, certified

inverters, induction generators, permanent-magnet generators[14], and conventional compressors. Certain key components are proprietary and have patent protection. Most notably, all software used in control is either proprietary (and copyright protected) or is used under exclusive license agreement. Our permanent magnet generator was developed exclusively for our InVerde as was the associated specialized inverter with these suppliers holding certain related patent protection.

[14] A permanent magnet synchronous generator is a generator where the excitation field is provided by a permanent magnet instead of a coil. Synchronous generators are the majority source of commercial electrical energy. They are commonly used to convert the mechanical power output of steam turbines, gas turbines, reciprocating engines, hydro turbines and wind turbines into electrical power for the grid. They are known as synchronous generators because the speed of the rotor must always match the supply frequency. In a permanent magnet generator, the magnetic field of the rotor is produced by permanent magnets. Other types of generator use electromagnets to produce a magnetic field in a rotor winding. The direct current in the rotor field winding is fed through a slip-ring assembly or provided by a brushless exciter on the same shaft.

- All of our CHP products, both cogeneration systems and chillers, can be designed for installation of multiple units at a single site, depending on the customer's particular needs. This enhances the ability of our products to meet the building's varying demand for electricity, heat, and/or air-conditioning throughout the day and from season to season. Also, multiple units operate more efficiently throughout the range of a customer's high and low energy requirements.

- Our InVerde products are opening new market opportunities and expanding our reach to customers beyond our traditional market segments. The InVerde's black-start feature addresses a crucial demand from customers concerned about utility blackouts and brownouts, natural disasters, security threats, and antiquated grid infrastructure. The InVerde also provides premium-quality power (in terms of wave form, voltage, and power factor), which is required by operators of computer server farms and precision instrumentation, for example. The InVerde product line also overcomes barriers related to grid interconnection, since the product is UL-certified as utility-safe (see our discussion on government regulations). Our standard cogeneration product lines are also designed to facilitate interconnection. Our extensive use of standardized components lets us manufacture CHP products at competitive prices, even at relatively low production volumes. Proven, well-understood hardware also increases the reliability and durability of the equipment and reduces the cost of servicing in the field. We are also able to minimize spare parts inventories and simplify training requirements.

- The Ilios Heat Pump utilizes a reverse refrigeration cycle powered by a natural gas engine to greatly improve heating efficiency relative to conventional "burner-based" systems. The heat pump cycle allows the system to reclaimed free heat from the local environment and add that energy to that which is contained in the fuel. The additive effect approximately doubles the efficiency relative to the conventional heating product. The system targets a large international market that is characterized by heavy, year-round use. This will increase fuel savings and maximize return on investment for the customer. These applications are also mostly centralized systems, rather than distributed, which allows easier integration of the new product into the facility. Also, the product competes only against other gas-fueled water heaters, which could expand our market beyond areas with high electric rates, and regulatory issues should be minimal.

Market Potential

Market Potential – CHP Today and 20 Year Outlook

In the late 1970's, energy policy was at the forefront of public discourse in the United States and elsewhere. CHP or cogeneration, the common term at that time, was recognized as an essential policy initiative that would alleviate fossil fuel consumption, reduce pollution, and alleviate grid congestion. The motivations of policy makers of that era largely parallel those of their contemporaries with the important exception of carbon mitigation, which had not yet been recognized as a potential problem. The essential regulation required to trigger the market was Public Utility Regulatory Policies Act (PURPA) passed in 1978 that required utilities to accept approved interconnected power sources and afford them fair treatment, including power purchase tariffs. Qualified technologies included the familiar renewable devices (wind and solar photovoltaic PV collectors) and fossil-fueled generation technologies so long as the overall efficiency – electricity and waste heat recovered – exceeded a minimum value.

In the ensuing decades, CHP has been applied to an increasing extent throughout the world as a means to provide the aforementioned societal benefits and more directly to reduce energy costs for consumers. Based on the IEA report, CHP generates about 10% of global electricity with the most heavily invested countries being Denmark (52%), Finland (38%), and followed by the Netherlands, Latvia, and Russia (all about 30%). The United States is below the world average with about 8% of CHP generated power.

Figure 6 - Major Economies CHP Potential under an Accelerated CHP Potential, 2015, 2030

The IEA report also provides estimates of market potential for CHP worldwide for the major economies (the "G13") as shown in Figure 6. With best-practice CHP policies in place, IEA states that most of these countries have the potential to double or triple their existing CHP power output. Converted to actual power values, rather than percentages of national generation, the potential impact would be extensive – collectively increasing CHP output from 10% of all generation to 24%, while also meeting 40% of the EU-25 and US Kyoto reduction targets for carbon[15].

For the United States, the domestic potential for CHP could increase from an 8% to 18% share of total electricity generation between 2005 and 2030, or approximately 7% based on our estimates, between 2011 and 2030. The United States Department of Energy projected 2012 demand for US domestic power is about 4,000,000 GWh (Gigawatt-hours), which corresponds to an average electric demand of around 500 GW (Gigawatts)[16]. Therefore, using the IEA estimated 7% growth through 2030 and assuming a flat total power demand, 280,000 GWh or 35 GW of new CHP is projected in the US that will cover a broad spectrum of sizes and commercial/industrial market sectors.

[15] International Energy Agency, Cogeneration and District Energy – Sustainable energy technologies for today and tomorrow, 2009, page 17. http://www.iea.org/files/CHPbrochure09.pdf. This website address and any other website addresses included in this registration statement are included as textual references only and the information in such websites is not incorporated by reference into this registration statement

[16] U.S. Energy Information Administration, AEO2012 Early Release Overview, Table 8 Electricity Supply, Disposition, Prices, and Emissions (see cell X27 in Excel Workbook). http://205.254.135.24/forecasts/aeo/er/tables_ref.cfm. This website address and any other website addresses included in this registration statement are included as textual references only and the information in such websites is not incorporated by reference into this registration statement.

According to a recent report by ICF International, Inc., for California[17], the projected penetration of new CHP by 2029 is 6.0 GW. This amounts to about 17% of the IEA estimate (6.0/35 GW), a reasonable estimate given California's population (12% of U.S. population), high electricity prices, and progressive energy policies. The portion of the California market projection that relates to our products (50 – 500 kW size applications) is 684 MW (0.68 GW). Extrapolating this to the whole United States we estimate the market addressable by our product line is 4 GW. Should we only capture an estimated 10% of this market over the next twenty years, it may represent the sales equivalent of approximately 4,000 InVerde units, or approximately $450 million in revenue.

According to the ICF International report, the largest market sectors suitable for our products include hotels, multi-family, nursing homes, hospitals, schools, colleges, food, and government. This closely matches our actual sales data (see Figure 7), covering approximately 1,000 sites and several decades of sales through 2009.

Figure 7 - Tecogen Customer Distribution CHP and Engine-Driven Chiller Systems

CHP's Long-term Outlook

The data collected for the ICF International report is illustrative of the relatively low market penetration of CHP in the smaller system sizes. The very large CHP market of greater than 20 MW has been thoroughly exploited with only 38% growth potential in the next two decades (see Figure 8). The opportunity increases as system size decreases, with the market size of less than 1 MW, having the potential to grow almost 6-fold. The missed opportunity is striking and likely even more disproportionate nationally as most areas of the country, except the Northeast, are essentially without measurable small CHP populations.

Figure 8 – CHP Market Penetration by Size in California

System Size (MW)	< 1	1-4.9	5-19.9	> 20
Current Inventory (MW)	200	350	750	7,900
Potential Through 2029 (MW)	1,138	1,279	764	3,015
Relative Growth Potential (%)	569 %	365 %	102 %	38 %

The unfulfilled promise of small CHP is rooted in unfavorable public policy that is increasingly burdensome in smaller projects. This subject is well covered in many industry forums, including the ICF International report and the IEA report, where favorable public policy is their central theme. From the IEA report, which closely examines the international successes from a policy prospective, is the following policy summary:[18]

[17] Combined Heat and Power Market Assessment of the California Energy Commission, PIER Program, April 2010, page 17, Figure ES-3. http://www.energy.ca.gov/publications/displayOneReport.php?pubNum=CEC-200-2012-002. This website address and any other website addresses included in this registration statement are included as textual references only and the information in such websites is not incorporated by reference into this registration statement.

[18] International Energy Agency, Cogeneration and District Energy – Sustainable energy technologies for today and tomorrow, 2009, page 19. http://www.iea.org/files/CHPbrochure09.pdf. This website address and any other website addresses included in this registration statement are included as textual references only and the information in such websites is not incorporated by reference into this registration statement

Well-chosen policy can overcome barriers to CHP – The evidence from many of the countries highlighted in the previous section is clear: CHP does not need substantial financial incentives to make it happen. Rather, it requires the effective use of often modest targeted policies to systematically address barriers and allow for full realization of the potential for CHP and district heating systems. Common barriers include:

- *Economic and market issues, relating to the difficulty in securing fair value prices for CHP electricity that is exported to the grid.*
- *Regulatory issues, relating to non-transparent, inconsistent interconnection procedures and backup charges.*
- *Social/political issues, particularly in relation to a lack of knowledge in society about CHP benefits and savings.*
- *Difficulties in integrating the GHG emissions benefits into emissions trading or other regulations, due to CHP/DHC's [District Heating and Cooling] status as combined technologies that include heat and power.*

The impact of regulatory issues on CHP is a direct result of two key requirements: (a) utility interconnection is essential for system operation, and (b) air pollution compliance must be unassailable in the dense urban settings that are typical for CHP opportunities. Utilities, being a natural competitor to CHP, have had considerable influence on tariff policy that has directly or indirectly biased electricity rates to undermine customer savings. Equally damaging, utility interconnection technical requirements – the devices needed to meet utility safety requirements – have historically been imposed in an inconsistent and unnecessarily burdensome fashion. Regarding air quality and the negative perception of engines, this concern has resonated well in the public dialog; utilities and proponents of renewable technologies, especially solar PV, have effectively marginalized CHP in policy making forums, such as the recent three-year debate to restore the California Self Generation Incentive Program, or SGIP. The SGIP program eliminated all fossil fueled CHP devices, except fuel cells, because of their low pollution footprint in 2007. Engines have been allowed in return 2012, but only if able to meet emissions levels well below their current capability.

The negative perception of CHP because of air pollution concerns relative to "criteria pollutants" (those components that cause smog and impact health directly) are not without basis. Figure 3 shows a comparison of the annual pollution from a hypothetical CHP system meeting current engines standards BACT, against the alternative, the same quantity of power and heat delivered from the utility and an onsite boiler. The emissions levels from the CHP system are problematic and have provided strong argument for CHP opponents, especially utilities, to undermine policy favorable to CHP; however, our new Ultra low-emissions technology is a significantly better system that refutes all current arguments.

Tecogen's Strategy for Growth

Target markets and new customers

The traditional markets for CHP systems are buildings with long hours of operation and with coincident 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 overlap with those for our cogeneration systems. Chiller applications include schools, hospitals and nursing homes, office and apartment buildings, hotels, retailers, ice rinks, and industrial facilities. Engine-driven chillers are ideal replacements for aging electric chillers, since they both take up about the same amount of floor space.

We believe that the largest number of potential new customers in the U.S. require less than 1,000 kW of electric power and less than 1,200 tons of cooling capacity. We are targeting such customers in U.S. states with high electricity rates in the commercial sector, including California, Connecticut, Massachusetts, New Hampshire, New Jersey, and New York.

In the coming years, we believe that increasingly favorable government policy and economic conditions will improve our prospects domestically and abroad. Specifically, we believe that natural gas prices may increase from their current depressed values, but only modestly, while electric rates, may have significant, long-term upward pressure due to capital equipment expenditures for better emissions controls, higher efficiency, and increased sourcing of power from renewable sources. The capital expenditures for the electric power industry, especially due to mandated efficiency and carbon reductions, to reduce toxic emissions of coal plants, have no analog in the natural gas industry. Moreover, the natural gas industry has made great strides in sourcing, or fracking, and will be favored politically as a domestic fuel with reduced carbon emissions. The net result will be improved CHP customer savings and annual rate of returns.

Relative to government interaction, we believe that policy, both domestically and abroad, may evolve to align itself in our favor for the reasons expressed in the IEA report. CHP will help policy developers achieve their goals of a moderate, cost effective methodology to conserve precious natural resources, reduce carbon and toxic emissions, and other negative aspects associated maintaining the centralized utility system we have today. Over time, we believe other distributed generation technologies, such as those derived from renewable sources (wind, solar, photovoltaic) will have practical limitations that reduce their promise in the foreseeable future as major energy contributors. Likewise, nuclear energy may not revive to the extent that was considered reasonable likely a few years ago because of the recent incidents in Japan.

Key Tecogen Advantages

As more favorable conditions develop, the increased opportunity will be accompanied by increased competition. In addition to our overall experience and low-cost approach, we believe that our products have technological advantages that are significant, difficult to duplicate because of our intellectual property and features that will help us maintain a long-term competitive position. These are:

- *Clean Emissions Levels*. Engines, even natural gas ones, are more polluting relative to “criteria pollutants” (those directly affecting health and creating smog) than the conventional alternative of a boiler and utility supplied electricity from a modern power plant. Alternative technologies, fuel cells and microturbines, exist in large part to exploit this shortcoming, while regulators – influenced by the compelling arguments of CHP opponents relative to emissions concerns – have successfully created a highly negative regulatory environment against CHP. We believe our newly developed Ultra low-emissions technology will upend this situation; so equipped, our emissions can be effectively reduced to fuel cell levels, while retaining the inherent advantages of our technology – low cost, high efficiency, and practical service (see Figure 8). This feature will allow us to reverse negative perceptions about stationary engines and reverse decades of unfavorable CHP policy.

- *Utility Interconnectability.* The ability to interconnect with a utility, attainment of this permit has been a significant impediment to all CHP and distributed generation in general. Large systems are more able to cope with these costs (see Table 1). Interconnection is greatly eased if the system has certification status through a process developed and implemented in many states. The certified process for fast-track interconnection was designed for inverter-based

technologies (primarily solar photovoltaic) which are viewed very favorably with the public and regulators. Our inverter-based “InVerde” CHP system meets the requirements for the fast-track process providing us with a significant competitive advantage.

- *Increased Demand for Microgrids*. The ability to operate in an outage will be increasingly sought in CHP systems. Our InVerde system has a unique capability to operate both interconnected to the grid and isolated during an outage and transition between the two seamlessly (the Department of Energy definition of a microgrid). This is an attribute that is not shared by other distributed generation technologies.

Fuel cells and Microturbines are greatly impaired in islanded (grid independent) operation as they cannot respond to power swings inherent in that operating mode. Solar and wind powered systems have a similar issue as they are, of course, vulnerable to precarious environmental conditions. All these technologies require expensive battery systems to resolve these issues. Small engine systems with conventional generators are highly impractical in the dual role; the utilities have extremely onerous interconnection requirements for conventional alternators capable of islanded operation, while the power control problems are likewise significant, especially for systems of multiple units. Our InVerde is also the ideal “anchor” for hybrid microgrids – those utilizing other distributed generation sources such as photovoltaic – that need a stable source to act as the grid during islanded operation to provide stability as load swings occur.

Figure 9 Comparison of Tecogen Ultra Low-Emissions Technology to Other Technologies

1) Tecogen emissions based upon actual third party source test data

2) Microturbine and Fuel Cell NOx data from California Energy Commission, Combined Heat and Power Market Assessment 2010, by ICF International

(3) Limits represent CARB 2007 emission standard for Distributed Generation with a 60% (HHV) Overall Efficiency credit

We will seek customers, both domestic and international, that align utility tariff conditions and local/federal policy with our advantages. These would include regions that have strict emissions regulations or reward CHP systems that are especially non-polluting. As discussed under “Government Regulations”, examples would be southern California where clean emissions are mandated or New Jersey where clean emissions are a route to certification that simplifies permitting (our CHP products were so certified in 2011). Our microgrid capability and simplified interconnection will likewise be exploited wherever utilities are most tenacious to conventional generator interconnection but have conceded to Underwriters Laboratory Standard 1741 certified inverters for simplified interconnection (see discussion under Government Regulation). Examples would be Consolidated Edison, Inc. in New York and Pacific Gas and Electric Company in California where our certified approach has provided us with an interconnection advantage.

We plan to exploit the need for outage security in certain market segments – a new opportunity afforded by our InVerde product line. Our licensed microgrid technology will be focused at customers that value the ability to continue to maintain operation in substantial portions of their facility (or campus) for extended periods. These segments include military bases, hospitals, nursing homes, and hotels. A smaller premium power system under development could open new market segments such as municipal waste, supermarkets, small data centers, and biotechnology laboratories. For these customers, natural gas is often available indefinitely during outages, whereas onsite diesel supplies are generally used up in short order and difficult to replenish in difficult travel condition that often ensue. Our microgrid operation can be deliberately instigated to participate in utility encouraged grid curtailment programs to prevent brownouts. The low pollution feature of our systems would enable such operation without annual limitation as is often the case for highly polluting diesel standby generators, while the inverter interface is favored by safety conscious utility engineers.

The IEA estimates that world power from CHP, currently at 10%, would increase to 24% under best practices policy scenario. Our extrapolation to the U.S. market covered by our product range size (50-500 kW) is approximately $450M if we had a 10% market share. We hope to participate in a robust international market as well which we believe will be as large or larger. Our technical features, if they can be retained and the typical international trade difficulties overcome, would likely have similar advantages overseas.

Alliances

We continue to forge alliances with utilities, government agencies, universities, research facilities, and manufacturers. We have already succeeded in developing new technologies and products with the following companies, including:

- Sacramento Municipal Utility District (SMUD) – provided test sites
- Southern California Gas Company, a subsidiary of Sempra Energy – research and development contracts
- San Diego Gas & Electric Company, a subsidiary of Sempra Energy – research and development contracts
- California Energy Commission – research and development contracts
- Lawrence Berkeley National Laboratory – research and development contracts
- Consortium for Electric Reliability Technology Solutions – research and development contracts and test site
- The AVL California Technology Center – support role in performance of research and development contracts as well as internal research and development on our emission system
- General Motors Company – supplier of raw materials pursuant to a supplier agreement

We also have an exclusive licensing agreement for proprietary control software from the Wisconsin Alumni Research Foundation for the control software that enables our microgrid system. As discussed, the software allows our products to be integrated as a microgrid – a group of interconnected loads powered by a group of power sources (such as multiple InVerde units) that can be seamlessly isolated (and returned) from the main utility grid in the event of an outage. The licensed software allows us to implement a micro grid, powered by one or more InVerde systems with minimal control devices and associated complexity and costs.

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 vary by utility, but could include simplified interconnection, joint marketing, ownership options, peak demand mitigation agreements, and customer services. We are currently installing a microgrid with SMUD at its headquarters in Sacramento California, where the central plant will incorporate three InVerde systems equipped with our Ultra low-emissions technology. A portion of the expenses for this project are being reimbursed to SMUD through a grant from the California Energy Commission.

We also continue to leverage our resources with government and industry funding, which has yielded a number of successful developments. These include the Ultra low-emissions technology, which was sponsored by the California Energy Commission and Southern California Gas Company. Currently, we are testing the durability of a new engine technology that we developed with the California Energy Commission's support. If tests succeed, the engine could be applied in smaller CHP systems such as a 35-kW InVerde unit and in new, ultra-high-efficiency heating and air-conditioning products. For the years ended December 31, 2011 and 2010, we spent $223,745 and $763,990, respectively, in research and development activities all of which was reimbursed through grants from the California Energy Commission and Consortium for Electric Reliability Technology Solutions.

Competition

Our products fall into the broad market category of distributed generation which is made up of devices that produce electric power from a variety of sources for the purpose of mitigating the negative aspects of traditional central station power generation or inefficient process heating. Those that produce power from renewable sources – wind, solar, and bio-fuels – are not competitors to us. These devices do not alleviate the inefficient use of fossil fuels relative to onsite heating, while our CHP systems are required to be coupled to the facility's onsite heating processes![19]

Our products are CHP devices that operate on traditional gaseous fuels (natural gas and propane) and serve to improve the utilization of these fuels by generating power onsite and finding purposeful application of the engine's low-grade heat. Our electric power generating products (InVerde, CM-60, and CM-75) fit the classic CHP definition, while the TECOCHILL and Ilios Heat Pump are classified as "mechanical" CHP or MCHP. The MCHP characterization fits our TECOCHILL chillers and Ilios Heat Pump as the engine work is applied to a compressor in a vapor compression cycle, doing the work of an electric motor that would otherwise consume utility electricity derived largely from fossil-fueled power plants. The boost in efficiency of our MCHP products is obtained by the engine waste heat that is available for onsite heating.

CHP Market

The recent report by ICF International, Inc., for the California Energy Commission, provides a useful breakdown of their CHP market according to technology type. The Commission has accurate data, as most systems are tracked through various incentive programs or, in the case of large systems, involve significant public agency interaction (permitting, etc.). We believe their data is applicable to the domestic and international CHP market as a whole.

Figure 10: Technology Size Coverage[20]

The CHP market in California (see Figure 10) is served by four technologies of which we belong in the Reciprocating Engines group. A reciprocating engine, also often known as a piston engine, is a heat engine that uses one or more reciprocating pistons to convert pressure into a rotating motion. In the size range of 50-1,000 kW, our competition in cogeneration markets includes micro-turbines, fuel cells, and other systems based on conventional spark-ignited, piston-driven (reciprocating) engines powering electric generators. Reciprocating engines utilized in CHP applications benefit from the technological refinement and infrastructure created for their use in other, non-CHP applications (i.e. automobiles, trucks, etc.) operating on liquid fuels (diesel and gasoline). Because of their widespread use in

conventional power generation and transportation, reciprocating engines have an economic advantage over fuel cells and microturbines.

[19] Our products can utilize bio-fuels, but such fuels are often incompatible with engines (low octane, corrosive constituents, etc.), however, we are not planning to enter this market at this time.

[20] Combined Heat and Power Market Assessment of the California Energy Commission, PIER Program, April 2010, page 30, Table 9 (we have combined two engine categories for simplicity purposes). http://www.energy.ca.gov/publications/displayOneReport.php?pubNum=CEC-200-2012-002. This website address and any other website addresses included in this registration statement are included as textual references only and the information in such websites is not incorporated by reference into this registration statement.

Competing CHP products based on reciprocating engines fall into two classes: those based on diesel engine lines and those based on gasoline engines manufactured for automotive use. In smaller sized CHP products, such as our products, the automotive engine type is highly preferred as it requires only modest changes to operate with natural gas. Moreover, the engine supply is plentiful and relatively inexpensive due to established sales channels for various aftermarket applications (power-boating, racing, etc.). The diesel based engine supply is more restrictive; much larger and multiple sized engines are available, but these require substantial factory-based changes for the natural gas fueling. The low production volume results in high costs per unit output until the product size is substantially larger than our models. These engines are often turbocharged to improve their first cost per unit of output which also improves the electrical output per unit of fuel consumed by about 10%, but with negative service and application issues.

Companies manufacturing smaller product (250-500 kW) based on diesel engines purchased from the prominent engine manufacturers have not been successful. Recent examples are Bluepoint Energy (Deutz/Caterpillar) and Hess Microgen (Daewoo). We believe the factors that have caused these companies and others that preceded them to fail (high first cost, poor service infrastructure) will persist and no significant competitor will emerge from this business model. Diesel-based engines will remain prominent in the CHP market but in larger sizes, custom designed by the major engine manufacturers (typically by their dealers) such as Caterpillar Inc., Cummins Power Generation Inc., and the Waukesha subsidiary of General Electric Company. Since these providers focus on very large systems –1000 kW and greater – we do not consider their operations directly competitive to ours.

Engine-based competition exists with companies that duplicate our business model of coupling an automotive engine to an induction generator and adding similar auxiliary equipment for controls and heat recovery. Aegis Energy Services, Inc., Integrated Power Corporation, and Intelligen Power Systems (formerly Coast Intelligen, Inc.) are examples. However, these companies have thus far only produced product similar to our older, pre-1990 designed CM-75. At this time no competitor, has a product which competes with our inverter-based InVerde, offering a UL-certified utility grid interface, outage capability and variable speed operation. We anticipate that some competitor will attempt to market an inverter-based product with at least some of these features. There will, however, be serious challenges to duplicating the InVerde. Product development time and costs would be significant and our patents and licensing agreement for the microgrid will impede certain important features from inclusion. We expect that our patent application of the Ultra low-emissions technology will be approved and that no practical alternatives will emerge. If this is the case, we may retain a strong competitive advantage for all our products in markets with restrictive air emissions requirements, such as New Jersey, California, and Massachusetts.

We have some competition from newer technologies such as fuel cells and microturbines (see Figure 10). We do not consider fuel cells as direct competition as they are extremely expensive – unviable without large public subsidies – and do not have sufficient heat recovery capability; the heat is either unavailable or of such low quality (i.e., low temperature) for most heat recovery applications. Like wind turbines and solar photovoltaic systems, their application as an electric power source, utilizing in many cases bio-fuels, is not comparable to our CHP systems.

The field of microturbine-based CHP products, once under development by a number of companies (Capstone Turbine Corporation, Ingersoll-Rand PLC, and Elliott Turbomachinery, a division of the Elliott Group, Inc.), has narrowed in recent years. Ingersoll-Rand PLC has sold its microturbine group to FlexEnergy Inc., where their focus is non-CHP power generation. The Eliott Group has sold their 100 kW microturbine product line to Capstone Turbine Corporation. Of these companies, Capstone Turbine Corporation is the only manufacturer with a commercial presence in the CHP marketplace that we are aware of.

Figure 11 - Comparison of CHP Technologies to Tecogen's InVerde 100

	Microturbine* 65 kW		Microturbine* 250 kW		Fuel Cell* 50-500 kW		Generic* Engine 100 kW		Tecogen** INV-100 100 kW	
Installed Costs, $/kW	2,739		2,684		6,310		2,210			
Heat Rate, Btu/kWh	13,542		12,290		9,475		12,000		12,630	
Electric Efficiency, %	25.2	%	27.8	%	36.0	%	28.4	%	27.0	%
Thermal Output, Btu/kWh	6277		4800		2923		6100		6700	
Overall Efficiency, %	72	%	67	%	67	%	79	%	80.0	%
O&M Costs, $/kWh	0.022		0.015		0.038		0.02			
NO_x [ppm @ 15% O2)	3.41		3.10		1.15		3.39		0.617	
NO_x Emissions, lbs/MWh	0.17		0.14		0.04		0.15		0.029	
NO_x Emissions, lbs/MWh w/CHP Credit	0.06		0.06		n.a.		0.05		0.010	

** California Energy Commission, PIER Program, Combined Heat and Power Market Assessment, 2010 by ICF International*

***Tecogen emissions obtained from actual source test data by a third-party air quality testing company based in California*

In CHP applications, the microturbine performance is undermined by several additional technical factors. First, the natural gas must be delivered at high pressure that is not available in standard utility distribution systems. The onsite compressor used in boosting the pressure consumes considerable electrical power. Secondly, the emissions reduction is achieved by operating the combustion process with a large amount of extra air. This sharply reduces the available heat for onsite recovery, resulting in an overall efficiency shortcoming of 15-20% (see greenhouse gas analysis under "Tecogen Solution"). It is difficult to predict the long-term prospects of the micro-turbines in the CHP space. Cost improvement is certainly feasible, especially if their manufacturing base enlarges. On the other hand, improved heat recovery efficiency is not likely to improve as its root cause, lean combustion, is essential to their low NOx emissions. Overall however, the trend for microturbines appears to focus on power generation without heat recovery as a primary element, especially where the fuel is problematic for reciprocating engines (low octane bio-fuels, etc.).

The recent report by ICF International, Inc., for the California Energy Commission includes data relative to the market penetration of the various technologies through 2008[21]. As shown in Figure 12, the historical data from California is supportive of our conclusions regarding the largely modest impact of microturbines and fuel cells in the CHP space.

[21] Combined Heat and Power Market Assessment of the California Energy Commission, PIER Program, April 2010, page 28, Figure 7. http://www.energy.ca.gov/publications/displayOneReport.php?pubNum=CEC-200-2012-002. This website address and any other website addresses included in this registration statement are included as textual references only and the information in such websites is not incorporated by reference into this registration statement.

Figure 12 – Share of Installed CHP in California by Prime Mover

Engine Driven Chillers (TECOCHILL)

To our knowledge, our gas-engine chiller products no longer have any direct competitors. Some earlier competitors such as Alturdyne Power Systems and PowerChill, did not transition their products to the new, climate-friendly refrigerants required by the EPA. Several others that were also significant manufacturers of conventional electric systems, such as York, a division of Johnson Controls, Inc. and Climaveneta S.p.A, discontinued marketing efforts as gas prices reached peak levels several years ago. Natural gas powered chillers using absorption technology remain in the market, such as Thermax Ltd. and Broad Air Conditioning. With a higher first cost and operating cost than conventional systems, justification for the technology is weak without an extenuating circumstance (lack of onsite electrical power or extremely inexpensive fuel). Natural gas prices have fallen significantly in the United States and many international markets, improving the economics for gas cooling considerably. Our engine driven chiller process, with efficiency 2 to 2.5 that of an absorption chiller, based on our estimates, offers similar economic and societal benefit as CHP[22] without requiring interconnection with the local electric utility. As such, we would anticipate some direct competition to the TECOCHILL products to emerge, including gas-fired absorption type. Our particular advantages in maintaining our competitive edge would be our large investment in sales and service infrastructure, low emissions capability, and high efficiency.

Ilios Engine-Driven Heat Pump

The Ilios Heat Pump product will compete in both the high-efficiency water heating market and the CHP market. Customers would consider the heat pump to replace a retired heater, but we believe our product is closer in its application to a CHP system and would generally compete in that market. That is, the Ilios Heat Pump will be installed as an adjunct to the existing heating system, operating as many hours as possible; the conventional heater is left in place, as its capital cost is inconsequential to the total system operating cost, and it is needed during times of engine maintenance or if the peak heating load cannot be met by the Ilios Heat Pump[23].

[22] The American Recovery and Reinvestment Act of 2009 allows CHP credit for engine-driven generators and compressors so long as overall efficiency is sufficiently elevated with engine heat recovery. The latter applies to the TECOCHILL which, with its heat recovery applied, qualifies as CHP.

[23] Conventional gas heaters in heavy commercial use burn fuel annually many times their first cost.

45

As such, the application profile for the Ilios Heat Pump would be very similar to that of traditional CHP: heavy consumers of hot water –hospitals, hotels, multi-unit dwellings, and process heating (laundries, dairies, etc.). Like CHP, the main competitor will be conventional hot water systems and also conventional, electricity-producing CHP. In areas of low electric rates (such as the Midwest, South, and Southwest), where CHP has poor economic viability, the Ilios Heat Pump (whose payback only depends on natural gas rates) would be a financially attractive alternative. In areas of high electric rates (the Northeast and California) the conventional CHP option would likely be preferred. However, there will be significant exceptions in high electric rate regions where the Ilios option will have site-specific advantages. The most common would be those facilities where the electric interconnection to the utility is prohibited[24], or is too costly, or if the electric service is too small relative to heat load[25] such that full utilization of the system would cause electricity export, an unacceptable condition to most utilities.

At this time, a few manufacturers of gas-engine heat pumps exist, although the products are not directly comparable. The most prominent is Aisen Seiki Co., LTD, whose main business is automotive parts manufacturing. Their heat pump has been successful in Japan and has recently begun marketing in the United States through Nextaire in Nevada, however, their largest units is smaller than the Ilios Heat Pump. Another heat pump company is Robur S.p.A, which offers a system based on a natural gas fueled absorption cycle (no engine) which has a dual cooling/heating function. The system is also much smaller than the Ilios Heat Pump (about 1/5) and would only be a direct competitor if larger models were developed.

A few local cogeneration developers and contractors are emerging in an attempt to offer services similar to ours. To succeed as competitors, however, they would have to acquire comparable experience in the equipment and technology, installation contracting, maintenance and operation, economic evaluation of candidate sites, project financing, and energy sales, as well as the ability to cover broad regions. They may also have to overcome the prices of our products, which are competitive due to the use of standardized components throughout our product lines.

Certain Related Party Contracts

In January 2006, we entered into the 2006 Facilities, Support Services and Business Agreement with American DG Energy, an affiliate of the Company, to provide American DG Energy with certain office and business support services for a period of one year, renewable annually by mutual agreement. Under this agreement, we provide pricing based on a volume discount depending on the level of American DG Energy purchases of cogeneration and chiller products. For certain sites, American DG Energy hires us to service its chiller and cogeneration products. Under the current agreement, as amended, we also provide American DG Energy with office space and utilities at a monthly rate of $5,793.

American DG Energy has sales representation rights to our products and services. In New England, American DG Energy has exclusive sales representation rights to our cogeneration products not including chillers. When Tecogen sells its cogeneration products in New England, Tecogen pays a commission to American DG Energy. American DG

Energy has granted us sales representation rights to its On-Site Utility energy service in California; however, as of the date of this registration statement, this agreement has not materialized into any significant revenues. American DG Energy also has exclusive rights to our Ultra low-emissions technology if it is applied to engines from other CHP manufacturers used for their specific energy projects. In other words, American DG Energy could purchase CHP products from suppliers other than us and license that supplier to incorporate our Ultra low-emissions technology as long as the CHP system is owned and operated American DG Energy.

In October 2009, Ilios signed a five-year exclusive distribution agreement with American DG Energy. Under terms of the agreement, American DG Energy has exclusive rights to incorporate Ilios' ultra-high-efficiency water heater, in its energy systems throughout the European Union and New England. American DG Energy also has non-exclusive rights to distribute the Ilios Heat Pump in the remaining parts of the United States and the world using the On-Site Utility business model.

[24] Many large cities in the US (Boston, San Francisco, New York) utilize electric grids termed "area networks" that are highly susceptible to damage if power is exported from the facility. As such, these regions, which otherwise have excellent CHP potential, cannot be developed. The Ilios Heat Pump may be a viable option.

[25] Many CHP applications in multi-unit housing cannot be exploited because the electric service is split into many small meters for each unit. Since the CHP system must, by regulation, be interconnected on the customer side of a meter the installer faces an intractable problem as none of the small meters is nearly large enough to support a CHP unit. MCHP may effectively be applied as there is no electric interconnection.

The Company and its Affiliates

We have three affiliated companies: (a) American DG Energy, a publicly traded company that distributes, owns and operates on-site energy systems that produce electricity, hot water, heat and cooling in the United States, (b) EuroSite Power, a publicly registered company that distributes, owns and operates on-site energy systems that produce electricity, hot water, heat and cooling in the United Kingdom and Europe, and (c) GlenRose Instruments, a company that provides radiological services, operates a radiochemistry laboratory network and provides radiological characterization and analysis, hazardous, radioactive and mixed waste management, facility, environmental, safety, and industrial hygiene health management.

These three companies are affiliates because several of the major stockholders of those companies, have a significant ownership position in the Company. American DG Energy, EuroSite Power and GlenRose Instruments do not own any shares of the Company, and the Company does not own any shares of American DG Energy, EuroSite Power or GlenRose Instruments. The common stockholders include John N. Hatsopoulos, the Company's Chief Executive Officer who is the Chairman of GlenRose Instruments, the Chief Executive Officer of American DG Energy and a director of EuroSite Power. Also, Dr. George N. Hatsopoulos, who is John N. Hatsopoulos' brother, is a director of the Company, the Chairman of American DG Energy and an investor in GlenRose Instruments. The business of GlenRose Instruments is not related to the business of the Company, American DG Energy and their other corporate affiliates.

We currently own a 62.5% interest in Ilios. American DG Energy and EuroSite Power purchase the majority of their energy equipment from Tecogen. The primary types of equipment used are natural gas engine-driven cogeneration and air conditioning systems provided by us and ultra-high-efficiency heating products, including a high efficiency water heater from Ilios. Both Tecogen and American DG Energy distribute the Ilios products.

Intellectual Property

We currently hold several patents for its technologies, as well as a license agreement for the use of other technologies. We consider our patents and licenses to be important in the present operation of our business. We, however, do not consider any one of our patents or related group of patents to be of such importance that their expiration, termination, or invalidity would materially affect our business.

We have filed for a patent for our newly developed Ultra low-emissions technology. The outcome of the patent office application review is important because this technology will apply to all of our engine-driven gas products and may have licensing application to other natural gas engines. The intellectual property relating to the Ultra low-emissions technology will require patent protection so we can retain exclusive use of technology.

Government Regulation

We are subject to multiple types of government regulations that have significant influence on our current and future business. We have characterized these as follows: (a) product safety certification, (b) air pollution regulations relating to engine emissions, (c) state and federal incentives to encourage our technology, and (d) utility tariffs that influence the value of the displaced energy our systems provide, while also regulating the interconnection process. The regulations that relate to environmental considerations (air quality and greenhouse gas emissions) may become increasingly favorable to our technology, while those that relate to utility tariff structure and interconnection, that are burdensome today, may evolve to embrace CHP because of its efficiency benefits.

Product Safety Certifications

Our products are subject to various local building codes and inspection verification by local authorities. Our standard products are certified by a third party entity to conform to specific standards. These certifications require continuous verification by a certifying company that performs quarterly monitoring of our processes and design. Our InVerde product is also certified to the European standard CE mark, ("European Conformity") mandatory mark for products imported into the European Union for commercial sale.

Our cogeneration CHP products are also certified to a particular group of standards, specific to the distributed generation industry and utilized in the utility interconnection permitting process. These unique certifications were developed by various manufacturers, utilities, and government regulators in the distributed generation community to standardize the process involved in obtaining permission from the electric utility to jointly power a facility. In essence, manufacturers of standard products are allowed to submit a sample unit to be "type-tested" by a Nationally Recognized Testing Laboratory (NRTL) that proves its adherence to safety requirements and its design to be fail-safe. In doing so, this product is eligible for a fast-track interconnection, after passing simple site-specific screens. Under state-mandated regulations, such as California Rule 21 and Massachusetts Interconnection Tariff 09-03, most utilities are bound to accept the certified fast track process, which includes the certification.

Because of the important nature of simplified utility interconnection to CHP and to distributed generation, in general, our utility-interconnect certification, Underwriters Laboratory Standard 1741, is a significant competitive advantage and was a major driver for us in developing the inverter based CHP product. Moreover, the inverter design closely duplicates those for renewable technologies (solar, photovoltaic, wind, etc.) whose proponents are well-funded and aggressively protect the "type-testing" certification for inverter-based equipment. As such, the certification is unlikely to evolve in a way that would marginalize our product. No engine products have the Underwriters Laboratory Standard 1741 certification and we believe our market position is greatly enhanced by this status and their attainment a major cost barrier to competitors.

Air Pollution Regulations

Stationary natural gas engines and similar power-generating devices are subject to strict emissions regulations that are part of a complex hierarchy of regional, state, and federal regulations. The EPA establishes technology specific standards that are based on cost-benefit analysis for emissions controls strategies. These standards, termed "Best Available Control Technology" (BACT), are imposed in areas of non-attainment – regions of the country that fail to meet the federal clean air standards, although local regulators may lower these standards further.

Increasingly, regional standards in our key markets have become sufficiently strict that the technical limits of natural gas engines regarding pollution control are being approached or exceeded. In 2007, the CARB published a suggested standard for all distributed generation technologies, (CARB 2007), which a year later the Los Angeles area regulators, the South Coast Air Quality Management District (SCAQMD) used as basis for their regulation, Rule 1110.2. This reduced the allowed emissions for nitrous oxides, carbon monoxide, and hydrocarbons to unprecedented levels and a fraction of the former BACT regulation. We believe that no natural gas engine was permitted under the new rule.

Our development of the Ultra low-emissions technology was in response to the extremely strict limits imposed in Southern California, which we considered a bellwether for local regulations elsewhere. This year, the California's Self Generation Incentive Program (SGIP) has restored the state's lucrative ($500/kW or $50,000 for our InVerde) CHP rebate to engine technologies, but only if the SCAQMD/CARB NOx limit of approximately 3 parts per million can be

met. On the East Coast, important CHP territories are moving to sub-BACT limits. Effective in 2012, Massachusetts, Rhode Island, and Connecticut have amended their standard to require 3.6 parts per million NOx, with CO requirements on par with the “California” BACT (about 56 parts per million). New Jersey permit requirements are equal to California’s BACT, but allow the air permit process to be side-stepped if the distributed generation/CHP device is “emissions certified” through third party testing of a sample to an especially aggressive level (10 parts per million NOx and 10 parts per million CO). The recent certification of our Ultra low-emissions technology to the New Jersey “clean” requirement is an example. In New York, low emissions are encouraged through the state grant programs which exclude (or reduce) the grant unless low emissions are demonstrated[26].

We believe that its Ultra low-emissions technology will have significant advantages in markets where severe emissions limits are imposed or very clean combustion is encouraged through beneficial treatment (rebates, simplified permitting, etc.). We believe strict regulations will be the rule rather than the exception for CHP because these systems, by definition, are located in areas of high population/energy density, often coincidental with the strict air regulations. In these markets, CHP customers would have limited choices of more expensive devices such as fuel cell or microturbine-based CHP or more elaborate/expensive after treatment involving chemical injection (only applied in very large power generation). Our product would, therefore, be a lower cost, more efficient CHP alternative, with more or less equal emissions, a highly favorable combination features.

The imposition of seemingly unreasonable standards by the SCAQMD was not without warning nor arbitrary; rather, increased enforcement by field inspectors in the years prior to the adoption of Rule 1110.2 exposed severe shortcoming in the after treatment systems defined as BACT. Reacting to this troubling discovery, the District convened a series of public workshops with manufacturers and conducted follow-up tests to allow the industry to respond before taking action. At the conclusion of this process, it became clear in the view of regulators that true BACT compliance was largely unattainable on a continuous basis with current BACT technology; moreover, the existing compliance test protocol, a three-hour test every third year, had masked the true underperformance of the technology and its tendency for frequent, unobserved violations. As a result, the regulators, highly distrustful of the existing technology, included in the Rule the extraordinary requirement for weekly, self-administered “smog” tests.

We believe that the problems exposed by the SCAQMD may be widespread and the natural gas engine industry is highly vulnerable to more aggressive enforcement, even with the less strict BACT standard. The opportunity for Tecogen relative to emissions is significant; there may be prospects to license the Ultra low-emissions technology into the stationary natural gas industry particularly if stepped-up enforcement results from negative exposure provided by the SCAQMD workshops and their harsh outcome.

We anticipate that the successful permitting of the Ultra low-emissions system in California may result in an attempt by regulators to reset BACT levels to the CARB 2007 values. This process requires a successful permit as well as exhibited long-term compliance and cost-effectiveness of the new process. Under this scenario, the Rule 1110.2 standard could be adopted for natural gas engines as BACT with the Ultra low-emissions technology as its basis with application to other California regions where BACT is required (San Joaquin, Santa Barbara, Sacramento, Bay Area, and Ventura, etc.). This would be an obviously positive outcome for us both in regard to our products and licensing prospects into other markets. We expect to permit a CHP unit in the SCAQMD jurisdiction later in 2012 through a recent sale.

It is important to note that emissions regulations discussed above also impact our air-conditioning and Ilios Heat Pump products, although the effects are muted. TECOCHILL rebates are not common and none have been tied to a specific emissions level. The Ilios Heat Pump, being under 50 brake horsepower, is often exempt from regulations and its market, as discussed previously, may be in less regulated regions (i.e., low electric rates). Nevertheless, the Ultra low-emissions technology feature applied to these products will be a significant advantage.

[26] NYSERDA offers CHP grants through Public Opportunity Notices (PONS) that include low emissions requirements (see, for example, PON 2373 “Distributed Generation as Combined Heat and Power”). The Energy Cost Savings Program (ECSP) in New York City provides industrial users a 4.4 cent/kW-hr credit for CHP power generated above the actual avoided electrical charges from the utility if the system can meet a low NOx value of 7 parts per million NOx. See http://www.nyc.gov/html/sbs/nycbiz/downloads/pdf/summary/incentives/Guide_to_Incentives.pdf. This website address and any other website addresses included in this registration statement are included as textual references only and the information in such websites is not incorporated by reference into this registration statement.

State and Federal Incentives

Distributed Generation including CHP is incentivized in our current markets. As mentioned, the California SGIP will pay a significant portion of the CHP project cost, while incentives of similar value exist in New Jersey, New York, Connecticut, Maine, and Massachusetts, albeit with different structure and terms. Massachusetts has an additional CHP incentive in the form of an annual rebate proportional to the carbon savings relative to a conventional technology baseline. Our systems are eligible for the bonus depreciation included in the American Recovery and Reinvestment Act of 2009 (stimulus plan). Also, The Business Energy Investment Tax Credit (ITC) passed under the Troubled Asset Relief (TARP) bill in 2008 provides a 10% tax credit for CHP in our size range applied to the total project cost. The credit applies to the compressor drive system, like our TECOCHILL and Ilios Heat Pump, when heat recovery is applied to achieve a 60% minimum efficiency.

Utility Tariffs and Related Regulations

Another form of government incentive/disincentive relates to electric rates, rate structures, and tariffs. These laws are administered through state agencies, typically Public Utility Commissions, through formal proceedings involving the public, utilities, and various effected parties. Often, direct legislative mandate will be applied to specific issues. How these rules are structured and interpreted has significant impact on CHP viability in a given market. These rules have negatively affected the CHP industry, but may not significantly affect us since we have configured our product lines specifically to undermine their impact.

Anti-Efficiency Rate Structures. Many electric utilities structure commercial rates such that a significant portion of the customer invoice is in the form of fixed charges, such as meter fees, or portioned to peak demand charges, a much larger line-item charge for the maximum short-term (typically 15 minutes) usage at the site. Fixed charges, generally of small magnitude and not a significant concern, are not addressable by any distributed generation technology. Avoidance of peak demand charges, a major portion of the electric tariff in some markets, requires extremely high system operational efficiency, difficult to achieve in practice.

Our CHP products, being small and modular, are often applied in multiples which affords a significant measure of protection from peak demand charges being accrued at the full system rating. A system comprised of a single large machine would have a fairly high probability of a brief downtime during the monthly billing period and thereby risk setting a demand charge large enough to eliminate a large portion of the savings. A modular, multi-unit system is less likely to do so as this would require all the units in the group to fail simultaneously.

Our engine-driven chiller product, Tecochill, is highly effective in eliminating both the electric energy used by the site for air-conditioning but also the accompanying peak demand charge. Its operation is confined only to the cooling

months, allowing maintenance to be scheduled off season while system seasonal outages during the cooling season do not immediately impact the electric service and can therefore be managed to minimize their impact.

Avoided Cost Penalties. In some regions, utilities have argued that distributed generation customers, by reducing their electric usage, have avoided paying their fair share of costs that are associated with grid infrastructure. To correct this perceived inequity, utilities have successfully petitioned to their commissions in some markets to access a "departing load charge" for the purpose of paying into a fund for items such as nuclear power plant decommissioning costs. Similarly, utilities have been allowed to add a surcharge known as a "standby" charge, justified as the cost of the utility being available for periods when the CHP system is down.

These types of charges are not present in most east coast markets, but standby and departing load charges are well established in California, although exempt for renewable technologies. Again, our chiller products effectively avoid these charges as they are not subject to electric utility charges.

Technology-Specific Interconnection Requirements. While interconnection issues are typically safety related and expected to be product neutral, technology bias is common and negative to CHP. In many states, tariffs allow solar photovoltaic systems to "net" meter but prohibit the same benefit to CHP systems. Under net metering, excess electricity from onsite generation is allowed to flow back into the grid with full retail compensation. This eliminates important practical difficulties such as managing the power output of the distributed generation system to avoid uncompensated export and lost revenue from reduced output.

Another category of utility regulation that may have impact to our business is the Renewable Portfolio Standards, or RPS. Under this type of regulation, utilities are required to gradually increase their proportion of power generation from renewable sources (i.e. wind, solar, and bio-fuels). Currently there are 24 states plus the District of Columbia that have RPS policies in place, with RPS requirements ranging from 8% to 40%. Fourteen states include CHP as eligible technology. Together these states account for more than half of the electricity sales in the United States. RPS-type mechanisms have been adopted in several countries, including Britain, Italy, Poland, Sweden, Belgium, and Chile.

Overall, RPS would be expected as a positive policy for Tecogen and CHP. Program structures, if fair and balanced, would encourage less fossil use though financial incentives to improve efficiency. Electric power generated from renewable sources would increase overall electric rates and improve CHP investment returns. Since these programs are in their early stages their impact is yet to be determined.

A national "Cap and Trade" program is not anticipated in the foreseeable future, but worth noting, and of possible impact to Tecogen is the one moving aggressively forward in California legislated by Assembly Bill (AB) 32. The program details are still under active review and negotiation by various government and advocacy groups.

Employees

As of the date of this prospectus, we employed 56 active full-time employees and 4 part-time employees. We believe that our relationship with our employees is satisfactory. None of our employees are represented by a collective bargaining agreement; however, a few of our New Jersey and New York City service employees have been in contact with a labor union and we are currently negotiating with this labor union.

Properties

Our headquarters are located in Waltham, Massachusetts and consist of 24,000 square feet of office and storage space that are shared with American DG Energy and other tenants. The lease expires on March 31, 2014. We believe that our facilities are appropriate and adequate for our current needs.

Legal Proceedings

From time to time, we may become party to litigation or other legal proceedings that we consider to be a part of the ordinary course of our business. We are not currently involved in legal proceedings that could reasonably be expected to have a material adverse effect on our business, prospects, financial condition or results of operations. We may become involved in material legal proceedings in the future.

MARKET FOR COMMON EQUITY AND RELATED STOCKHOLDER MATTERS

No established public trading market exists for our Common Stock and the Company's Common Stock has never been quoted on any market or exchange. Except for this Offering, there is no Common Stock that is being, or has been proposed to be, publicly offered. As of the date of this prospectus, there were 54,243,882 shares of Common Stock issued and outstanding, held by 107 stockholders of record.

Market of and Dividends on the Registrant's Common Equity and Related Stockholder Matters.

Market Information

Our Common Stock is not currently traded on any stock exchange or electronic quotation system. We expect that our Common Stock will be traded on the OTC Bulletin Board, a national or international securities exchange following the effectiveness of this registration statement and compliance with the procedures of the OTC Bulletin Board, a national or international securities exchange.

Holders

As of the date of this prospectus, there were 107 holders of record of our Common Stock. See "Security Ownership of Certain Beneficial Owners and Management" for information on the holders of our Common Stock. Also see "Description of Securities" for a description of our outstanding and issued capital stock.

Rule 144

In general, pursuant to Rule 144, under the Securities Act, as currently in effect, once we have been subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act for 90 days, a person (or persons whose shares are aggregated) who is not deemed to have been an affiliate of ours at any time during the three months preceding a sale, and who has beneficially owned restricted securities within the meaning of Rule 144 for a least six months (including certain periods of consecutive ownership of preceding non-affiliated holders) would be entitled to sell those shares, subject only to the availability of current public information about us. Under Rule 144, a person who is not deemed to have been one of our affiliates at any time during the 3 months preceding a sale, and who has beneficially owned the shares proposed to be sold for at least one year is entitled to sell the shares without complying with the public

information, manner of sale, volume limitation or notice provisions of Rule 144.

In general, under Rule 144 as currently in effect, once we have been subject to the Exchange Act reporting requirements for 90 days, our affiliates or persons selling shares on behalf of our affiliates who own shares that were acquired from us or an affiliate of ours at least six months prior to the proposed sale are entitled to sell within any three-month period beginning 90 days after the date of this prospectus, a number of shares that does not exceed the greater of:

- 1% of the number of shares of our Common Stock then outstanding, which will equal approximately 542,438 shares of our Common Stock estimated as of the date of this prospectus; or

- The average weekly trading volume of our Common Stock during the four calendar weeks preceding the filing of a notice on Form 144 with respect to such sale, or if no such notice is required, the date of receipt of the order to execute the transaction by a broker or the execution of the transaction directly with a market maker.

Sales under Rule 144 by our affiliates or persons selling shares on behalf of our affiliates are also subject to certain manner of sale provisions and notice requirements and to the availability of current public information about us.

Outstanding Common Stock

Under the unlimited resale provisions of Rule 144, there are 15,635,046 shares of our Common Stock eligible for resale under Rule 144 without any additional holding period.

Stock Options

Rule 701 provides that the shares of Common Stock acquired upon the exercise of currently outstanding options or other rights granted under our equity plans may be resold by persons, other than affiliates, beginning 90 days after the date of the effectiveness of this registration statement, restricted only by the manner of sale provisions of Rule 144, and by affiliates in accordance with Rule 144 without compliance with its one-year minimum holding period.

As of December 31, 2011, we had 4,381,000 options outstanding under our Stock Plan at a weighted average exercise price of $0.48. As of such date, 1,673,750 of those options were exercisable.

We intend to file one or more registration statements on Form S-8 under the Securities Act following the effectiveness of this registration statement to register all shares of our Common Stock which have been issued or are issuable upon exercise of outstanding stock options or other rights granted under our Stock Plan. These registration statements are expected to become effective upon filing. Shares of Common Stock covered by these registration statements will thereupon be eligible for sale in the public market, subject in certain cases to vesting of such shares.

Dividends

To date, we have not declared or paid any dividends on our outstanding shares. 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.

SELECTED FINANCIAL DATA

The summary consolidated statements of operations data for each of the years ended December 31, 2011 and 2010 have been derived from our audited consolidated financial statements that are included elsewhere in this prospectus. You should read this information together with the consolidated financial statements and related notes and other information under "Management's Discussion and Analysis of Financial Condition and Results of Operations" included elsewhere in this prospectus. Operating results for the year ended December 31, 2011 are not necessarily indicative of the results that may be expected for the year ended December 31, 2012.

Consolidated Statement of Operations Data:	December 31, 2011	2010
Revenues	$11,065,210	$11,311,229
Cost of sales	6,179,098	6,597,205
Gross profit	4,886,112	4,714,024
Operating expenses		
General and administrative	5,986,762	4,973,794
Selling	782,252	290,505
	6,769,014	5,264,299
Loss from operations	(1,882,902)	(550,275)
Other income (expense)		
Interest and other income	38,402	23,574
Interest expense	(40,294)	(37,280)
	(1,892)	(13,706)
Loss before income taxes	(1,884,794)	(563,981)
Provision for state income taxes	-	-
Consolidated net loss	(1,884,794)	(563,981)
Less: Loss attributable to the noncontrolling interest	310,293	208,673
Net loss attributable to Tecogen Inc.	$(1,574,501)	$(355,308)
Net loss per share - basic and diluted	$(0.03)	$(0.01)
Weighted average shares outstanding - basic and diluted	48,211,652	45,882,631

Consolidated Balance Sheet Data:	December 31, 2011	2010
Cash and cash equivalents	$3,018,566	$1,828,173

Short-term investments	683,428	85,000
Working capital	4,935,145	2,485,926
Total assets	8,745,492	5,876,422
Total liabilities	3,522,328	2,884,743
Stockholders' equity	$5,223,164	$2,991,679

MANAGEMENT'S DISCUSSION AND ANALYSIS OF

FINANCIAL CONDITION AND RESULTS OF OPERATIONS

THIS DISCUSSION CONTAINS FORWARD-LOOKING STATEMENTS THAT RELATE TO FUTURE EVENTS OR OUR FUTURE FINANCIAL PERFORMANCE. THESE STATEMENTS INVOLVE KNOWN AND UNKNOWN RISKS, UNCERTAINTIES AND OTHER FACTORS THAT MAY CAUSE OUR ACTUAL RESULTS, LEVELS OF ACTIVITY, PERFORMANCE OR ACHIEVEMENTS TO BE MATERIALLY DIFFERENT FROM ANY FUTURE RESULTS, LEVELS OF ACTIVITY, PERFORMANCE OR ACHIEVEMENTS EXPRESSED OR IMPLIED BY THESE FORWARD-LOOKING STATEMENTS. THESE RISKS AND OTHER FACTORS INCLUDE, AMONG OTHERS, THOSE LISTED UNDER “SPECIAL NOTE REGARDING FORWARD LOOKING STATEMENTS” AND “RISK FACTORS” AND THOSE INCLUDED ELSEWHERE IN THIS REGISTRATION STATEMENT.

During the last two fiscal years there has been a slowdown in the economy, a decline in the availability of financing from the capital markets, and a widening of credit spreads which has, or may in the future, adversely affect us to varying degrees. Such conditions may impact our ability to meet obligations to our suppliers and other third parties. These market conditions could also adversely affect the amount of revenue we report, require us to increase our allowances for losses, result in impairment charges and valuation allowances that decrease our equity, increase our loss and reduce our cash flows from operations. In addition, these conditions or events could impair our credit rating and our ability to raise additional capital.

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. Our reliable and efficient cogeneration systems reduce energy costs, decrease greenhouse gas emissions and decrease reliance on utility-generated electricity. Cogeneration systems are efficient