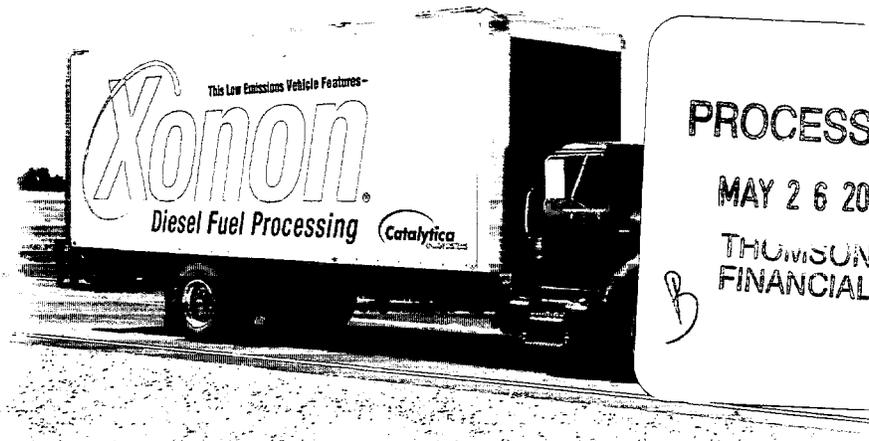
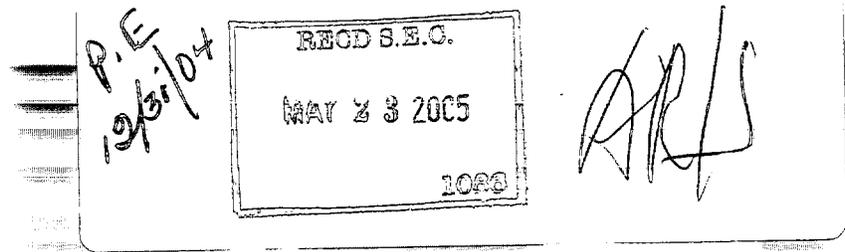




05056196

EMISSIONS SOLUTIONS



Gaining Momentum

To our stockholders:

2004 was a year of gaining momentum for Catalytica Energy Systems. Through the hard work and dedication of our employees, we made important progress in our efforts to extend our commercial reach and build a stronger business.

Early in the year, we secured an opportunity to create additional value through our acquisition of SCR-Tech, the North American leader in SCR catalyst and management services for utility-scale power generating facilities. This strategic move has strengthened and diversified our commercial revenue stream by broadening our product and service offerings to include the growing emissions control market for coal-fired power plants. Completion of this transaction also enabled us to make a significant step forward in our evolution from a development-stage entity to a company with established commercial operations. With the addition of SCR-Tech, we gained an established customer base including some of the largest utilities and independent power producers in the U.S., and achieved a 60% increase in revenues over 2003.

We also made solid advances throughout 2004 in development and commercialization efforts associated with our innovative NOx reduction solutions for diesel engines and gas turbines. Technical achievements and test successes in both areas continue to move us toward our goals.

We have continued to drive development of our diesel NOx reduction solutions, yielding significant technical advances in all three market applications of our proprietary fuel processing system: for new on-road diesel engines, for the retrofit of on-road diesels currently in service, and for stationary diesel generator sets. Positive results from numerous test activities and demonstration projects have generated growing industry and government support for our emissions reduction approach, enabling us to secure outside funding in excess of \$800,000 for continued product development. Successful completion of full-scale engine tests with diesel industry leaders has also added momentum to ongoing discussions related to joint development and commercialization opportunities. We now have signed MOUs with two strategic diesel industry partners and received commitments for additional testing and technology evaluations in the coming year. Notably, our accomplishments in 2004 have positioned us to pursue the first field demonstrations of our mobile diesel retrofit solution in 2005—a key next step toward our goal of realizing a commercial product launch by mid-2006.

The persistence of challenging conditions in the U.S. gas turbine industry has continued to impact commercial expansion of our Xonon Cool Combustion® system for gas turbine applications. Nonetheless, we remain committed to advancing our commercialization activities for Xonon with commensurate funding by OEM partners. We continue to see substantial long-term opportunities in this market, driven by growing support for distributed generation and a continuing trend toward increasingly stringent emissions standards for new power applications. Xonon continues to demonstrate reliable, ultra-low emissions performance in commercial operation, as part of Kawasaki's 1.4 MW cogeneration system. Recently completed full-scale engine tests with GE have also successfully demonstrated NOx emissions well below our 3 ppm target, underscoring the advances made by both companies in optimizing the Xonon-equipped GE10 in line with GE's commercial specifications.

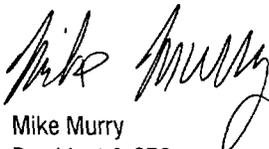
Based upon the solid foundation we laid in 2004 and the significant progress we have made in our development and commercialization activities, I believe we are in a strong position to successfully execute on our business and financial goals in the coming year.

Our 2005 objectives include: growing our SCR services business, formalizing strategic relationships, achieving our product development milestones, securing additional outside funding support, and enhancing our diesel production capability. We also intend to continue balancing our spending with the successful expansion of our commercial activities and our continued pursuit of other strategic opportunities that further broaden our reach in the market.

As we head into 2005, I am confident that our recent progress has provided the momentum for us to grow our near-term revenue streams and solidify our longer-term growth prospects. The entire team at Catalytica Energy Systems is committed to securing the substantial opportunities we see ahead in the rapidly growing emissions control market, and to creating a financially rewarding business for the benefit of our customers, our employees, and our stockholders.

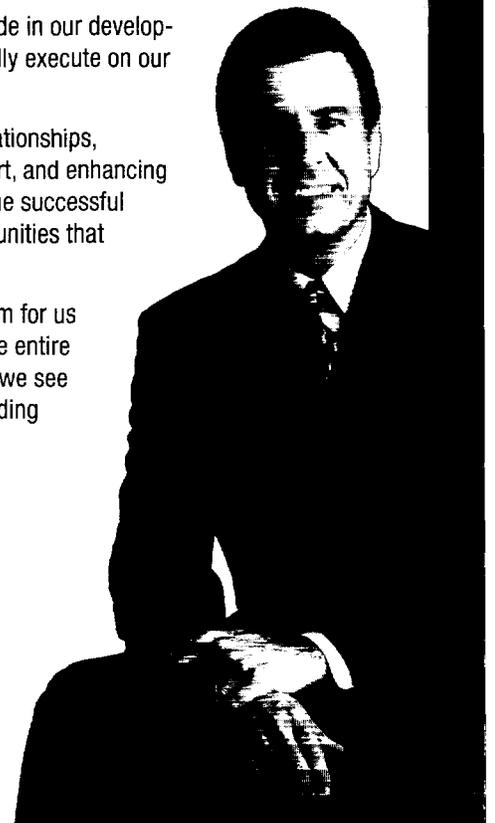
I am excited about our prospects for the coming year and beyond, and I look forward to reporting on our continued progress.

Sincerely,



Mike Murry
President & CEO

On the cover: Our new test vehicle has hit the roads to demonstrate the effectiveness of Xonon® Diesel Fuel Processing in reducing NOx emissions from diesel engines and improving air quality in neighboring communities.



**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549**

FORM 10-K

(Mark One)

Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 for the fiscal year ended December 31, 2004

or

Transition Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 for the transition period from _____ **to** _____

Commission File No. 000-31953

CATALYTICA ENERGY SYSTEMS, INC.

(Exact name of Registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

1388 North Tech Boulevard
Gilbert, Arizona 85233
(Address of principal executive offices)

(480) 556-5555

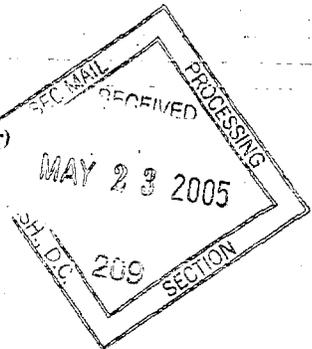
(Registrant's telephone number, including area code)

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

Securities registered pursuant to Section 12(g) of the Act: Common Stock, \$0.001 par value

(Title of Class)

77-0410420
(IRS Employer
Identification Number)



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

Indicate by check mark whether the Registrant is an accelerated filer (as defined in Rule 12b-2 of the Exchange Act). Yes No

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

As of March 22, 2005, there were outstanding 17,946,719 shares of the Registrant's common stock, par value \$0.001, which is the only class of common stock of the Registrant registered under Section 12(g) of the Securities Act of 1933.

As of June 30, 2004, the aggregate market value of the shares of common stock held by non-affiliates of the Registrant (based on the last sale price for the common stock on The NASDAQ Stock Market on such date) was \$20,629,876. For purposes of this computation, all officers, directors and 5% beneficial owners of the Registrant's common stock are deemed to be affiliates. Such determination should not be deemed to be an admission or representation that such officers, directors or 5% beneficial owners are, in fact, affiliates of the Registrant.

Documents Incorporated by Reference

The information called for by Part III is incorporated by reference to the definitive Proxy Statement for the Annual Meeting of Stockholders of the Company, which will be filed with the Securities and Exchange Commission no later than 120 days after December 31, 2004.

CATALYTICA ENERGY SYSTEMS, INC.

Annual Report on Form 10-K

December 31, 2004

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FORWARD-LOOKING STATEMENTS

This report contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Words such as "anticipate," "believe," "estimate," "expect," "intend," "plan" and similar expressions identify such forward-looking statements.

The forward-looking statements in this report include, but are not limited to:

- statements regarding our market opportunities and the growth of the market for our solutions
- our business strategies and plan of operations
- our competitive advantage in the marketplace
- the nature and level of competition for our solutions
- the efficiency of our solutions
- the cost-effectiveness of our solutions
- our commitment to funded research programs
- the level of research and development by OEMs
- our ability to integrate our products with OEM solutions
- availability and expense of resources and raw materials necessary for production and manufacturing
- the timing of our testing activities, our development programs, and the commercialization of our products
- the future development and commercialization costs of our products
- our ability to create an industry standard associated with our solutions
- the value of our intellectual property and effectiveness of our patent portfolio
- the ability of our management to adapt to changing circumstances
- our relations with employees
- the cost of ultra-low emissions technology and its effects
- the uniqueness of Xonon Cool Combustion
- our ability to design Xonon for different gas turbine models
- our ability to broaden the range of uses of gas turbines through the use of Xonon
- the applicability of our solutions to different gas turbine and diesel engine applications
- statements regarding the successful development and market potential of our diesel products
- the existing and proposed emissions restrictions on power generating sources and diesel engines used in transportation applications due to environmental concerns
- statements regarding the uniqueness, potential and market for our SCR catalyst services
- our ability to manage SCR-Tech
- the role of catalyst regeneration in the catalyst replacement market
- the effect of the acquisition of SCR-Tech
- first-mover advantage for SCR-Tech

- *our investment in research and development*
- *sources of our revenues*
- *our use of earnings*
- *our ability to generate cash and the sufficiency of existing cash and cash equivalents*
- *the impact of interest income and expense*
- *predictions as to when we may incur material income taxes*
- *critical accounting policies*

These forward-looking statements are subject to certain risks and uncertainties that could cause actual results to differ materially from those reflected in these forward-looking statements. Factors that might cause actual results to differ include, but are not limited to, those discussed in the sections entitled “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Risks that Could Affect Our Financial Condition and Results of Operations.”

Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance or achievements. We undertake no responsibility to update any of these forward-looking statements or to conform these statements to actual results.

“Xonon” and “Xonon Cool Combustion” are registered trademarks and “Cool Combustion,” “Catalytica Energy Systems” and the stylized Catalytica logo are trademarks of Catalytica Energy Systems, Inc.

PART I

Item 1. BUSINESS

Overview

Catalytica Energy Systems, Inc. ("Catalytica Energy," the "Company," "we" or "us") was incorporated in Delaware in 1995 as a subsidiary of Catalytica, Inc. Catalytica Energy operated as part of Catalytica, Inc.'s research and development group from inception through the date of its incorporation as a separate entity. In December 2000, Catalytica Advanced Technologies, Inc., another subsidiary of Catalytica Inc., was merged into us, and the combined entity was spun out from Catalytica, Inc. as Catalytica Energy Systems, Inc., a separate, stand-alone public company.

We provide innovative emissions solutions to ease the environmental impact of combustion-related applications in the power generation and transportation industries. Through our SCR-Tech subsidiary, we offer a variety of services for coal-fired power plants that use selective catalytic reduction ("SCR") systems to reduce nitrogen oxides ("NOx") emissions. These services include SCR catalyst cleaning and regeneration, SCR system management services to optimize efficiency and reduce overall operating and maintenance ("O&M") costs, and consulting services related to the design of SCR systems (collectively "SCR Catalyst and Management Services"). Our business activities also include the design, development, manufacture and servicing of advanced products based on our proprietary catalyst and fuel processing technologies to offer cost-effective solutions for reducing NOx emissions from diesel engines and natural gas-fired turbines. Our diesel fuel processing technology is designed to facilitate significant NOx reduction from mobile, stationary and off-road diesel engine applications by improving the performance of NOx adsorber catalyst systems. Our commercially-available Xonon Cool Combustion® system offers a breakthrough pollution prevention approach that enables gas turbines to achieve ultra-low NOx emissions through a proprietary catalytic combustion process. Other activities include the development of fuel processing systems for fuel cells used in stationary, auxiliary and back-up power applications.

We are focused on growing our business through a product and market diversification strategy in the area of NOx control. Increasingly stringent air quality regulations have resulted in tighter emissions restrictions being imposed on a variety of combustion-related applications. NOx emissions, which are a precursor to smog formation, have become a primary target of government-imposed emissions regulations, creating a significant opportunity for innovative, cost-effective NOx control solutions. Industry analysts estimate the U.S. market for NOx control represents a greater than \$5 billion opportunity annually in the power generation and diesel industries, and we believe this market should experience additional growth as a result of pending Federal and State regulations calling for further reductions in NOx emissions.

As a result of ongoing challenging conditions in the U.S. gas turbine industry, a slow to emerge distributed generation market and the pace of gas turbine original equipment manufacturer ("OEM") commercialization activities, we completed a rigorous exercise in 2003 to realign our strategic direction and build a stronger business. This has been accomplished through broadening our product and service offerings in the area of NOx control beyond our Xonon Cool Combustion product for gas turbines, pursuing new business activity and expanding our portfolio of NOx-related products and services across new and growing markets. We are committed to solving NOx-related problems by providing the most economically compelling and most effective solutions available, whether it is through prevention or through some form of after-treatment. In addition to intensifying our development of NOx control after-treatment systems for diesel engines which leverage our core Xonon® technology, we have become more active in identifying strategic opportunities, including business acquisitions that complement our current products, expand the breadth of our markets or build upon our technical capabilities. In particular, we continue to focus on opportunities that offer near-term, profitable product and service offerings.

As part of this strategic initiative, in February 2004 we acquired SCR-Tech, LLC (“SCR-Tech”), the North American leader in catalyst regeneration technologies and management services for selective catalytic reduction systems used by coal-fired power plants to reduce NOx emissions. The addition of SCR-Tech strategically broadened and diversified our product and service offerings to the growing emissions control market for coal-fired power plants and has served to accelerate our penetration into the NOx control marketplace. We believe the acquisition of SCR-Tech has created a foundation for future growth and has strengthened our ability to continue pursuing development and commercialization efforts in other areas of our business, while also targeting additional business opportunities in the area of NOx control.

As a result of our February 2004 acquisition of SCR-Tech, we are now conducting our business through the following two business segments:

1. SCR Catalyst and Management Services (“SCMS”)
2. Catalyst-Based Technology Solutions (“CBTS”)

SCR Catalyst and Management Services

Our SCR-Tech subsidiary is based in Charlotte, North Carolina and offers catalyst cleaning, rejuvenation and regeneration as well as SCR system management and consulting services, to help power plant operators optimize their SCR system operation while reducing O&M costs. SCR-Tech’s customer base has included some of the largest utilities and independent power producers (“IPPs”) in the U.S.

SCR-Tech provides catalyst regeneration services by means of two patented processes that can restore the activity level of used SCR catalyst for significantly less cost than purchasing a new catalyst. SCR-Tech is the only company in North America currently operating a commercial catalyst regeneration facility and offering catalyst regeneration in addition to cleaning and rejuvenation.

SCR-Tech also provides SCR system management and consulting services relating to system design and tuning, efficiency optimization, O&M cost reduction, catalyst specification and performance testing.

History of SCR-Tech

SCR-Tech’s roots go back to the mid-90’s when one of the founders of SCR-Tech, ENVICA GmbH, created a method for cleaning, rejuvenating and regenerating SCR catalyst in Germany. Meanwhile, EnBW, Germany’s third largest energy company and one of SCR-Tech’s former owners, was independently developing an innovative “in-situ” cleaning and rejuvenation process.

In 1997, ENVICA, in partnership with one of Germany’s largest utilities, Hamburgische Electricitätswerke AG (“HEW”), developed an off-site regeneration process based on ENVICA’s core technology, which not only physically cleaned but also chemically regenerated depleted SCR catalyst, began marketing SCR catalyst regeneration services to other SCR plant operators in Germany and built the world’s first full-scale commercial SCR catalyst regeneration facility. This process continues to be marketed in Germany by ENVICA under the ENVICA Kat name. Both HEW and EnBW continue to use ENVICA’s regeneration processes in their coal-fired plants throughout Germany.

In March 2001, ENVICA and Energy & Environmental Consultants GmbH (“E&EC”), a German consulting company, formed SCR-Tech GmbH in Germany for marketing the regeneration process worldwide. In March 2002, EnBW Energy Solutions GmbH became a shareholder of SCR-Tech GmbH together with the two founders—ENVICA and E&EC. EnBW Energy Solutions granted an exclusive license to SCR-Tech for its proprietary and patented in-situ cleaning process that it had independently developed in 1995.

Since 1997, these technologies have been successfully applied commercially throughout Germany by SCR-Tech's founding owners, leading to the creation of SCR-Tech, LLC in 2001 to begin marketing the technology in the U.S. SCR-Tech initiated commercial operations in its Charlotte regeneration facility in early 2003.

Industry Background and Market Opportunity

SCR systems are used most commonly in large coal-fired and natural gas-fired power plants. SCR technology is based on catalysts that remove NO_x from the power plant exhaust by reducing it with ammonia to elemental nitrogen and water vapor. Over time, ash buildup can cause physical clogging or blinding of the catalyst, which can negatively impact the performance of both the SCR system and the power generating facility. In addition, the NO_x removal efficiency of SCR systems gradually declines as a result of catalyst deactivation caused by various catalyst poisons present in the flue gas, resulting in the need for some form of catalyst exchange. Historically, the spent catalyst has been replaced with new catalyst, a costly process. Because utilities and IPPs have been facing increasing pressure to lower their O&M costs, plant operators are seeking more cost-effective SCR catalyst management solutions.

NO_x is considered to be one of the principal contributors to secondary, ground level ozone, or smog, and energy producers and other industries operating large power plants, particularly in the Eastern half of the U.S., have been required to reduce their NO_x emissions by at least 85 percent by 2007 as part of the Environmental Protection Agency's ("EPA") NO_x SIP Call. The NO_x SIP Call requires major NO_x reductions during the "ozone season" (May 1-September 30) in 19 Midwestern and Eastern states¹ and the District of Columbia to mitigate the regional transport of ozone, which is contributing to the poor air quality of downwind states. As a result, these areas have been required to revise their SIPs, outlining measures to reduce NO_x emissions to a statewide limit determined by the EPA for each affected state. As part of the NO_x SIP Call, these areas were required to begin implementing new controls by April 2004 to reduce NO_x emissions in an effort to reach compliance with EPA established limits by September 2007. In general, during non-ozone season periods, most operators do not have any requirements to run their SCR systems unless regulations are further tightened.

Coal-fired plants currently account for more than half of the nation's power generating capacity and are poised to play an even greater role in future power generation. An October 2004 report published by The McIlvaine Company projects that the present coal-fired generating capacity in the U.S. of 329 gigawatts ("GW") will expand to 356 GW by 2012. Coal-fired plants have also become a primary target for NO_x reduction. With NO_x removal efficiencies of up to 95 percent, SCR systems are considered to be the most effective and most widely used technology by coal-fired power plant operators to comply with increasingly stringent U.S. emissions regulations. As a result, the installed base of SCR systems has increased dramatically in recent years. It is projected that by the end of 2005, approximately 100 GW of coal-fired generating capacity in the U.S. will be operating with SCR systems to comply with the EPA's NO_x SIP Call, creating a large and growing market for SCR catalyst management services. As a result of this recent growth in new SCR system installations, the market for SCR catalyst services is expected to more fully develop in the 2006-2007 timeframe. We believe the available market for catalyst replacement could reach \$100 million by 2010. We also believe catalyst regeneration has the potential to play a significant role in this market, as it offers a more cost-effective approach than the replacement of deactivated catalyst.

¹ Alabama, Connecticut, Delaware, Illinois, Indiana, Kentucky, Massachusetts, Maryland, Michigan, North Carolina, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Virginia and West Virginia.

In addition, recent Federal emissions mandates and other pending legislation offer significant upside market potential. In April 2004, the U.S. Environmental Protection Agency ("EPA") announced a new 8-hour standard for the measurement of ground level ozone, or smog. Under this new standard, which took effect in June 2004, the EPA estimated that the number of areas in violation of air quality regulations has grown from 271 to 475 counties, home to 159 million people. As a result, 54% of the U.S. population now lives in areas where the most stringent emissions requirements are now being enforced. According to the EPA, the 8-hour ozone standard is just the first in a series of new air pollution rules expected to be issued, which could result in as much as \$50 billion being spent on pollution control equipment at coal-fired power plants over the next 15 years. For example, the EPA's pending Clean Air Interstate Rule ("CAIR"), signed on March 10, 2005, calls for 28 states in the Eastern U.S. and the District of Columbia to reduce NOx emissions by more than 60% from 2003 levels by 2015. This rule builds on the NOx SIP Call and proposes to cut NOx emissions from power generating facilities by an additional 1.7 million tons annually by 2009 and by 2.0 million tons annually by 2015. Accordingly, we expect substantial additional growth in the number of SCR installations at coal-fired plants over the next decade.

SCR-Tech's Service Offerings

SCR-Tech offers proprietary and patented processes based on highly sophisticated and advanced technologies that can improve the NOx removal efficiency and extend the useful life of installed SCR catalyst, offering a compelling economic alternative to catalyst replacement.

SCR-Tech's processes are capable of not only physically cleaning and rejuvenating the most severely plugged, blinded or poisoned catalyst, but of also chemically reactivating deactivated catalyst. Depending upon the state of the installed catalyst, SCR-Tech offers several alternatives for restoring its NOx removal efficiency and extending its life.

For lightly plugged or blinded catalyst that has not yet fully deactivated from catalyst poisons, SCR-Tech offers an "in-situ" cleaning process that can be performed on catalyst at the customer's plant site without requiring removal of the catalyst from the SCR unit.

For severely plugged or blinded catalyst that may have limited deactivation from catalyst poisons, SCR-Tech offers an off-site cleaning and rejuvenation process that is performed at SCR-Tech's regeneration facility. In this process, the customer removes the catalyst modules from the SCR unit and ships them to SCR-Tech. The cleaning process physically removes the materials plugging the catalyst to improve its NOx removal efficiency while the rejuvenation process removes catalyst poisons to extend its useful life. Once cleaned and rejuvenated, SCR-Tech returns the catalyst modules to the customer for reinstallation in the SCR unit.

For severely plugged or blinded catalyst that has significantly deactivated, SCR-Tech offers an off-site regeneration process that restores deactivated SCR catalyst back to its original specifications and catalytic activity. In this process, the customer removes the deactivated catalyst modules from the SCR unit and ships them to SCR-Tech's regeneration facility where the catalyst is both cleaned and chemically reactivated. Once regenerated, SCR-Tech returns the catalyst modules to the customer for reinstallation in the SCR unit. Upon reinstallation, the regenerated catalyst delivers the same level of performance and deactivation rate as the original catalyst. Catalyst regeneration provides SCR operators a significantly lower cost alternative to catalyst replacement and essentially eliminates the need to dispose of deactivated catalyst, which can be considered hazardous waste.

SCR-Tech also provides SCR system management services including ammonia injection grid ("AIG") tuning to optimize efficiency and reduce overall O&M costs, and consulting services related to the management and design of SCR systems, including catalyst specification, selection and initial performance testing for guarantee verification. These services have principally been performed by, or under the supervision of, Hans Hartenstein, former president of SCR-Tech, whose employment with the Company

terminated in March 2005. Effective March 21, 2005, William J. McMahon, a seasoned executive with more than 25 years of experience in the energy and utility industries, was appointed president of SCR-Tech.

SCR-Tech's cleaning, rejuvenation and regeneration services have represented, and are expected to continue to represent for the foreseeable future, the substantial majority of SCR-Tech's revenues.

Customers

Since its founding in May 2001, SCR-Tech has performed SCR Catalyst and Management Services for some of the largest utilities and IPPs, and their equipment suppliers, in the U.S. including AES, Alstom, Duke Power, Englehard, Mirant, National Energy & Gas Transmission, South Carolina Electric & Gas, Southern Company's subsidiaries, Alabama Power and Georgia Power. In March 2003, SCR-Tech greatly expanded its service offerings when it commenced commercial operation in its regeneration facility.

As part of an ongoing commercialization strategy, SCR-Tech is actively targeting SCR operators throughout North America to broaden its established customer base and is in active negotiations today with several potential new customers.

In 2004, SCR-Tech serviced 17 plant sites for 17 different customers, and secured 23 purchase orders for a variety of SCR services, including three contracts with leading utilities to provide SCR catalyst cleaning and regeneration services.

Competition

We expect SCR-Tech's cleaning and rejuvenation processes to compete with alternate cleaning and rejuvenation processes currently in the marketplace. We are aware of at least one company, Enerfab, Inc., that offers on-site SCR catalyst cleaning and washing process that requires the removal of the catalyst from the SCR system. We believe that SCR-Tech's patent-protected cleaning process offers several competitive advantages, including both an off-site process and an "in-situ" process that does not require the removal of the catalyst from the SCR system.

While there is some competition for catalyst cleaning and rejuvenation, we are not aware of any other company in North America offering a regeneration process that can chemically reactivate SCR catalyst back to its original specifications. Accordingly, new catalyst remains the primary competition for SCR-Tech's regeneration process. The leading SCR catalyst suppliers to the U.S. coal-fired power generation market include Cormetech, Haldor Topsøe and Hitachi America. While we believe that SCR-Tech's regeneration process offers a significant cost advantage over the purchase of replacement catalyst and essentially eliminates hazardous waste disposal issues associated with spent catalyst, it is possible that these companies and others could eventually develop a solution that may compete with ours. Nonetheless, we believe the strength of SCR-Tech's intellectual property and patent protection creates a significant barrier for new entrants to the market. In addition, we believe that our first mover advantage in the regeneration marketplace will help us maintain our leading market position.

Catalyst-Based Technology Solutions

Our Catalyst-Based Technology Solutions segment includes our business activities associated with the design, development, and manufacture of advanced products based on our proprietary catalyst and fuel processing technologies to offer cost-effective solutions for reducing NOx emissions from combustion-related applications. These business activities include Emissions Control Solutions for Diesel Engines, NOx Control Solutions for Gas Turbines, and Fuel Processing Solutions for Fuel Cell Applications.

➤ Emissions Control Solutions for Diesel Engines

We are leveraging our catalyst technology expertise with a proven fuel processing competency to offer innovative emissions reduction solutions for mobile, stationary and off-road diesel engine applications, targeted at helping diesel OEMs, government agencies, and power producers meet the growing diesel emissions challenge.

Industry Background

In October 1997, the EPA adopted new NO_x emissions standards for heavy-duty diesel truck and bus engines to be phased in through 2010. The first phase of these stricter limits took effect in October 2002 when the requirements for NO_x were reduced from 4.0 grams per brake horsepower-hr ("g/bhp-hr") to 2.5 g/bhp-hr. Non-compliance with the October 2002 deadline resulted in steep fines imposed by the EPA of as much as \$12,000 per engine. The most stringent of the EPA's new emissions standards requires a phased-in 50% reduction by 2007 over the current standards, with another 80% reduction by 2010, resulting in a 0.2 g/bhp-hr limit by the end of the decade for all heavy-duty diesel trucks and buses. The aggregate 90% reduction in NO_x required by 2010, in particular, has created a major technological hurdle for diesel engine OEMs for which a single technology path has yet to be adopted. Lighter-duty applications in the U.S., including heavy light-duty diesel trucks and passenger vans, are also facing tighter NO_x emissions standards to be phased in through 2009.

Increasingly stringent emissions standards are also being imposed on diesel engine markets in the European Union ("EU") and Japan. For example, in April 2005 Japan will impose the world's strictest emissions standards to date for urban heavy-duty trucks and buses, requiring a 41% reduction in NO_x emissions to 1.49 g/bhp-hr. Japan's Central Environment Council subsequently announced in February 2005 that it has drawn up recommendations to further tighten Japan's diesel emissions standards for all vehicles sold beginning in 2009, which could result in emissions limits that are more closely in-line with those that are scheduled to be imposed in the U.S. in 2010. While current U.S., EU and Japanese emissions reduction mandates remain fragmented, there is a growing demand for the harmonization of tighter standards throughout these markets.

At the same time, mobile and stationary diesel engines in service today along with other off-road diesel-powered equipment are coming under increasingly intense scrutiny by government officials in an attempt to reduce urban smog in emissions-sensitive areas across the country. According to the EPA, existing diesel sources contribute as much as 50% of NO_x emitted in many U.S. urban areas, making them a prime target for emissions controls. Government agency funding for diesel retrofits continues to develop in an effort to meet air quality objectives, and, in some cases, to avoid severe EPA sanctions or the loss of Federal Highway Administration funds. In addition, a growing number of federal and state programs to fund school bus retrofits have emerged over the past two years in an effort to reduce asthma and other pediatric respiratory disorders associated with diesel exhaust.

Stationary diesel engines used in both back-up and prime power applications currently face operating restrictions as a result of high emissions levels. If emissions can be brought into compliance, major utilities, municipal power producers and other end-users could benefit from extended operation and increased utilization of their diesel power generating units, even in the most stringent non-attainment areas. Among the many benefits include the creation of emissions credits and reduced electricity costs by running these units during peak pricing periods. With appropriate permitting, these units could be dispatched during peak demand to open up a new option to relieve stress on constrained utility distribution systems, provide grid support, and improve reliability. Another potential emissions control opportunity is diesel engines that drive agricultural water pumps. Due to significant air quality degradation caused by many such pumps, particularly in the Central Valley of California, there is mounting political pressure to re-power the pumps with electric motors using grid electricity. However, this could push electricity demand beyond supply

during hot summer months. An economical diesel emissions reduction solution could provide a new option for continued operation of these pumps.

New stationary diesel engines will soon face even tougher regulations. In 2000, the state of California passed Senate Bill 1298 ("SB 1298") requiring the California Air Resources Board ("CARB") to set new emissions standards and provide guidance for the permitting of new electrical generation technologies less than 50 megawatt ("MW") in size. The first phase of emissions limits under the new CARB certification program and guidance document took effect in January 2003, with even tighter limits scheduled to be imposed beginning in January 2007. In addition, new stationary diesel engines along with other diesel-powered equipment used in construction, agricultural and other off-road applications will soon have to comply with new federal emissions restrictions. In May 2004, the EPA announced the signing of the Bush Administration's Clean Air Nonroad Diesel Rule that will cut emissions from off-road diesel-powered equipment by more than 90%. The new standards, also known as the U.S. Tier 4 emissions standards, will be phased in between 2008 and 2015 and are expected to result in the widespread introduction of diesel emissions control systems for new nonroad diesel equipment.

Market Opportunity

Diesel engine manufacturers in the U.S., and internationally, continue to seek enabling solutions to meet increasingly stringent emissions standards. In 2004, approximately 1.2 million diesel engines were produced in North America for on-highway applications. U.S. heavy duty diesel ("HDD") engine manufacturers intend to pursue in-house engine modifications similar to those used in their 2002 compliant engines to meet the initial 2007 step-down in emissions requirements. However, the most severe NOx reduction requirements, which will be phased into various segments of the U.S. HDD market between 2008 and 2010, remain a difficult challenge that we believe will require some form of advanced NOx after-treatment or significant advances in diesel engine technology. We are also exploring opportunities in markets outside of the U.S., including Japan, which produces approximately 200,000 diesel bus and truck engines annually. Other global markets in Europe and Asia, which are considering more stringent emissions regulations similar to those being imposed in the U.S., in addition to heavy light-duty diesel trucks and passenger vans in the U.S. and internationally, could offer promising additional markets for our emissions solutions.

We believe the retrofit market for mobile and stationary diesel engines in the U.S. offers a more near-term opportunity for us than the new engine market. The EPA estimated in 2001 as many as 10 million sources of diesel emissions were in service in the U.S., many operating in emissions-sensitive areas of the country.

Funding sources for diesel retrofits continue to build on both the state and federal level. As a result of a recent growth in funding sources, the total addressable market for diesel retrofits is expanding. On the federal level, a variety of programs have been proposed to reduce emissions from a variety of diesel sources. The Congestion Mitigation and Air Quality ("CMAQ") Program, sponsored by the Department of Transportation, and administered by the Federal Highway and Federal Transit Administrations, is providing funds totaling more than \$1.75 billion per year for states to invest in air quality improvement projects, with diesel retrofit recently added as an acceptable candidate for appropriations. In January 2004, the EPA called for the nation's fleet of school buses to install pollution control devices in an effort to combat rising health concerns associated with diesel exhaust fumes. To assist in this effort, the EPA has allocated \$7.5 million in funding for fiscal 2005 for a cost-shared grant program to school districts to upgrade their diesel fleets under its Clean School Bus USA program.

According to the EPA, the number of states pursuing diesel retrofit programs has grown from 10 states in 2003 to 20 states plus the District of Columbia in 2004. Programs to funnel state or federal dollars to retrofit diesels with emissions control systems are in place today in Alabama, Arizona, California,

Colorado, Connecticut, the District of Columbia, Georgia, Illinois, Indiana, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Texas and Washington.

Both California and Texas, in particular, have committed significant annual funding for diesel emissions reduction. California's Carl Moyer Program has created a dedicated funding source for air pollution reduction. This program is encouraging projects to reduce emissions from heavy-duty diesel engines by offering up to \$140 million annually in incentive grants through 2015. As part of the Texas Emissions Reduction Program ("TERP"), the state of Texas announced NOx reduction grants for 2004 totaling in excess of \$80 million, and has budgeted in excess of \$130 million annually for years 2005 through 2008 to help fund the deployment of diesel NOx reduction solutions to achieve a significant reduction in air pollution and reach compliance with its State Implementation Plan ("SIP"). According to industry reports, retrofit programs are also now emerging in Canada, Japan and in the European Union to address approximately five million HDD engines, as estimated by the 2003 Transportation Industry Data Book.

According to the Northeast States for Coordinated Air Use Management ("NESCAUM"), as many as 350,000 stationary diesel generators are installed throughout the U.S., many of which are restricted in operation as a result of high emissions levels. We have identified more than 35,000 emergency standby diesel generator sets in the 100 kW to 1.5 MW size range permitted throughout the Northeast, California and Texas, areas imposing the strictest emissions regulations, that could be candidates for an emissions reduction retrofit solution. In addition, more than 36,000 new stationary diesel engines are produced annually in North America for power generation applications, many of which are candidates for emissions control today, and many more which will require emissions controls beginning in 2007 and 2008 when the CARB and U.S. Tier 4 emissions standards are phased in, respectively. Further, more than 200,000 additional diesel engines are produced each year in North America for use in construction, agricultural and other industrial equipment that will also have to comply with the U.S. Tier 4 standards.

Diesel Emissions Reduction Applications Development

We have developed a proprietary fuel processing technology that is designed to facilitate a significant reduction in NOx from diesel engine applications by enabling more effective regeneration of NOx adsorber systems. Our unique approach to diesel fuel processing leverages our Xonon® catalyst technology and our extensive work in gasoline and diesel fuel processing for fuel cell applications.

We are focused on bringing the benefits of our diesel fuel processing solutions to the growing diesel emissions reduction market by partnering with diesel OEMs, Tier 1 catalyst providers (direct suppliers to OEMs), system integrators, and other leading companies within the diesel industry.

In an effort to further advance the cost-effective development of our diesel emissions reduction solutions, we completed in the fall of 2003 the construction of a diesel test facility. Since that time, we have completed numerous in-house, full-scale engine tests. These tests are providing us with valuable data that we are using to further optimize our technology solutions for commercial application. This test facility will also enable us to simulate EPA certification and CARB verification protocols as well as advanced durability testing for a broad diesel engine population as we work to accelerate the product development path of our solutions for both new engine and retrofit applications.

We are currently developing our core diesel fuel processing technology for three applications:

1. Diesel OEM solution for new mobile engine applications
2. Diesel retrofit solution for "in service" mobile engine applications
3. Diesel generator set ("genset") solution for stationary diesel engine applications

1. Diesel OEM Solution

We have developed and are now refining a proprietary diesel fuel processor technology for new mobile engine applications as a means for diesel OEMs to meet the most stringent impending NOx emissions regulations. Our Xonon fuel processor, or XFP, technology is designed to enable a greater than 90% reduction in NOx by improving the performance of NOx adsorber catalyst systems. NOx adsorbers, also referred to as NOx traps, represent one of the approaches believed to have the greatest potential to meet the EPA's 2010 emissions mandate.

NOx adsorbers adsorb NOx from the exhaust and convert the NOx to non-polluting nitrogen during a regeneration cycle. NOx adsorber technology today offers considerable NOx reduction capabilities, but performance issues related to durability, operating range and fuel economy have limited their viability for some diesel engine applications. In most cases, diesel fuel injected at the engine or in the exhaust system upstream of the NOx adsorber is used for the regeneration cycle. This process can give good performance at high exhaust temperatures, but historically has demonstrated poor performance at lower exhaust temperatures. Low exhaust temperatures (as low as 200 degrees Celsius) represent a large portion of vehicle operating time, particularly for medium and light duty diesel engine applications used in urban areas and for automobiles, light trucks and SUVs. Our XFP is designed to deliver rapid, low-temperature NOx adsorber regeneration with improved fuel utilization and efficient desulfation (elimination of sulfur within the NOx adsorber associated with the sulfur naturally occurring within diesel fuel) to significantly improve NOx adsorber performance and durability. We believe the combination of our XFP with a NOx adsorber can enable diesel OEM implementation of a durable, economical, reasonably sized NOx reduction solution that complies with the most stringent emissions requirements with minimal fuel penalty.

In July 2003, we announced successful completion of the first full-scale test of our prototype XFP on a 7+ liter HDD engine, which demonstrated the rapid regeneration capabilities of our technology and its potential to significantly improve the performance of NOx adsorbers. The tests, which were conducted with a leading HDD engine manufacturer, focused on verifying the performance of our XFP at low exhaust temperatures. Test results demonstrated highly efficient, rapid NOx adsorber-regeneration, resulting in NOx conversion in line with the EPA's mandated emissions requirements for 2010.

These tests provided us with valuable data we have used to further develop and refine our technology to enhance the operating range and fuel economy performance of our XFP system and to facilitate desulfation of the NOx adsorber catalyst at lower temperatures, thus providing increased NOx adsorber durability. According to the EPA, improving the durability of NOx adsorbers, especially as it relates to desulfation, remains a fundamental hurdle to commercial NOx adsorber deployment in HDD applications.

In 2004 we completed a number of additional full-scale engine tests and demonstrations of our XFP technology with other diesel engine manufacturers as well as with Tier 1 system integrators. OEM test activities, in particular, included a focus on verifying operation at low exhaust temperatures as well as demonstrating desulfation strategies. Tests of our XFP combined with a NOx adsorber catalyst were conducted on both 5 and 8 liter diesel engines at two separate OEM facilities, and successfully demonstrated NOx reduction in excess of 90% over a broad range of operating conditions with a total fuel system usage of less than 3%. In addition, both NOx adsorber operation and regeneration were demonstrated at low exhaust temperatures. Our XFP also demonstrated full regeneration of a sulfur-poisoned NOx adsorber catalyst, a critical requirement to enable operation of NOx adsorber systems, even with the ultra-low sulfur diesel ("ULSD") fuel mandated in the U.S. for 2007 and beyond. Further, we believe that these tests demonstrated the ability of our XFP technology to bring added flexibility for OEM NOx adsorber regeneration and desulfation strategies to accommodate the wide variety of NOx adsorber system designs currently being pursued. For example, our XFP enabled very rapid regeneration cycles that would be required for transient engine operation.

As a result of the favorable performance demonstrated in these OEM tests, we received commitments by both diesel engine manufacturers to conduct additional test activities in 2005. We continue to build on the positive results of our recent test activities to further optimize our XFP technology in connection with NOx adsorber systems with the goal of bringing a high performing NOx reduction solution to diesel engine OEMs for their diesel engine products and ultimately a cost-effective product to the end use customer.

For new engine applications, we are committed to working with diesel OEMs, NOx adsorber providers and/or emissions system integrators to jointly develop and commercialize robust NOx control systems to meet the most stringent U.S. and international emissions requirements. To gain market share and penetrate new markets while maintaining compliance with new emissions standards, OEMs and Tier 1 suppliers seek to differentiate their products with technological advances that benefit their customers. We believe that the combination of our XFP and a third party NOx adsorber has the potential to offer a cost-effective NOx reduction solution with minimal fuel penalty to enhance an OEM's product line and offer significant competitive advantages. Accordingly, we have taken an active role over the past two years in establishing and building relationships within the diesel industry, both in the U.S. and internationally, in line with our objective to secure partners to further develop and commercialize our XFP for new mobile engine applications.

As a result of these efforts, in December 2004 we signed a Memorandum of Understanding ("MOU") with a leading company in the diesel industry following our successful completion of a technology demonstration at their facility. The terms of the MOU include a commitment to further evaluate our XFP in 2005 for application to their technology platforms with the intent of entering into a future joint development agreement. We also continue to be in active discussions today with a number of other companies within the diesel industry, including both diesel OEMs and systems integrators, relating to both testing and joint development opportunities in North America and Asia.

2. Diesel Retrofit Solution

We are also developing a retrofit solution for mobile diesel engine applications as a means for government agencies to address growing urban smog issues in emissions-sensitive areas. Our mobile retrofit solution combines a derivative of our XFP technology with a NOx adsorber catalyst and is being designed to offer a scalable, easily integrated solution for diesel engines currently in service.

Successful development and commercialization of this solution will bring three main benefits that could differentiate our technology from current mobile retrofit solutions on the market today:

1. A lower installed cost when compared with alternate solutions,
2. A potential NOx reduction capability of 50% or greater, compared with 25% offered by the only alternate non-SCR solution offered today, and
3. A potential to operate across a broad temperature range, including low temperature conditions, in which a significant portion of urban vehicles such as buses and refuse trucks operate today.

In 2003, we completed initial subscale, in-house rig tests of our retrofit solution demonstrating a 50% NOx reduction while operating on standard U.S. highway diesel fuel with 500 parts per million ("ppm") sulfur content. Since that time, we have continued to develop a next generation version of our retrofit technology with a focus on increasing the NOx reduction capability of the system and optimizing its use for multiple diesel engine applications. As part of this effort, we evolved our solution during the first half of 2004 from combining our diesel fuel processor with a lean-NOx catalyst to now combining our diesel fuel processor with a NOx adsorber catalyst. This current approach has enabled us to better leverage the technology synergies of both our OEM and stationary diesel engine applications while providing enhanced performance and cost benefits. We have since assembled full-scale prototypes of our next generation solution and have completed a number of full-scale, in-house engine tests of our modified approach with

favorable results. Most recently, we progressed to an AVL-8 mode test using a full-scale, 7.6 liter heavy-duty diesel engine. An AVL-8 mode test is a steady-state engine test procedure with 8 test points designed to closely correlate with different engine speeds and load factors, and offers a good indication of how our technology might perform in future EPA product verification testing. In this most recent test, we achieved another product development milestone by successfully demonstrating NOx reduction well in excess of our 50% target. We view these results as another positive step toward our commercialization goals.

In recognition of the significant technical progress we made over the past year and the commercial prospects for our technology, we were awarded a \$330,000 grant in November 2004 by the Texas Commission on Environmental Quality ("TCEQ") under its New Technology Research and Development ("NTRD") Program to help support the first on-vehicle demonstration of our mobile retrofit solution. The field demonstration will evaluate the performance of our diesel fuel processing technology in combination with a NOx adsorber catalyst, and its potential to offer a cost-effective, easy integration solution for the mobile retrofit market. In support of this effort, the City of Denton, Texas has agreed to supply two heavy-duty diesel trucks for the on-road demonstration, which is currently scheduled to commence in the second quarter of 2005.

Although our prospects for this market are exciting, we recognize that we still have significant technical and commercial hurdles to overcome that will be critical to our success. In preparation for a forthcoming on-road demonstration of our technology, we must first complete a variety of integration activities. With successful field demonstration results, we must then advance our technology to an EPA and / or CARB verified retrofit solution before we can introduce the product in the marketplace as most government agencies will only fund verified products. Accordingly, we continue to evaluate our progress in developing a commercially viable retrofit solution and our ability to capitalize on the finite time horizon associated with the diesel retrofit market.

For mobile retrofit applications, we are focused on partnering with system integrators and field service providers to jointly develop and commercialize our product. We believe the scalable, viable integration retrofit solution we are developing could have the potential to achieve maximum NOx reduction in a cost-effective manner to enhance a partner's product line and offer significant competitive advantages.

In line with this objective, we signed an MOU in January 2005 with a leading retrofit integrator, including a commitment to further evaluate the commercial prospects of our mobile retrofit solution with the intent of entering into a commercialization agreement.

3. Diesel Genset Solution

We are building upon the successful test results we have achieved with our diesel fuel processor in combination with a NOx adsorber catalyst for both new and retrofit mobile diesel engine applications and are now extending application of this technology to stationary diesel engines. The goal of this development effort is to provide a cost-effective, bolt-on solution for widespread commercial application that enables both new and installed stationary diesel generators to significantly reduce NOx emissions.

In June 2004, we were awarded a \$480,000 contract by the Electricity Innovation Institute ("E2I"), an affiliate of the Electric Power Research Institute ("EPRI"), and supported by The Public Interest Energy Research ("PIER") program of the California Energy Commission ("CEC") and Hawaiian Electric Company, Inc. ("HECO"), for the Phase I development of a greater than 90% NOx reduction system for stationary diesel engines.

In December 2004, we completed the first phase of a potential three-phase development and demonstration program focusing on the design and performance of our diesel fuel processing technology in combination with a NOx adsorber catalyst for both new stationary diesel engines and retrofit applications. This first phase culminated in a 100-hour engine test of our fuel processor-driven NOx adsorber catalyst system, which successfully demonstrated a greater than 90% reduction in NOx while operating on a full-scale 8.3 liter diesel generator set rated at 160 kW.

As a result of the favorable results achieved in this initial engine demonstration, we have recently initiated a more in-depth evaluation of the market opportunity, and are pursuing additional funding opportunities for Phase II of the program. With continued funding support, Phase II will include further development of the technology in 2005 in preparation for a 1000-hour field demonstration at an end-user site in the 500 to 1000 kW power range to verify system performance in a commercial setting. In addition to targeting prospects for outside funding, we are also beginning to explore prospective joint development opportunities for the program with strategic partners.

With funding support, continued success in a forthcoming field demonstrations, and further assessment of the commercial prospects for the technology, we anticipate pursuing Phase III field testing of pilot commercial production versions of the system followed by a limited commercial release. Results from these activities will determine the potential for offering the product on a broader scale to the sub-two megawatt diesel power generation industry.

Competition

We expect our solutions to compete with current emissions reduction technologies under development by diesel OEMs, Tier 1 suppliers and systems integrators, which also represent the potential customer base for our NOx reduction solutions. While even the most effective of these competitive systems has limitations relating to the amount of NOx reduction that can be achieved, we expect these diesel industry players will continue to develop technologies that may compete with ours.

For new mobile engine applications, NOx adsorbers along with diesel SCR systems, Clean Diesel Combustion ("CDC"), and Low-Temperature Combustion ("LTC"), including Homogeneous Charge Compression Ignition ("HCCI"), solutions represent the approaches believed to have the greatest potential to meet the EPA's 2010 emissions mandate. Leading diesel engine manufacturers such as Cummins, Caterpillar, Detroit Diesel Corporation, Navistar-ITEC and Volvo are currently developing and exploring a variety of NOx control solutions, ranging from advanced fuel systems, cooled exhaust gas recirculation ("EGR"), NOx catalysts, advanced engine controls and SCR systems. Most of these diesel OEMs completed in-house engine modifications to achieve the October 2002 EPA mandate, and are now pursuing refinements to their engine designs to meet the next phase of U.S. emissions requirements that will take effect in 2007. However, diesel OEMs have indicated that further engine modifications will not be able to achieve the 2010 U.S. mandated 90% reduction in NOx without some form of advanced NOx after-treatment or significant advances in CDC or HCCI/LTC solutions.

While a variety of after-treatment technology paths are currently being evaluated in the U.S. to meet the 2010 EPA mandate, the after-treatment solutions considered to have the greatest potential to meet the 0.2 g/bhp-hr target are NOx adsorbers and SCR systems. With respect to SCR systems there are some significant downsides associated with their use in mobile diesels, which have created concerns over their widespread use. SCR requires ammonia in urea form to neutralize NOx in the exhaust, raising environmental concerns and requiring the creation of an infrastructure to house urea or ammonia tanks at filling stations across the country as well as associated compliance issues when tanks run dry. Nonetheless, we are aware that some European diesel engine OEMs are planning to implement SCR for heavy-duty diesel engine applications in Europe to meet the Euro IV emissions standards beginning in October 2005.

NOx adsorbers, on the other hand, use diesel fuel in the NOx reduction process, eliminating the need for a costly new infrastructure and mitigating the risk of noncompliance by vehicle operators. We believe that through the use of our XFP technology in combination with a NOx adsorber, we can enable a robust, cost-effective and practical commercial solution to meet the most stringent NOx requirements in the U.S. and select global markets. Accordingly, a growing number of diesel OEMs continue to inquire about our ability to support their next phase of emissions control needs as NOx adsorbers remain a favored technology path to comply with stringent environmental standards.

Over time, our XFP may also face competition from new entrants to the market for diesel emissions reduction. New entrants may eventually develop competing technologies that achieve a similar level of emissions reduction on a cost-effective and practical basis. We are aware of at least three other companies which are separately pursuing the development of a diesel fuel processing technology that is designed to work in conjunction with a lean NOx adsorber to enable emissions reduction in line with the 2010 EPA mandate.

With respect to retrofit applications, we are aware of one company, Cleaire, which is marketing a non-SCR retrofit solution offering a 25% reduction in NOx for mobile diesel applications. In January 2005, Extengine Transport Systems announced CARB verification of an SCR retrofit application for certain off-road diesel engines from 150 to 200 horsepower used in excavators, bulldozers and loaders that claims a 80% reduction in NOx. There are other companies currently offering or developing alternate NOx control options that may compete with retrofit solutions. These technologies include EGR, engine "repowers" or replacements, compressed natural gas, or CNG, and others. Both SCR solutions along with these alternatives may result in NOx reductions in excess of 50%, but we believe they are also more costly than non-SCR-based retrofit solutions, such as the one we are pursuing. Our retrofit solution may also face competition from new entrants to the market that may eventually develop competing retrofit technologies, catalytic or otherwise, that achieve a similar reduction in NOx as our technology on a cost-effective basis. Cleaire, for example, is currently developing a non-SCR-based retrofit solution targeting a 30-35% reduction in NOx.

We believe the successful development of our retrofit solution could offer a significant competitive advantage over alternate NOx retrofit solutions on the market today or currently under development. In addition to a NOx reduction potential of 50% or greater, compared with the 25% NOx reduction currently being offered by another supplier, our solution is designed to operate across a broader temperature range, possibly including low temperatures encountered while idling.

For stationary diesel engine applications, the only available alternative today for reducing emissions to the most stringent required limits is through the addition of an SCR system; which we believe can be costly for small diesel generator sets. Our technology, we believe, could provide a more cost-effective means for stationary diesel engines to reduce their NOx emissions in line with the stringent emissions requirements being imposed in many areas of the U.S. In addition, our system is being designed for easy integration with a diesel particulate filter ("DPF") to offer end-use customers a combined solution for the reduction of both NOx and particulate matter ("PM").

➤ **NOx Control Solutions for Gas Turbines**

Our Xonon Cool Combustion product is the only commercially available pollution prevention technology proven to achieve ultra-low NOx emissions of less than 3 ppm during combustion. Our Xonon® system is integrated within a gas turbine, replacing the conventional flame-based combustion system with a catalytic process that combusts fuel at temperatures below the threshold at which NOx forms. This approach to reducing emissions is a significant departure from traditional methods of achieving ultra-low NOx levels in gas turbine power generation, which involve cleaning up downstream the pollution produced in the combustion process through costly, add-on exhaust cleanup systems. Through pollution prevention

instead of cleanup, we believe our Xonon system offers an efficient and cost-effective means for gas turbine operators to meet increasingly stringent Federal and State-imposed NOx regulations.

Industry Background and Market Opportunity

A gas turbine operates by compressing incoming air, combining it with fuel and combusting the mixture. The combustion process releases the fuel's energy, forming hot gases that power the turbine. In conventional combustion systems, a flame is used to combust the fuel. The temperature required to sustain a stable flame is significantly higher than the temperature at which the gas turbine is designed to operate, so most of the incoming air is used to cool the combustion process to the level the turbine requires. The high temperature required for a stable flame causes the nitrogen and oxygen in the air to react, forming NOx, a major contributor to air pollution. Over the past twenty years, advanced flame-based systems have been developed which reduce the temperature at which the fuel is burned by altering the composition of the fuel—most often by using water, steam or air to dilute the concentration of fuel in the combustor before it is mixed with the compressed air and burned. As the fuel-air mixture becomes leaner, the combustion temperature lowers, thus reducing the NOx emissions. These systems are generically called "lean pre-mix" combustion systems. Today, most gas turbines are manufactured with a version of this type of system that uses air to dilute the mixture and are known as "dry low NOx" systems. Other than one gas turbine OEM that offers a 5 ppm NOx guarantee on one of its small gas turbine models, the most advanced flame-based combustion systems today are limited to achieving NOx levels of approximately 9 ppm for certain newer commercial lean pre-mix systems, which are limited in application, and approximately 25 ppm for less sophisticated systems. Historically, the only alternative for meeting increasingly stringent ultra-low NOx emissions requirements has been to add a downstream exhaust cleanup system.

An ongoing barrier to adding new power generation capacity is the continued public focus on environmental issues. In the United States, the Clean Air Act creates the National Ambient Air Quality Standards, or NAAQS, which are the basis for regulations that limit emissions of certain harmful pollutants such as NOx. Today, U.S. emissions regulations generally require new installations of gas turbines to meet NOx emissions levels of 2.5 to 25 ppm, depending on the location and size of the installation. The general trend is toward the lower end of this range, with all areas of the U.S. today generally requiring ultra-low NOx emissions (less than 5 ppm) for new installations of gas turbines greater than 50 MW in size. In certain areas where air quality is currently unacceptable, smaller turbines are also being required to achieve ultra-low NOx levels. In 2000, California passed Senate Bill 1298 ("SB 1298") requiring the California Air Resources Board ("CARB") to set new emissions standards and provide guidance for the permitting of new electrical generation technologies less than 50 MW in size. The first phase of emissions limits under the new CARB certification program and guidance document took effect in January 2003, with even tighter limits scheduled to be imposed beginning in January 2007. On the federal level, the EPA announced in April 2004 a new 8-hour standard for the measurement of ground level ozone, or smog. Under this new standard, which took effect in June 2004, the EPA estimated that the number of areas in violation of air quality regulations has grown from 271 to 475 counties, home to 159 million people. As a result, 54% of the U.S. population now lives in areas where the most stringent emissions requirements are now being enforced.

We believe the role of state and federal environmental protection requirements in the permitting of new power generation capacity highlights the need for a cost-effective, widely-applicable emissions technology, like Xonon, that enables turbines to meet the most stringent existing emissions guidelines. We believe Xonon will not only reduce the operating costs associated with complying with environmental standards, but could also create additional value by enabling rapid siting and permitting of projects that otherwise may not have been possible.

Xonon Cool Combustion

Our Xonon system combusts fuel in a gas turbine using a different principle than conventional flame-based combustion systems. Instead of heating the fuel-air mixture in a flame until it is hot enough to burn, Xonon passes this mixture over a catalyst that allows the combustion reaction to take place at much lower temperatures. A portion of the fuel is combusted in the catalyst. The remaining fuel is combusted downstream of the catalyst in a homogeneous reaction, also at a temperature low enough to prevent formation of significant amounts of NOx. The resulting concentration of NOx in the gas turbine exhaust will be in the range of 1 to 5 ppm and below 3 ppm in most gas turbines built today. Importantly, our flameless catalytic combustion approach provides the same amount of output energy as flame-based combustion systems while achieving ultra-low NOx emissions without add-on exhaust cleanup systems.

We are focused on bringing the benefits of Xonon Cool Combustion to the power generation market through our strategic relationships with leading gas turbine manufacturers. In this regard, we continue to carefully allocate our resources and priorities commensurate with opportunities we believe will contribute more significantly to the near-term growth of the business as well as with development and commercialization activities that are largely funded by OEM partners.

To gain market share and penetrate new markets, OEMs seek to differentiate their products with technological advances that benefit their customers. The ultra-low emissions capabilities and economic benefits offered by Xonon-equipped gas turbines could greatly enhance an OEM's product line and offer significant competitive advantages.

Development and Commercialization

We have been working actively with gas turbine OEMs to adapt our technology as part of their stationary gas turbine product lines. We currently have agreements in place with Kawasaki Heavy Industries, Ltd. and Kawasaki Gas Turbines-Americas, a division of Kawasaki Motors Corp., U.S.A. ("Kawasaki"), and with GE Energy ("GE"), formerly known as GE Power Systems. We have also recently completed preliminary development work with Solar Turbines ("Solar") associated with exploring the application of Xonon to one of its gas turbine products. Our development of the Xonon technology has been supported by government agencies and research institutions, including the Department of Energy ("DOE"), the EPA, the CEC's PIER program, CARB and others.

For each turbine model an OEM agrees to pursue, we design a catalytic Xonon module, the key component of the Xonon system, to be incorporated into the design of the turbine combustion system. At present, we guarantee our Xonon modules for 8,000 hours (equivalent to approximately one year of continuous operation), and are designed to be replaced during regularly scheduled maintenance over the 15- to 20-year life of the turbine. We expect future revenues to be generated from the sale of both new and replacement Xonon modules.

From 1999 through 2004, we conducted field demonstrations of our Xonon Cool Combustion system on a 1.4 MW Kawasaki gas turbine at Silicon Valley Power, a municipally-owned utility site, located in Santa Clara, California. Throughout its operation at Silicon Valley Power, the Company-owned turbine functioned as part of the local power grid, serving alternately as a demonstration of Xonon's performance and reliability during unattended full-load operation and as a development and test engine in support of commercial program initiatives for customers. In total, the Xonon-equipped turbine accumulated more than 20,000 hours of engine operation at Silicon Valley Power with NOx emissions consistently well below 3 ppm. During this time, the system satisfied federal EPA guidelines for an emissions control technology that is "achieved in practice" and demonstrated emissions levels that satisfy California's South Coast Air Quality Management District ("SCAQMD") guidelines for gas turbines. We believe Xonon is the only gas turbine combustion system demonstrated to meet these guidelines without requiring a downstream exhaust cleanup system. Furthermore, we successfully completed evaluations by the EPA, through its

Environmental Technology Verification program, and by CARB through its technology precertification program, both of which confirmed the ultra-low emissions performance of our technology while operating on a gas turbine.

In partnership with Kawasaki, we installed the first commercial Xonon-equipped gas turbine in November 2002, marking the world's first commercial operation of a catalytic combustion system in a gas turbine and a major milestone in gas turbine innovation. The 1.4 MW Kawasaki gas turbine, operating at Sonoma Developmental Center in Eldridge, California, is also the first commercial gas turbine to generate ultra-low emissions power without the use of a downstream exhaust cleanup system.

Our initial product offerings target the small gas turbine sector, which includes turbines that generate between one and approximately 15 MW of power. According to Forecast International, the worldwide production of gas turbines in this size class is projected to average 370 units annually over the next 10 years. In North America, orders for gas turbines between one and 15 MW have averaged 38 units annually over the past three years according to Diesel & Gas Turbine Worldwide. Turbines in this sector serve industrial, commercial and institutional loads in both power only and combined heat and power, or cogeneration, applications and can help meet power requirements during periods of peak demand at base-load power facilities. Small gas turbines are also used in the pipeline industry to transport oil and gas.

Distributed generation applications, or power sources located at or near the point of use, can enhance power quality and reliability while avoiding the need to expand transmission and distribution capacity. We believe the distributed generation concept has the potential to address a number of ongoing problems in the power industry, including limitations in the bulk power transmission grids, environmental and community opposition surrounding the construction of new power lines, concerns about the vulnerability of the power infrastructure, and the need for high quality, reliable power. While the distributed generation market has proven slow to emerge, we believe there is a substantial, long-term market opportunity in constrained transmission pockets in certain areas of the U.S., whereby installations of small and medium-sized distributed power units, such as Xonon-equipped gas turbines, can serve to alleviate bottlenecks. The Los Angeles basin and certain areas of New York are examples of regions we believe could benefit from such a solution.

We work with leading gas turbine manufacturers in adapting and marketing Xonon for gas turbines within the one to 15 MW size range. Below is a listing of current and recently completed programs:

Kawasaki GPB15X (1.4 MW)—In December 2000, we entered into a collaborative commercialization agreement whereby Kawasaki could market and sell our Xonon Cool Combustion system as part of its GPB15X generator package, which features a 1.4 MW M1A-13X Kawasaki gas turbine equipped with Xonon. Kawasaki is actively marketing and accepting commercial orders for this generator package. The first commercial Xonon-equipped GPB15X entered operation at Sonoma Developmental Center in Eldridge, California in November 2002. This unit continues to operate as part of a cogeneration system, which is providing supplemental heat and power for a 120-building campus. A second commercial Xonon-equipped GPB15X entered service in December 2003 at Plains Exploration and Production Company's oil field in San Luis Obispo, California. This unit continues to operate as part of a cogeneration system, which is providing electricity to power oil pumping systems and steam created from the exhaust heat to facilitate extracting oil from the ground. Kawasaki has shipped additional commercial Xonon-equipped GPB15X generator packages for other customer sites in both California and in the Northeast, which are pending installation.

Kawasaki continues to pursue initiatives to expand the penetration of Xonon-equipped gas turbines in the market. In February 2002, Kawasaki successfully petitioned the California Public Utilities Commission to expand qualification for self-generation financial incentives to include generating technologies up to 1.5 MW. As a result, California power projects considering installation of the Xonon-equipped M1A-13X may qualify for a subsidy of up to 30 percent of project costs.

Additionally, Kawasaki entered into a distribution agreement with Cummins Power Generation in December 2002, whereby Cummins will market, sell and service Kawasaki generator sets and power systems. This agreement has created an additional distribution channel for Xonon-equipped Kawasaki products.

GE10 (~10 MW)—We and GE continue to pursue adaptation of Xonon for the GE10 under an agreement signed in May 2000. As part of our ongoing development of a Xonon-equipped GE10, we and GE have performed a series of rig tests followed by the completion of an initial round of full-scale engine tests in the fourth quarter of 2003. The initial engine test activities revealed the need for additional modifications of the catalyst and other combustion system hardware to better match the catalyst to the turbine characteristics and to achieve optimal performance within a commercial GE10 gas turbine environment. Since that time, we and GE accomplished the necessary modifications and proceeded to complete a second round of full-scale engine tests in January 2005. During these most recent test activities, the Xonon-equipped GE10 successfully demonstrated NOx emissions well below 3 ppm at base-load operating conditions. We and GE are currently conducting a more in-depth review of the positive results achieved in recent testing, and plan to determine next steps for the Xonon-equipped GE10 program by mid-2005.

Solar Taurus™ 70 (7.5 MW)—In October 2001, we entered into an agreement with Solar for the joint development and adaptation of Xonon to Solar's Taurus™ 70 gas turbine as part of a \$3.0 million grant awarded to Solar by the CEC. The scope of our work in this joint development effort, which commenced in the first quarter of 2002, included the design of supplementary combustor components in addition to the Xonon module for the catalytic combustion system. In 2004, we completed our two-year joint development program, which culminated in a full-scale rig test of the jointly designed catalytic combustion system, and the successful demonstration of NOx emissions less than 2 ppm. At the present time, consistent with our OEM funding strategy, we and Solar Turbines do not intend to pursue further development of a Xonon-equipped Taurus™ 70 gas turbine.

Multi-combustor development (<15 MW)—In September 2001, the CEC granted us an award to help fund application of the Xonon Cool Combustion system to a small, multi-combustor gas turbine. The development effort for this program commenced during the first quarter of 2002. During 2003, we successfully completed the technology development phase of the program. Since that time, we have redirected our technical focus entirely on commercialization efforts associated with our OEM gas turbine programs. As a result, there is no current activity associated with the continued development of Xonon for small, multicomcombustor gas turbines.

We also believe Xonon combustion systems can be applied to larger gas turbine sizes. Larger gas turbines are used by public utilities and wholesale generating companies in base-load power generating facilities, as well as for meeting power requirements during periods of peak demand and in energy intensive industrial facilities for power generation and cogeneration. OEMs who manufacture gas turbines larger than 15-MW include Alstom Power, GE, Mitsubishi Heavy Industries, Pratt & Whitney Canada and Siemens Westinghouse.

We have performed initial development work and testing of Xonon for large gas turbines. Preliminary tests conducted with GE and another large gas turbine manufacturer have confirmed Xonon's ability to reduce NOx to ultra-low levels in the high temperature and high pressure operating conditions of a large, industrial-type gas turbine.

As a result of ongoing challenging market conditions in the U.S. gas turbine industry, particularly for large gas turbines, our current focus is to complete commercial deployment of Xonon on small gas turbines. We do not expect Xonon modules for large gas turbines to comprise a significant portion of our revenue in the foreseeable future.

Competition

We expect Xonon-equipped gas turbines to compete with turbines outfitted with current emissions reduction technologies, including advanced flame-based combustion systems and downstream exhaust cleanup systems. Advanced flame-based combustion systems, such as lean pre-mix or dry low NOx systems, are manufactured and provided by gas turbine OEMs as part of their turbine product line. These gas turbine OEMs also represent the potential customer base for our Xonon modules, and we expect to rely upon them to distribute Xonon-equipped turbines to end-users. While even the most effective of these systems have been unable to achieve today's required ultra-low emissions levels without add-on exhaust cleanup systems, we expect that OEMs will continue to develop technologies that may compete with ours.

Various companies, including Cormetech, Engelhard, Mitsubishi and Siemens, manufacture conventional exhaust cleanup systems. End-users generally purchase these systems directly from the manufacturers, through packagers, or from vendors of heat recovery steam generation equipment. Gas turbine OEMs generally do not function as intermediaries in these transactions and do not receive any economic value from the sale of exhaust cleanup systems.

The deployment of exhaust cleanup systems involves the combination of a gas turbine equipped with an advanced flame-based combustion system and the addition of downstream cleanup equipment, which is fitted onto the turbine to clean the exhaust. While cleanup systems have been proven to reduce NOx to ultra-low levels in most gas turbine applications, they add considerably to the square footage of the power generating facility, and can be costly to install and operate. For most downstream cleanup systems, other drawbacks may include a negative impact on turbine efficiency and the use of toxic substances, such as ammonia, to clean up the pollution after it has formed.

Through pollution prevention instead of cleanup, we believe our Xonon Cool Combustion system presents a more practical and cost-effective approach to reducing NOx to ultra-low levels in the form of a compact system integrated within the gas turbine itself. The installation of a Xonon-equipped turbine offers power producers an environmentally friendly, one-step approach to reducing NOx that requires no additional labor or space. Xonon can be widely applied and requires no toxic chemicals. As a result, we believe Xonon could ease the challenges associated with siting, permitting, and operating new power sources, enabling broader deployment of gas turbines in densely populated areas.

Over time, the Xonon combustion system may also face competition from new entrants to the market for emissions reduction. New entrants may eventually develop competing technologies, catalytic or otherwise, that also achieve ultra-low emissions on a cost-effective basis. We are aware of other companies pursuing the development of ultra-low NOx technologies with gas turbine OEMs, including Precision Combustion, Inc., ALZETA Corporation and Cheng Power Systems.

We are also aware of companies developing NOx reduction solutions approaching ultra-low NOx emissions. Solar Turbines, a leading gas turbine manufacturer of small gas turbines in the one to 14 MW range, and also one of our former development partners, has commercialized a 4.6 MW gas turbine with a 5 ppm NOx guarantee. We expect that other gas turbine OEMs may continue to advance their lean pre-mix or dry low NOx technologies and could eventually develop a system that achieves NOx emissions approaching the levels achieved by our Xonon system. We are also aware of one company, Power Systems Manufacturing ("PSM") that has commercialized a 5 ppm retrofit NOx system for certain large gas turbine models greater than 60 MW in size.

We believe our Xonon system has an advantage over competing emissions control alternatives as a result of our unique pollution prevention approach for achieving ultra-low emissions that has been proven in commercial installations.

➤ Fuel Processing for Fuel Cell Applications

In 2001, we were selected by the DOE for an \$11,658,000 cost-shared contract for the development of a compact fuel processor that could convert conventional fuels, such as gasoline, to hydrogen to power fuel cell vehicles and provide a cost-effective option to bridge the transition to a hydrogen economy. The initial objective of the 48-month development program was for us to deliver a compact fuel-flexible fuel processor prototype to be used with Proton Exchange Membrane ("PEM") fuel cells in an automotive application.

Accomplishments since initiation of the program in October 2001 included the development of a new test reactor that simulates plate reactor performance, and the demonstration of direct steam reforming of gasoline in a plate reactor configuration. Significant progress was also made in developing highly active, cost-effective and durable fuel reforming, water-gas-shift and preferential oxidation catalysts. Individual catalytic reactor components of the fuel processing system were successfully modeled and designed to achieve the targeted 60-second start-up time. In 2004, we fabricated a 3kW(e) steam reforming prototype plate reactor and successfully demonstrated a start-up time of less than 60 seconds.

In August 2004, the DOE made a decision to discontinue funded research and development of on-board fuel processing for fuel cell vehicles. This decision was due in part to technological and economical hurdles and in part to the impact of President Bush's Hydrogen Fuel Initiative, which accelerated the hydrogen technology commercialization decision from 2030 to 2015 thereby lessening the contribution that on-board fuel processing could make as a transitional technology. However, the DOE has redirected funding for some of these programs to support stationary and auxiliary power unit fuel processing and other potential applications. Accordingly, we are now developing our fuel processing technology for fuel cell applications with a new focus on stationary, auxiliary and back-up power. In support of these efforts, we will continue to receive funding from the DOE through 2005 after which time we plan to close out the program.

Catalyst-Based Technology Solutions Manufacturing

In October 2002, we brought on-line a commercial manufacturing facility in our Gilbert, Arizona location, which is being used to manufacture both prototype and production Xonon modules for gas turbine applications as well as prototypes of our diesel NOx reduction solutions. In the second quarter of 2003, we implemented an advanced-product quality assurance system and installed a new, more robust coating line in our Gilbert facility, enabling us to further enhance our manufacturing operations. We also have manufacturing capability in our Mountain View, California facility, which is used primarily for the manufacture of prototypes as part of our ongoing research, development and test activities.

We have sufficient capacity in our Gilbert facility to build both development and production Xonon modules for gas turbines to satisfy our needs for the near future. We plan to retain all proprietary manufacturing within our facilities and to outsource the manufacturing of non-critical components to third party suppliers. We expect the Xonon modules to be returned to us at the end of their useful life. We plan to reclaim, reuse or recycle most components of the module, particularly the precious metals palladium and platinum, in order to reduce our costs and protect ourselves against the volatility of precious metal prices.

While we are currently manufacturing prototypes of our diesel emissions control systems in both of our facilities, we are in the process of developing next generation manufacturing processes, scalable to meet future demand. In preparation for a possible 2006 commercial launch of our Diesel Retrofit Solution, we plan to build additional manufacturing capability in the coming year to ensure production readiness. We also expect portions of our future commercial production may be outsourced to leverage the expertise of high-volume manufacturers and achieve our goal of producing cost-effective diesel emissions reduction solutions.

In the fourth quarter of 1999, we earned ISO 9001 Registration from Underwriters Laboratories, Inc. for the design and manufacture of Xonon modules at our Mountain View, California facility. In the fourth quarter of 2002 we also earned ISO 9001 Registration for our Gilbert, Arizona commercial manufacturing operations and subsequently completed the transition to the ISO 9001:2000 standards in October 2003 following an audit of our quality system. In addition to being awarded ISO 9001:2000 certification from Underwriters Laboratories, Inc., we received commendations of excellent system processes for our Integrated Product Development System and Manufacturing Control, further demonstrating our commitment to high quality standards and customer satisfaction. In 2004, we successfully completed subsequent ISO 9001 follow-up audits and received commendations for our exemplary resource management process.

Intellectual Property

We maintain a rigorous intellectual property program to protect our proprietary technologies and processes. Our intellectual property strategy is to identify key intellectual property developed or acquired by us in order to protect it in a timely and effective manner, and to continually use such intellectual property to our competitive advantage in the NOx control marketplace. An objective of our intellectual property strategy is to enable us to be first to market with proprietary technology and to sustain a long-term technological lead in the market. We use a combination of patents, trade secrets, contracts, copyrights and trademarks to protect the proprietary aspects of our core technologies, including system design, control systems, manufacturing processes and other know-how, and we work to actively maintain protection of our proprietary technologies and processes over time through follow-on patent filings associated with technology and process improvements that we continually develop. As of the date of this filing, we either owned (exclusively or jointly), held exclusive license rights from third parties for, or held license rights from affiliates for 26 U.S. patents and 19 pending applications and the international counterparts associated with some of them. We anticipate that when our early patents expire, we will rely on subsequently filed and additional patents along with trade secrets and other know-how to protect the foundation technology, design and manufacturing processes.

We use patents as the primary means of protecting our technological advances and innovations. We have adopted a proactive approach to identifying patentable inventions and securing patent protection through the timely filing and aggressive prosecution of patent applications. Our employees participate in a comprehensive invention disclosure program involving preparation of written invention memoranda and preservation of supporting laboratory records. Patent applications are filed in various jurisdictions internationally, which are carefully chosen based on the likely value and enforceability of intellectual property rights in those jurisdictions and to strategically reflect our anticipated major markets.

We actively monitor the patent position, technical developments and market activities of our competitors. We believe that our growing patent portfolio, especially when coupled with a strong enforcement program, can provide us with a significant advantage over our competitors. We plan to vigorously defend our intellectual property.

Portions of our know-how are also protected as trade secrets and supported through contractual agreements with our employees, suppliers, partners and customers. We aggressively protect our intellectual property rights in our collaboration agreements with a view to capturing maximum value from our products in our markets and ensuring a competitive advantage.

Human Resources

As of December 31, 2004, we employed 88 persons. We added 11 employees in February 2004 through our acquisition of SCR-Tech. None of our employees are represented by a labor union. We believe our relations with our employees are good. The employment of Hans Hartenstein, former President of

SCR-Tech, terminated in March 2005. As a result of this management change, SCR-Tech may be subject to potential litigation with Mr. Hartenstein and his affiliates.

Available Information

The Company's Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K, including any amendments, will be made available free of charge on or through the Company's website, *www.catalyticaenergy.com*, as soon as reasonably practicable following the filing of the reports with the Securities and Exchange Commission. The contents of our website are not, and shall not be deemed to be, incorporated into this report.

Item 2. PROPERTIES

Our research and development facility, consisting of portions of two leased buildings covering approximately 32,500 square feet, is located in Mountain View, California. This lease expires on December 31, 2005, with two options to renew for two additional years each. We currently sublease approximately 6,300 square feet at this site.

Our manufacturing operations and executive offices are located in Gilbert, Arizona in an approximately 43,000 square feet facility we purchased in 2002. We currently lease to tenants approximately 16,000 square feet of this facility.

Our SCR cleaning and regeneration facility, consisting of approximately 62,000 square feet of office, production, laboratory and warehouse space, is located in Charlotte, North Carolina. This lease expires on December 31, 2012, with two options to renew for five years each.

Through November 2004, we leased from the City of Santa Clara, California a site which housed a gas turbine used for field demonstrations of our Xonon Cool Combustion system. Having achieved the objectives of these demonstration programs, operations at this site were ceased and the lease was cancelled at the end of November 2004.

We believe our existing facilities are adequate for our present needs.

Item 3. LEGAL PROCEEDINGS

Although we may be subject to litigation from time to time in the ordinary course of our business, we are not currently a party to any material legal proceeding.

Item 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

There were no matters submitted to a vote of the stockholders of the Company during the fourth quarter of the fiscal year covered by this report.

PART II

Item 5. *MARKET FOR THE REGISTRANT'S COMMON STOCK AND RELATED STOCKHOLDER MATTERS*

Common Stock

Catalytica Energy Systems, Inc. common stock is listed on the NASDAQ National Market under the symbol "CESI." The following table sets forth high and low closing prices per share for our common stock as quoted on the NASDAQ National Market during each quarter of 2003 and 2004. Such prices represent inter-dealer prices and do not include retail mark-ups or mark-downs or commissions and may not represent actual transactions.

	<u>Quarter Ended March 31, 2003</u>	<u>Quarter Ended June 30, 2003</u>	<u>Quarter Ended September 30, 2003</u>	<u>Quarter Ended December 31, 2003</u>
Common stock price per share:				
High	\$2.95	\$3.00	\$3.54	\$4.40
Low	2.48	2.46	2.70	3.25
	<u>Quarter Ended March 31, 2004</u>	<u>Quarter Ended June 30, 2004</u>	<u>Quarter Ended September 30, 2004</u>	<u>Quarter Ended December 31, 2004</u>
Common stock price per share:				
High	\$4.19	\$3.63	\$2.83	\$2.53
Low	3.33	2.82	2.01	1.77

As of March 18, 2005, there were 752 holders of record of our common stock, as shown on the records of our transfer agent. The number of record holders does not include shares held in "street name" through brokers.

Dividend Policy

We have never paid cash dividends on our common stock or any other securities. We anticipate we will retain any future earnings for use in the expansion and operation of our business and do not anticipate paying cash dividends in the foreseeable future.

Shareholder Rights Plan

In January 2002, our Board of Directors adopted a Shareholder Rights Plan, which was amended in November 2004 (the "Plan"). Under the Plan, we distributed Preferred Stock Purchase Rights as a dividend at the rate of one Right for each share of its common stock held by stockholders of record on February 20, 2002 (the "Record Date"). The Board of Directors also authorized the issuance of Rights for each share of common stock issued after the Record Date, until the occurrence of certain specified events. The Plan was adopted to provide protection to stockholders in the event of an unsolicited attempt to acquire the Company. Each Right will entitle the registered holder to purchase from the Company one one-thousandth of a share of Series A Participating Preferred stock at an exercise price of \$45, subject to adjustment. We have authorized 5,000,000 shares of Series A preferred stock for issuance pursuant to this plan.

Under the Plan, the Rights are not exercisable until triggered by certain conditions including the acquisition of beneficial ownership of 20% of our common stock. However, Morgan Stanley Capital Partners III, L.P., and its affiliates could acquire up to 21.5% of the Company's common stock without triggering the Rights. If the Rights are triggered, then each holder of a Right which has not been exercised

(other than Rights beneficially owned by the Acquiring Person) will have the right to receive, upon exercise, voting Common Shares having a value equal to two times the Purchase Price.

The Company is entitled to redeem the Rights, for \$0.001 per Right, at the discretion of the Board of Directors, until certain specified times. We may also require the exchange of Rights, under certain additional circumstances. We also have the ability to amend the Rights, subject to certain limitations.

Securities Authorized for Issuance under Equity Compensation Plans

	Number of Securities to be Issued upon Exercise of <u>Outstanding Options</u>	Weighted-Average Exercise Price of <u>Outstanding Options</u>	Common Stock Reserved for Future <u>Issuance</u>
Plans approved by stockholders:			
1995 Stock Option Plan	3,186,435	\$5.20	4,370,272
2000 Employee Stock Purchase Plan	—		<u>1,171,020</u>
Total	<u>3,186,435</u>		<u>5,541,292</u>

Item 6. SELECTED CONSOLIDATED FINANCIAL DATA

The following table contains selected consolidated financial data as of and for each of the five years ended December 31, 2000, 2001, 2002, 2003 and 2004 that were derived from our consolidated financial statements, which were audited by Ernst & Young LLP, independent registered public accounting firm. The selected consolidated financial data are qualified by reference to, and should be read in conjunction with, our financial statements and the notes to those consolidated financial statements and Management's Discussion and Analysis of Financial Condition and Results of Operations. No cash dividends were declared in any of the years presented.

	Years Ended December 31,				
	2004	2003	2002	2001	2000
	(in thousands, except per share data)				
Consolidated Statements of Operations Data:					
Revenues	\$ 5,601	\$ 3,498	\$ 4,795	\$ 5,523	\$ 5,487
Expenses:					
Cost of revenues ^(A)	5,227	4,341	5,977	9,957	9,305
Research and development ^(A)	7,498	6,919	8,252	4,665	1,972
Selling, general and administrative	6,339	7,224	9,654	7,017	5,356
Spin-off and related transaction costs ^(B)	—	—	—	—	5,304
Legal settlements ^(C)	—	—	—	3,250	—
Total expenses	19,064	18,484	23,883	24,889	21,937
Operating loss	(13,463)	(14,986)	(19,088)	(19,366)	(16,450)
Loss on equity investments ^(D)	—	—	—	(707)	(236)
Impairment charge to implied goodwill of an equity investment ^(E)	—	—	—	(2,145)	—
Interest and other income ^(F)	758	823	1,405	2,672	886
Interest expense	(564)	(236)	(191)	(43)	(110)
Net loss	<u>\$ (13,269)</u>	<u>\$ (14,399)</u>	<u>\$ (17,874)</u>	<u>\$ (19,589)</u>	<u>\$ (15,910)</u>
Basic and diluted net loss per share	<u>\$ (0.74)</u>	<u>\$ (0.81)</u>	<u>\$ (1.02)</u>	<u>\$ (1.33)</u>	<u>\$ (15.91)</u>
Weighted average shares used in computing basic and diluted net loss per share	<u>17,850</u>	<u>17,669</u>	<u>17,529</u>	<u>14,747</u>	<u>1,000</u>
Consolidated Balance Sheet Data:					
Cash, cash equivalents and short-term investments ^(F)	\$ 35,592	\$ 52,682	\$ 66,770	\$ 87,647	\$ 58,712
Total assets	<u>\$ 51,517</u>	<u>\$ 61,685</u>	<u>\$ 77,021</u>	<u>\$ 95,140</u>	<u>\$ 67,772</u>
Long-term debt and capital lease obligations ^(G) ..	<u>\$ 6,402</u>	<u>\$ 3,245</u>	<u>\$ 3,250</u>	<u>\$ 123</u>	<u>\$ 244</u>
Total liabilities	<u>\$ 9,178</u>	<u>\$ 6,458</u>	<u>\$ 7,842</u>	<u>\$ 8,418</u>	<u>\$ 10,302</u>
Total stockholders' equity	<u>\$ 42,339</u>	<u>\$ 55,227</u>	<u>\$ 69,179</u>	<u>\$ 86,722</u>	<u>\$ 57,470</u>

(A) Decrease from 2001 through 2003 due to decline in externally funded research and development, which is classified as cost of revenues. Increase in 2004 due to acquisition of SCR-Tech. Total R&D expenses, including those classified as cost of revenues, are as follows:

	2004	2003	2002	2001	2000
R&D cost of revenues	2,746	4,341	5,977	9,957	9,305
R&D	7,498	6,919	8,252	4,665	1,972
Total R&D expenditures	<u>10,244</u>	<u>11,260</u>	<u>14,229</u>	<u>14,622</u>	<u>11,277</u>

- (B) Expenses associated with our spin-off from Catalytica, Inc. on December 15, 2000.
- (C) Legal settlement recorded in 2001 with respect to a complaint filed by the City of Glendale, California in 2000.
- (D) Pro-rata share of losses recorded under the equity method of accounting for investments in Novodynamics and Genxon (see "Other Commitments"). The equity method of accounting for these investments was discontinued when the net book carrying value of those investments reached zero.
- (E) Impairment in the carrying value of the equity investment in Novodynamics deemed other than temporary; resulting in an impairment charge of \$1,645,000.
- (F) Follow-on stock offering in 2001, which generated \$47,642,000 in cash; resulting in increase in interest income in 2001.
- (G) Increase in 2002 related to term loan applied to the purchase of a manufacturing and administrative facility in Gilbert, Arizona. Increase in 2004 related to debt incurred in the acquisition of SCR-Tech.

The following table contains selected consolidated quarterly statements of operations data that were derived from our unaudited financial statements for each of the eight quarters of the past two years. We believe these unaudited financial results were prepared on a basis consistent with our audited financial statements and include all adjustments, consisting only of normal recurring adjustments, necessary for a fair presentation of our consolidated results of operations for those periods. The results of operations for any quarter are not necessarily indicative of the results of any future period.

	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
	2004	2003	2004	2003	2004	2003	2004	2003
	(in thousands, except per share data)							
Revenues	\$ 986	\$ 531	\$ 1,100	\$ 959	\$ 1,942	\$ 1,107	\$ 1,573	\$ 901
Total costs and expenses .	4,323	5,256	5,125	4,577	4,664	4,351	4,952	4,300
Operating loss	<u>\$(3,337)</u>	<u>\$(4,725)</u>	<u>\$(4,025)</u>	<u>\$(3,618)</u>	<u>\$(2,722)</u>	<u>\$(3,244)</u>	<u>\$(3,379)</u>	<u>\$(3,399)</u>
Net loss	<u>\$(3,241)</u>	<u>\$(4,555)</u>	<u>\$(4,004)</u>	<u>\$(3,480)</u>	<u>\$(2,696)</u>	<u>\$(3,116)</u>	<u>\$(3,328)</u>	<u>\$(3,248)</u>
Basic and diluted net loss per share.....	<u>\$ (0.18)</u>	<u>\$ (0.26)</u>	<u>\$ (0.22)</u>	<u>\$ (0.20)</u>	<u>\$ (0.15)</u>	<u>\$ (0.18)</u>	<u>\$ (0.19)</u>	<u>\$ (0.18)</u>

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

This Management's Discussion and Analysis of Financial Condition and Results of Operations and other parts of this Annual Report on Form 10-K contain forward-looking statements that involve risks and uncertainties. Words such as "anticipate," "believe," "estimate," "expect," "intend," "plan" and similar expressions identify such forward-looking statements, which are based on information available to us on the date hereof, and we assume no obligation to update any such forward-looking statements. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including those set forth in "Risks That Could Affect Our Financial Condition and Results of Operations" and elsewhere in this Form 10-K.

Overview

Catalytica Energy Systems, Inc. (“Catalytica Energy,” the “Company,” “we” or “us”) was incorporated in Delaware in 1995 as a subsidiary of Catalytica, Inc. Catalytica Energy operated as part of Catalytica, Inc.’s research and development group from inception through the date of its incorporation as a separate entity. In December 2000, Catalytica Advanced Technologies, Inc., another subsidiary of Catalytica Inc., was merged into us, and the combined entity was spun out from Catalytica, Inc. as Catalytica Energy Systems, Inc., a separate, stand-alone public company.

We provide innovative emissions solutions to ease the environmental impact of combustion-related applications in the power generation and transportation industries. Through our SCR-Tech subsidiary, we offer a variety of services for coal-fired power plants that use selective catalytic reduction (“SCR”) systems to reduce nitrogen oxides (“NOx”) emissions. These services include SCR catalyst cleaning and regeneration, SCR system management services to optimize efficiency and reduce overall operating and maintenance (“O&M”) costs, and consulting services related to the design of SCR systems (collectively “SCR Catalyst and Management Services”). Our business activities also include the design, development, manufacture and servicing of advanced products based on our proprietary catalyst and fuel processing technologies to offer cost-effective solutions for reducing NOx emissions from diesel engines and natural gas-fired turbines. Our diesel fuel processing technology is designed to facilitate significant NOx reduction from mobile, stationary and off-road diesel engine applications by improving the performance of NOx adsorber catalyst systems. Our commercially-available Xonon Cool Combustion® system offers a breakthrough pollution prevention approach that enables gas turbines to achieve ultra-low NOx emissions through a proprietary catalytic combustion process. Other activities include the development of fuel processing systems for fuel cells used in stationary, auxiliary and back-up power applications.

We are focused on growing our business through a product and market diversification strategy in the area of NOx control. Increasingly stringent air quality regulations have resulted in tighter emissions restrictions being imposed on a variety of combustion-related applications. NOx emissions, which are a precursor to smog formation, have become a primary target of government-imposed emissions regulations, creating a significant opportunity for innovative, cost-effective NOx control solutions. Industry analysts estimate the U.S. market for NOx control represents a greater than \$5 billion opportunity annually in the power generation and diesel industries, and we believe this market is poised for growth as a result of pending Federal and State regulations calling for further reductions in NOx emissions.

As a result of ongoing challenging conditions in the U.S. gas turbine industry, a slow to emerge distributed generation market and the pace of gas turbine original equipment manufacturer (“OEM”) commercialization activities, we completed a rigorous exercise in 2003 to realign our strategic direction and build a stronger business. This has been accomplished through broadening our product and service offerings in the area of NOx control beyond our Xonon Cool Combustion product for gas turbines, pursuing new business activity and expanding our portfolio of NOx-related products and services across new and growing markets. We are committed to solving NOx-related problems by providing the most economically compelling and most effective solutions available, whether it is through prevention or through some form of after-treatment. In addition to intensifying our development of NOx control after-treatment systems for diesel engines which leverage our core Xonon® technology, we have become more active in identifying strategic opportunities, including business acquisitions that complement our current products, expand the breadth of our markets or build upon our technical capabilities. In particular, we continue to focus on opportunities that offer near-term, profitable product and service offerings.

As part of this strategic initiative, in February 2004 we acquired SCR-Tech, LLC (“SCR-Tech”), the North American leader in catalyst regeneration technologies and management services for selective catalytic reduction systems used by coal-fired power plants to reduce NOx emissions. The addition of SCR-Tech strategically broadened and diversified our product and service offerings to the growing emissions

control market for coal-fired power plants and has served to accelerate our penetration into the NOx control marketplace. We believe the acquisition of SCR-Tech has created a foundation for future growth and has strengthened our ability to continue pursuing development and commercialization efforts in other areas of our business, while also targeting additional business opportunities in the area of NOx control.

Results of Operations

The following summary presents the results of operations and percentage change by comparable period for the years ended December 31, 2004, 2003 and 2002:

	Year Ended December 31,			Annual Change	
	2004	2003	2002	2004/2003	2003/2002
Revenues					
SCR catalyst & management services	\$ 2,960	\$ —	\$ —	\$2,960	\$ —
Research and development	2,641	3,498	4,795	(857)	(1,297)
Total revenues	<u>5,601</u>	<u>3,498</u>	<u>4,795</u>	<u>2,103</u>	<u>(1,297)</u>
Costs and expenses:					
Cost of revenues	5,227	4,341	5,977	886	(1,636)
Research and development	7,498	6,919	8,252	579	(1,333)
Selling, general and administrative	6,339	7,224	9,654	(885)	(2,430)
Total costs and expenses	<u>19,064</u>	<u>18,484</u>	<u>23,883</u>	<u>580</u>	<u>(5,399)</u>
Operating loss	(13,463)	(14,986)	(19,088)	1,523	4,102
Interest and other income	758	823	1,405	(65)	(582)
Interest expense	(564)	(236)	(191)	(328)	(45)
Net loss	<u>\$ (13,269)</u>	<u>\$ (14,399)</u>	<u>\$ (17,874)</u>	<u>\$ 1,130</u>	<u>\$ 3,475</u>

Comparison of the years ended December 31, 2004, 2003 and 2002.

REVENUES

Revenues in the periods presented include revenues generated from SCR Catalyst and Management Services (after February 20, 2004), primarily from catalyst cleaning and regeneration services. Additionally, the Company provides management and consulting services related to the design, operating efficiency, and overall operating and maintenance costs of SCR systems. Revenues in the periods presented also include revenues generated from research and development ("R&D") contracts funded by gas turbine manufacturers and government sources for fuel processor, diesel and gas turbine technology development. These R&D contracts provide for partial recovery of our direct and indirect costs. In addition, revenues in the periods presented include proceeds from the sale of our Xonon Cool Combustion modules to original equipment manufacturers ("OEMs").

We expect SCR Catalyst and Management Services to continue to be a significant component of revenue for the foreseeable future. However, this revenue is project-based, and as such, the timing of those revenues varies from period-to-period. We expect to continue to pursue funded research programs. Most of our R&D contracts are subject to periodic review by our funding partners, which could result in modifications to project scope, termination of funding, or schedule delays. We cannot ensure we will continue to receive R&D funding. In return for funding development, collaborative partners may receive certain rights in the commercialization of any resulting technology, including royalty payments on future sales (see "-Other Commitments"). The timing of revenues from R&D contracts varies from year to year, and from contract to contract, based on the terms agreed upon by us and the customer or funding party.

Due to the nature of R&D funding, period-to-period comparisons of R&D revenues are not necessarily meaningful and should not be relied upon as indications of future performance.

The majority of the increase in revenue during the year ended December 31, 2004 compared to 2003 consists of the following: incremental revenue of \$2,960,000 from SCR Catalyst and Management Services following the Company's acquisition of SCR-Tech in February 2004 and a \$456,000 increase in revenue from new diesel R&D programs commencing in the third quarter. Partially offsetting these increases was a \$1,134,000 reduction in government and OEM funding, as development efforts under certain gas turbine programs were completed, in addition to a \$201,000 decline in funding from the U.S. Department of Energy under a multi-year program to develop fuel processors for use with fuel cells (the "DOE Fuel Processor Program").

We believe 2005 revenues could be less than 2004 revenues. With respect to SCR Catalyst and Management Services, revenues could be less due to our limited backlog, uncertain market conditions, competitive pressures, and changes in senior management. Backlog as of 12/31/04 for SCR Catalyst and Management Services was approximately \$775,000 including \$190,000 of deferred revenue. We anticipate that the Company will realize substantially all of its current backlog in the first quarter of 2005. We are currently pursuing several opportunities in this area; however, there can be no assurance that our efforts will be successful. Further, with respect to revenues generated from R&D contracts, the DOE Fuel Processor program, which has been a significant revenue contributor in each of the last three years (including \$1.8 million in 2004), is ending in September 2005. We have identified potential funding sources for our Diesel Retrofit and Diesel Genset programs; however, we have not yet secured funding from those sources and the availability of such funding is not certain.

Revenue declined \$1,297,000 during the year ended December 31, 2003 compared to 2002. The majority of the decrease consists of the following: revenue recorded from a research program funded by the U.S. Department of Energy to enhance the performance of combustion systems using Xonon technology decreased by \$650,000 due to the completion of the program in August 2002. Funding from one OEM partner decreased by \$504,000 as the combustion system development under the program advanced to a stage requiring less engineering effort than in the previous year.

COST OF REVENUES

Expenses relating to government and OEM funded programs are classified as cost of revenues. Expenses relating to internally funded programs are classified as R&D. Accordingly, shifts in effort between government and OEM funded programs versus internally funded programs produce period-to-period variances in cost of revenues and R&D expenses.

Cost of revenues attributable to SCR Catalyst and Management Services include direct labor, plant management wages, fringe benefits, facility rent, chemicals, depreciation, supplies and third party consulting services, and are expensed as incurred. Cost of revenues relating to R&D contracts consist of direct expenses including direct labor, fringe benefits, travel, consulting and other third party professional services, supplies and R&D overhead, and are expensed as incurred. R&D overhead is applied to government and OEM funded programs based on total non-direct program expenses incurred as a percentage of direct program expenses.

The majority of the increase in cost of revenues during the year ended December 31, 2004 compared to 2003 consists of the following: \$2,401,000 in incremental expenses from SCR Catalyst and Management Services, offset by a \$1,595,000 decrease in cost of R&D contracts (primarily direct labor, consulting services and supplies), resulting from reduced activity relating to government and OEM funded contracts; in addition to reduced overhead between comparative periods resulting from focused expense reduction efforts and increased utilization of internal resources.

The majority of the decrease in cost of revenues during the year ended December 31, 2003 compared to 2002 consists of the following: a \$1,636,000 decrease in cost of R&D contracts (primarily direct labor, outside contractor engineering services, supplies and market research), resulting from reduced activity relating to OEM and government funded contracts; in addition to increase overhead between comparative periods resulting from internal development efforts relating to our Xonon gas turbine technology.

RESEARCH AND DEVELOPMENT ("R&D") EXPENSES

R&D expenses include compensation and benefits for engineering and manufacturing staff, fees for contract engineers, materials to build prototype units, amounts paid to outside suppliers for subcontracted components and services, supplies, facilities and information technology costs. We expense all R&D costs as incurred.

The majority of the increase in R&D during the year ended December 31, 2004 compared to 2003 consists of the following: a \$1,246,000 increase in direct labor and fringe benefits incurred on internally funded programs, primarily relating to the development of diesel applications. Offsetting this increase was a \$754,000 decrease in salaries and fringe resulting from headcount reductions in the fourth quarter of 2003 and the first quarter of 2004.

The majority of the decrease in R&D during the year ended December 31, 2003 compared to 2002 consists of the following: a \$488,000 decrease in salaries and related benefits following a February 2003 headcount reduction in which certain administrative and support positions were eliminated from our engineering and manufacturing departments. Supplies expense was decreased by \$176,000 due to completion of developmental efforts within research programs. R&D facility and information technology costs were reduced \$677,000 due to the streamlining of administrative functions during 2003.

Dependent upon classification as externally or internally funded, R&D expenses may be reported as cost of revenues. Total R&D expenses, including those classified as cost of revenues, were \$10,244,000, \$11,260,000, and \$14,229,000, for the years ended December 31, 2004, 2003, and 2002, respectively.

We expect total R&D expenses, including those classified as cost of revenues, will remain relatively flat during the year ending December 31, 2005 compared to 2004. Our research and development efforts are primarily focused on diesel and fuel processor programs.

SELLING, GENERAL AND ADMINISTRATIVE EXPENSES ("SG&A")

SG&A includes compensation, benefits and related costs of corporate functions, which include management, business development, marketing, human resources, sales and finance, and un-allocated facilities and IT costs.

The majority of the decline in SG&A during the year ended December 31, 2004 compared to 2003 consists of the following: a \$267,000 reduction in personnel-related expenses associated with a February 2003 headcount reduction; a \$203,000 reduction in legal expenses associated with fees incurred in late 2003 related to the February 2004 purchase of SCR-Tech, and a \$1,136,000 reduction in depreciation expense resulting from several assets becoming fully depreciated at the end of 2003. Partially offsetting these decreases were \$747,000 of incremental expenses from SCR Catalyst and Management Services.

The majority of the decline in SG&A during the year ended December 31, 2003 compared to 2002 consists of the following: Salaries and related benefits decreased \$1,347,000 following a February 2003 headcount reduction in which certain positions were eliminated from our accounting, human resources, marketing and information technology departments. Relocation and recruiting costs were \$359,000 lower in 2003 due to the completion of personnel moves to a new manufacturing and administrative facility in Gilbert, Arizona, and the completion of staffing additions in 2002. Included in SG&A for 2002 was a charge of \$450,000 related to the Settlement Agreement with Woodward Governor Company and a charge

of \$545,000 related to impairment of certain leasehold improvements. Partially offsetting these decreases was a \$677,000 reduction in facility and information costs allocated to R&D in 2003 due to the overall reduction of SG&A costs incurred.

We expect SG&A will increase during the year ending December 31, 2005 compared to 2004 as a full year's SG&A expense will be recorded for SCR-Tech in addition to increases in personnel-related expenses associated with the expansion of our sales and marketing initiatives at SCR-Tech. In addition, we anticipate we will incur increased expenses associated with the implementation of Sarbanes-Oxley requirements.

INTEREST AND OTHER INCOME

Interest income is generated from money market and short-term investments. Other income consists of rental income generated from the leasing of certain portions of our Gilbert, Arizona building.

Interest income during the year ended December 31, 2004 compared to 2003 was \$152,000 lower due to declining cash and investments balances; partially offset by slightly improved market yields. Other income during the year ended December 31, 2004 compared to 2003 was \$87,000 higher primarily related to Gilbert lease income which didn't commence until the second half of 2003.

Interest income during the year ended December 31, 2003 compared to 2002 was \$641,000 lower due to declining cash and investment balances and a decline in market interest rates. Other income during the year ended December 31, 2003 compared to 2002 was \$59,000 higher primarily due to the start of Gilbert lease income which commenced in the second half of 2003.

We expect interest income will decline during the year ending December 31, 2005 compared to 2004 as we use cash to fund operations. We expect other income will remain relatively flat during the year ending December 31, 2005 compared to 2004 as we expect to realize full year's lease income for both years.

INTEREST EXPENSE

Interest expense reflects amounts incurred under long-term debt and capital lease obligations.

Interest expense during the year ended December 31, 2004 compared to 2003 was \$328,000 higher primarily due to the amortization of imputed interest on long-term debt recorded as part of the SCR-Tech purchase, which began in March 2004. This debt was recorded at the present value of future cash flows. The amortization of the imputed interest will bring the net carrying values to the amounts due at the applicable payment dates.

Interest expense during the year ended December 31, 2003 compared to 2002 was \$45,000 higher as a full twelve months of interest expense was recorded on the Gilbert building loan in 2003 as compared to ten months expense recorded in 2002.

We expect interest expense will increase during the year ending December 31, 2005 compared to 2004 as we will record twelve months amortization of imputed interest on the SCR-Tech debt as compared to ten months expense recorded in 2004.

INCOME TAXES

No benefit from income taxes was recorded in 2004, 2003 or 2002 due to the uncertainty of future taxable income that would allow us to realize deferred tax assets generated from our losses. We do not believe we will incur any material income taxes in the foreseeable future.

LIQUIDITY AND CAPITAL RESOURCES

Historical Capital Position and Usage

Prior to our spin-off in December 2000, Catalytica, Inc. made a \$50.0 million cash investment in the Company. Additionally, in August 2001, we received net proceeds of \$47.7 million from a public offering of our common stock. Through December 31, 2004, approximately two-thirds of the proceeds from the capital contribution and our public offering have been used to fund our ongoing research and development efforts including the commercialization of our Xonon Cool Combustion technology, the purchase of our commercial manufacturing and administrative facility in Gilbert, Arizona, the purchase of SCR-Tech and for general corporate purposes. The remaining funds are invested in commercial and government short-term paper.

The following table summarizes the yearly changes in cash, cash equivalents and short-term investments (in thousands):

	<u>Year ended December 31,</u>	
	<u>2004</u>	<u>2003</u>
Ending balance of cash, cash equivalents and short-term investments	\$ 35,592	\$ 52,682
Net decrease in cash, cash equivalents and short-term investments	\$(17,090)	\$(14,088)

Our net decrease in cash, cash equivalents and short-term investments ("Cash Consumption") was \$17.1 million for the year ending December 31, 2004. The following amounts comprised the decrease of \$17.1 million, or 32.4%, in cash, cash equivalents and short-term investments during 2004:

- \$11.5 million related to earnings before interest, taxes, depreciation and amortization ("EBITDA") loss, summarized (in millions) in the following table. We elect to use EBITDA in our analysis of Cash Consumption as we believe it approximates cash generated from our operations.

Net loss	\$(13.3)
Plus: Interest expense	0.6
Depreciation/impairment of property and equipment	1.2
Amortization of investments premium	0.2
Amortization of intangible assets	0.1
Accretion of interest on long-term debt	0.4
Less: Interest and other income	<u>(0.7)</u>
EBITDA	<u>\$ (11.5)</u>

- \$4.3 million of costs related to the SCR-Tech acquisition, including cash paid on acquisition, transaction and integration costs and payments for the completion of certain training and transfer of certain intangible assets (see Note 3 of Notes to Financial Statements);
- \$0.4 million related to investment in capital expenditures; and
- \$0.9 million in working capital and other.

Our Cash Consumption was \$14.1 million for the year ending December 31, 2003. The following amounts comprised the decrease of \$14.1 million, or 21.1%, in cash, cash equivalents and short-term investments during 2003:

- \$12.7 million related to EBITDA loss, summarized as follows (in millions):

Net loss.....	\$(14.4)
Plus: Interest expense.....	0.2
Depreciation/impairment of property and equipment.....	2.1
Amortization of investments premium.....	0.2
Less: Interest and other income.....	<u>(0.8)</u>
EBITDA.....	<u>\$(12.7)</u>

- \$1.3 million related to investment in capital expenditures; and
- \$0.1 million in working capital and other.

In connection with our purchase of SCR-Tech in February 2004, we incurred several contingent liabilities. We believe the contingencies associated with the Acquired Asset Payments will be met and, therefore, such Acquired Asset Payments will be made in full. Accordingly, this contingent liability was recorded at the present value of its estimated future payment amount. Since Hans Hartenstein, the former president of SCR-Tech, is no longer employed by the Company as of March 2005, the contingencies associated with the Contingent Employment Payments will not be met. As a result, this payment obligation has been extinguished. Given the revenue and cash flow levels and certain limitations associated with the earn-out payments, we do not believe that these payments are likely to be made. Moreover, even if such payments are made, we do not believe such payments would have a material adverse impact on cash flow or liquidity. Accordingly, we have not recorded any earn-out contingent liability.

Capital Requirements

In general, our current and near-term capital requirements depend on numerous factors, including but not limited to our product development and commercialization activities, the timing and level of third party research and development funding, market acceptance of our products and our rate of sales growth. We face substantial uncertainties with our business operations and may not be able to achieve positive cash flows from operations. We expect to devote substantial capital resources to further commercialize our technology, hire and train our production staff, develop and expand our manufacturing capacity, begin production activities, and expand our research and development activities.

We believe our available cash, cash equivalents and short-term investments in the amount of \$35.6 million as of December 31, 2004 will provide sufficient capital to fund operations as presently planned until at least December 31, 2006. Our current operating plans through fiscal 2006 call for further developing and commercializing our diesel emissions reduction solutions including initial distribution of our diesel retrofit product, achieving full commercialization of our Xonon Cool Combustion system for additional gas turbine applications, meeting payment obligations related to the SCR-Tech acquisition, expanding our SCR Catalyst and Management Services business, and developing other potential products.

We anticipate Cash Consumption of between \$12.5 million and \$14.0 million for the year ending December 31, 2005, primarily associated with the continued development of our emissions control solutions for diesel engine applications and for SG&A. The amount of capital required to complete our development programs is highly uncertain and depends on numerous factors, including unforeseen technical issues associated with our ongoing development of Catalyst-Based Technology Solutions, the nature of partner participation and the amount and timing of any capital or technical contributions from

such partners, the ability of third-party suppliers to develop certain components in a timely manner, market and industry demands and requirements, and the cost of required regulatory reviews and approvals. Specifically, we believe total future development costs for our mobile diesel retrofit solution will be in the range of \$5.0 to \$10.0 million; if our mobile diesel retrofit solution is successful and we decide to continue pursuing stationary diesel genset solutions, total additional development costs for our stationary diesel genset solutions will be in the range of \$5.0 to \$10.0 million; if our mobile diesel retrofit solution is successful, total future development costs for our diesel OEM solution will likely be in excess of \$10.0 million. If our mobile diesel retrofit solution is not successful, it is likely that any other diesel solution we pursue will require substantial additional capital expenditures beyond our current estimates. Although we are seeking to avoid incurring significant additional expenses for development work on our Xonon Cool Combustion system for small gas turbines, if GE, Solar, Kawasaki or any other OEM elects to use our technology on a gas turbine platform, we likely will incur additional development expenses. The nature and amount of any such expenses cannot be determined at this time and would depend on the nature of the products using our Xonon product.

Because our SG&A expenses have in the past been, and are expected to be for the foreseeable future, in excess of \$6.0 million per year, any delay in product development or commercial product launches will result in us continuing to incur significant SG&A expenses without corresponding revenue. In addition, because we are a public company subject to the compliance requirements and corresponding costs relating to the Federal securities laws, it is difficult to reduce such expenses without substantially curtailing our operations.

Given the uncertainty as to the specific amounts and timing of our required capital expenditures and other Cash Consumption, as well as the uncertainty related to our commercialization efforts with respect to our diesel emissions control solutions and our Xonon Cool Combustion products, our current cash, cash equivalents and short-term investments, along with any cash generated from operations, may not be sufficient to fund our operations through fiscal 2006 as is currently expected. If our overall Cash Consumption in fiscal 2005 and 2006 exceeds our current expectations because of higher capital expenditures, increased costs of development or commercialization, lower than anticipated revenue from SCR-Tech, diesel retrofit or government and third-party funding, higher SG&A expenditures or for any other reason, we may be required to raise additional capital to continue our operations as presently planned, significantly curtail our business operations and/or change our strategic direction. In addition, we may enter into acquisitions or strategic arrangements which could require the use of cash, reducing our available capital prior to December 31, 2006, or which could require additional equity or debt financing. Moreover, the integration and operation of any business acquired could require significant expenditures that materially and adversely impact our liquidity and capital resources. In this regard, our recent acquisition of SCR-Tech required, and will continue to require, significant cash outlays for acquisition-related payments and potentially require cash outlays to fund operations.

Any additional funding requirements, whether for operations, acquisitions or otherwise, may be significant, may not be available when required or may be available only on terms unsatisfactory to us. Furthermore, if we issue equity securities, the ownership percentage of our then existing stockholders may be reduced, and the holders of new equity securities may have rights senior to those of our existing holders of common stock. If we issue debt securities, these securities would be senior in priority to any equity securities, including our common stock, and would subject us to the risks inherent in issuing debt, including ongoing payment and maturity obligations. Funding requirements satisfied through strategic relationships with industry participants could result in substantial dilution of our then existing equity holders and could require us to limit our potential return from our products by making significant business or financial concessions to such participants.

Beyond December 31, 2006, our cash requirements will depend on many factors, including the amount and rate of sales growth of our diesel retrofit products, the level of growth, if any, in the small gas turbine

market, the market acceptance of our products, the ability of our diesel OEM product to achieve market acceptance and commitment from significant industry participants, the timing and level of development funding from private and government sources, the ability of SCR-Tech to generate significant cash flow, the rate of expansion of our sales and marketing activities, the rate of expansion of our manufacturing capacity, and the timing and extent of research and development projects.

Other Capital Commitments

In March 2002, we received a term loan of \$3,010,000 from the Arizona State Compensation Fund. Proceeds of this loan were applied to the purchase of a 43,000 square foot manufacturing and administrative facility in Gilbert, Arizona. In August 2004, the remaining \$2,940,254 principal balance on this loan was refinanced with a five-year term loan which bears interest at a fixed annual rate of 6.5% and matures in April 2009. Under terms of this new loan, payments of principal and interest totaling \$19,105 are due monthly with a final principal payment of \$2,737,228 due at maturity. This loan is secured by a deed of trust in the acquired real property.

Dividend Policy

We have never paid cash dividends on our common stock or any other securities. We anticipate that we will retain any future earnings for use in the expansion and operation of our business and do not anticipate paying cash dividends in the foreseeable future.

We had the following contractual obligations outstanding as of December 31, 2004 (in thousands):

	<u>Total</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>Thereafter</u>
Long-Term Debt Obligations							
Building term loan	\$ 2,924	\$ 40	\$ 43	\$ 46	\$ 49	\$2,746	\$ —
SCR-Tech payments	6,747	725	1,315	384	502	502	3,319
Other	13	13					
Capital Lease Obligations	—	—	—	—	—	—	—
Operating Lease Obligations							
Building	486	262	29	30	31	32	102
Equipment	71	56	9	4	2	—	—
Purchase Obligations	—	—	—	—	—	—	—
Other Long-Term Liabilities							
Security deposits	24	—	9	15	—	—	—
Core deposits ^(A)	122	—	122	—	—	—	—
Other	73	5	—	67	1	—	—
Total Contractual Obligations :	<u>\$10,460</u>	<u>\$1,101</u>	<u>\$1,527</u>	<u>\$546</u>	<u>\$585</u>	<u>\$3,280</u>	<u>\$3,421</u>

(A) Represents deposits made in connection with the sale of Xonon catalyst modules to be refunded upon return of the module.

Other Commitments

We have entered into research collaboration arrangements that may require us to make future royalty payments. These payments would generally be due once specified milestones, such as the commencement of commercial sales of a product incorporating the funded technology, are achieved. Currently we have four such arrangements, with Tanaka Kikinzoku Kogyo K.K. ("Tanaka"), Gas Technology Institute ("GTI") (formally known as Gas Research Institute), the California Energy Commission ("CEC") and Woodward Governor Company ("WGC").

A significant amount of the development effort related to our catalytic combustion technology for gas turbines was funded by Tanaka under a January 1995 development agreement which divides commercialization rights to the technology between the parties along product market lines. We have exclusive rights to manufacture and market catalytic combustion systems for gas turbines of greater than 25 megawatt ("MW") power output and non-exclusive rights for gas turbines of 25 MW power output or less. Tanaka has reciprocal exclusive rights to manufacture and market catalytic combustors for use in automobiles and non-exclusive rights for gas turbines of 25 MW power output or less. In each case, the manufacturing and marketing party will pay a royalty of 5% of net sales to the other party. Each party is responsible for its own development expenses, and any invention made after May 1, 1995 is the sole property of the party making the invention, while the other party has a right to obtain a royalty-bearing, non-exclusive license to use the invention in its areas of exclusivity. As commercialized, the Xonon system contains significant technology developed by us after May 1, 1995 and no technology developed by Tanaka after this date. Our development agreement with Tanaka expires in 2005, and we have no further royalty obligations to Tanaka after 2005.

In September 1998, we entered into a funding arrangement with the CEC under which they agreed to fund a portion of our Xonon engine test and demonstration facility located in Santa Clara, California. Under this agreement, we are required to pay a royalty of up to 1.5% of the sales price on the sale of each product or right developed under this project for fifteen years upon initiation of the first commercial sale of a Xonon-equipped engine greater than 1 MW.

In January 2000, we entered into a funding arrangement with GTI to fund the development of our Xonon combustor and demonstrate its performance. We will be required to make royalty payments to GTI of \$243,000 per year for seven years beginning with the sale, lease or other transfer of the twenty-fifth catalyst module for gas turbines rated greater than 1 MW, up to a maximum of \$1,701,000.

On December 19, 2001, we entered into a Control Patent Assignment and Cross License Agreement ("Patent Assignment Agreement") with WGC pursuant to which WGC assigned a patent to us, and we and WGC cross-licensed certain intellectual property to each other. Under the Patent Assignment Agreement, we must pay WGC between \$5,000 and \$15,000 upon each shipment of a Xonon commercial unit. Additionally, as part of an April 2002 settlement agreement with WGC (the "Settlement Agreement"), we agreed to increase royalties by \$2,500 per unit on our shipment of the first 100 gas turbines greater than 10 MW. These increased royalties are guaranteed, and we must pay them on 100 units even if we do not ship any units of this size. We prepaid \$50,000 of these royalties to WGC in April 2002. We paid WGC \$100,000 in January 2003 and an additional \$100,000 in January 2004. These guaranteed payments totaling \$250,000 were recorded as a component of SG&A expenses during the three months ended March 2002 and are in addition to the \$5,000 we must pay to WGC under the Patent Assignment Agreement upon each shipment of a Xonon commercial unit in a gas turbine of this size.

The Patent Assignment Agreement also provides that each time we sublicense the WGC technology to a gas turbine manufacturer or third party control manufacturer; we will pay WGC a control technology license fee of \$50,000, as well as a \$3,000 additional license fee for each sale of a Xonon control system sold by such manufacturer. As a part of the Settlement Agreement, we paid \$200,000 in April 2002 representing a pre-payment of the control technology license fees for our first four \$50,000 sublicenses of the WGC control technology. This payment was recorded as a component of SG&A expenses in March 2002. We are obligated to make the foregoing license payments to WGC through December 31, 2014 or until our cumulative payments and license fees to WGC total \$15,250,000, whichever occurs first.

WGC must pay us a fee of 1% of the sale price of each WGC control system installed in conjunction with Xonon catalytic modules for new and retrofit turbines. WGC is obligated to make these payments through December 31, 2014 or until we have received total payments of \$2,000,000, whichever occurs first.

Critical Accounting Policies and Estimates

Our discussion and analysis of financial condition and results of operations are based upon our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent liabilities. On an on-going basis, we evaluate our estimates and judgments, including those related to contract terms, equity investments, bad debts, inventories, investments, goodwill and other intangible assets, warranty reserves, income taxes, financing operations, contingencies and litigation. We base our estimates and judgments on historical experience and on various other factors that we believe to be reasonable under the circumstances, the results of which form the basis of our judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results would differ from these estimates under different assumptions or conditions.

Our significant accounting policies are disclosed in Note 2 to our consolidated financial statements. We believe the following critical accounting policies affect our more significant judgments and estimates used in the preparation of our consolidated financial statements.

Revenue Recognition

We recognize revenue when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the price is fixed or determinable and collection is reasonably assured.

Revenues from SCR Catalyst and Management Services

Revenues related to SCR catalyst regeneration and cleaning services are recognized when the service is completed for each catalyst module. Customer acceptance is not required in that SCR-Tech's contracts currently provide that services are completed upon receipt of testing by independent third parties confirming compliance with contract requirements. Testing generally occurs three times during a particular customer project—at the beginning of the processing, when approximately one-half of the project has been processed, and upon completion of processing. A typical customer project may take 30 to 90 days to complete. Once a successful test result is received from an independent third party, revenue is recognized for each catalyst module processed prior to the receipt of such test results, and revenue is subsequently recognized for each catalyst module as its processing is completed. As the Company utilizes a consistent methodology and formula for each project, it is unlikely that subsequent testing would not be successful. Nonetheless, if a subsequent test result were to indicate failure, the Company would cease recognizing revenue on any subsequent modules until new testing evidence confirms successful processing. We maintain a revenue allowance to provide for any deficient test results that may occur after our initial test.

Due to the nature of the demand for SCR catalyst regeneration and cleaning services, some of our contracts provide for extended payment terms. In a situation where the project for a customer is complete; but the customer is not contractually committed to receive an invoice within the succeeding six months (and subsequent payment is due within 30 days of invoice date), revenue is deferred until the contractual invoice date. If the customer contract provides for a deposit or progress payments, we recognize revenue up to the amount invoiced. Because we perform a service for a customer, no rights of return exist. The customer is responsible for the removal, transportation and subsequent installation of the catalyst. Our revenue arrangements do not have any material multiple deliverables as defined in Emerging Issues Task Force ("EITF") 00-21, "Accounting for Multiple Element Revenue Arrangements".

Costs associated with performing SCR catalyst regeneration and cleaning services are expensed as incurred because of the close correlation between the costs incurred, the extent of performance achieved and the revenue recognized. In the situation where revenue is deferred due to collectibility uncertainties, the Company does not defer costs due to the uncertainties related to payment for such services.

We recognize revenue from our management and consulting services as work is performed. Costs associated with management and consulting services is expensed as incurred.

Revenues from Research and Development Contracts

Research and development revenues are earned as contractual services are performed and are recognized in accordance with contract terms, principally based on reimbursement of total costs and expenses incurred. Since research and development revenues from government-funded programs are subject to government audits, we maintain a revenue cost reserve in the event any of these funded costs, including overhead, are disallowed. We estimate this reserve by applying a percentage to the revenue recorded under contracts still subject to audit by those funding agencies based on historical experience. If we underestimate the amount of disallowed funding for a particular program, we will have to reduce our revenue in a subsequent period by the amount by which actual disallowed funding exceeds our estimate.

No amounts recognized as revenue are refundable. In return for funding, collaborative partners may receive certain rights in the commercialization of the resulting technology. The contracts are also subject to periodic review by the funding partner, which could result in modifications to program scope, including reduction or termination of funding.

Goodwill and Other Intangible Assets

We account for goodwill and other intangible assets in accordance with the provisions of Statement of Financial Accounting Standards ("SFAS") No. 141, "Business Combinations", and SFAS No. 142, "Goodwill and Other Intangible Assets". Purchase prices of acquired businesses that are accounted for as purchases have been allocated to the assets and liabilities acquired based on the estimated fair values on the respective acquisition dates. Based on these values, the excess purchase prices over the fair value of the net assets acquired were allocated to goodwill. Pursuant to SFAS No. 142, goodwill and other intangible assets acquired in a purchase business combination and determined to have an indefinite useful life are not amortized, but instead tested for impairment at least annually in accordance with the provisions of SFAS No. 142. SFAS No. 142 also requires that intangible assets with estimable useful lives be amortized over their respective estimated useful lives to their estimated residual values and reviewed for impairment in accordance with SFAS No. 144, "Accounting for Impairment or Disposal of Long-Lived Assets." Other intangible assets that have finite useful lives, including patents, trademarks, trade secrets and other purchased technology, were recorded at fair value at the time of the acquisition, and are carried at such value less accumulated amortization. We amortize these intangible assets on a straight-line basis over their useful lives, estimated at ten years.

Accounts Receivable Reserves

We maintain an allowance for doubtful accounts for estimated losses resulting from the inability of our customers or funding partners to make required payments. This allowance is based on specific customer account reviews and historical collections experience. We generally reserve for balances that are 60 days past the invoice due date. If the financial condition of any of our customers or funding partners were to deteriorate, resulting in an impairment of their ability to make payments, additional allowances would be required.

Income Taxes

Financial Accounting Standards Board ("FASB") SFAS No. 109, "Accounting for Income Taxes", requires that a valuation allowance be established when it is more likely than not that all or a portion of a deferred tax asset will not be realized. SFAS No. 109 further states that it is difficult to conclude that a valuation allowance is not needed when there is negative evidence such as cumulative losses in recent years. As a result we have recorded a full valuation allowance against our deferred tax assets and expect to continue to record a full valuation allowance on future tax benefits until we reach sustained profitability.

Contingent Liabilities

We record a reserve for contingencies, including litigation settlements, when a liability becomes probable and estimable. The amount we record for litigation reserves is based upon our best estimate at the time and is subject to change as facts we become aware of change or ultimate determinations or settlements are made.

Impact of Inflation and Foreign Currency Fluctuation

The effect of inflation and changing prices on our operations was not significant during the periods presented. We have operated primarily in the United States and all revenue recognized to date has been

made in U.S. dollars. Accordingly, we have not had any material exposure to foreign currency rate fluctuations.

Impact of Recently Issued Accounting Standards

On December 16, 2004, the FASB issued SFAS Statement No. 123 (revised 2004), "Share-Based Payment" (Statement 123R), which is a revision of FASB Statement No. 123, "Accounting for Stock-Based Compensation" (Statement 123). Statement 123(R) supersedes APB Opinion No. 25, "Accounting for Stock Issued to Employees", and amends FASB Statement No. 95, "Statement of Cash Flows". Generally, the approach in Statement 123(R) is similar to the approach described in Statement 123. However, Statement 123(R) requires all share-based payments to employees, including grants of employee stock options, to be recognized in the income statement based on their fair values. Pro forma disclosure is no longer an alternative.

Statement 123(R) must be adopted no later than July 1, 2005. Early adoption will be permitted in periods in which financial statements have not yet been issued. We intend to adopt Statement 123(R) on July 1, 2005, the adoption of which will likely have a significant impact on our results of operations, although it will have no impact on our overall financial position. The actual impact of adoption of Statement 123(R) on our results of operations cannot be predicted at this time because it will depend on levels of share-based payments granted in the future. However, had we adopted Statement 123(R) in prior periods, the impact of that standard would have approximated the impact of Statement 123 as described in the disclosure of pro forma net income and earnings per share in Note 2 to our consolidated financial statements. Statement 123(R) also requires the benefits of tax deductions in excess of recognized compensation cost to be reported as a financing cash flow, rather than as an operating cash flow as required under current literature. This requirement will reduce net operating cash flows and increase net financing cash flows in periods after adoption to the extent we do not provide a full valuation reserve on such tax benefit.

RISKS THAT COULD AFFECT OUR FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following risk factors could materially and adversely affect our future operating results, financial condition, the value of our business, and the price of our common stock and also could cause actual events to differ materially from those predicted in the forward-looking statements we make about our business. Investors are encouraged to carefully consider the risks described below before making decisions related to buying, holding or selling our common stock.

GENERAL RISKS RELATING TO OUR FINANCIAL CONDITION AND OPERATING RESULTS

The following risks could negatively impact our operating results, financial condition, the value of our business and the price of our common stock. These risks also apply to and may adversely affect our specific business programs, products and opportunities, as more specifically described below.

We have incurred significant continuing losses since inception, and we anticipate continued losses for the foreseeable future.

We incurred losses of \$13,269,000, \$14,399,000 and \$17,874,000 for the years ended December 31, 2004, 2003 and 2002, respectively. As of December 31, 2004, we had an accumulated deficit of \$125,017,000 and had not yet recorded significant revenue from commercial sales apart from revenues from SCR-Tech, a business we acquired in 2004. We expect to continue to incur net losses for the foreseeable future and these losses are likely to be significant. There can be no assurance we will ever reach or sustain profitability.

We may need significant additional capital, and we may be unable to raise additional capital to complete our product development and commercialization plans or achieve profitability.

In general, our current and near-term capital requirements depend on numerous factors, including but not limited to our product development and commercialization activities, the timing and level of third-party research and development funding, market acceptance of our products and our rate of sales growth. We face substantial uncertainties with our business operations and may not be able to achieve positive cash flows from operations. We expect to devote substantial capital resources to further commercialize our technology, hire and train our production staff, develop and expand our manufacturing capacity, begin production activities, and expand our research and development activities.

Our net decrease in cash, cash equivalents and short-term investments ("Cash Consumption") was \$17,909,000 for the year ended December 31, 2004, compared to Cash Consumption of \$14,088,000 for the year ended December 31, 2003 and Cash Consumption of \$20,877,000 for the year ended December 31, 2002. We expect Cash Consumption of between \$12.5 and \$14.0 million in 2005 as well as significant Cash Consumption thereafter. We believe our available cash, cash equivalents and short-term investments in the amount of \$35.6 million as of December 31, 2004 will provide sufficient capital to fund operations as presently planned until at least December 31, 2006. Our current operating plans through fiscal 2006 call for further developing and commercializing our diesel emissions reduction solutions including initial distribution of our diesel retrofit product, achieving full commercialization of our Xonon Cool Combustion system for additional gas turbine applications, meeting payment obligations related to the SCR-Tech acquisition, expanding our SCR-Tech Catalyst and Management Services business, and developing other potential products.

The amount of capital required to complete our development programs is highly uncertain and depends on numerous factors, including technical issues associated with our ongoing development of Catalyst-Based Technology Solutions, the nature of partner participation and the amount and timing of any capital or technical contributions from such partners, the ability of third party suppliers to develop certain components in a timely manner, market and industry demands and requirements, and the cost of

required regulatory reviews and approvals. If our mobile diesel retrofit solution is not successful, it is likely that any other diesel solution we pursue will require substantial additional capital expenditures beyond our current estimates. Although we are seeking to avoid incurring significant additional expenses for development work on our Xonon product for small gas turbines, if GE, Solar, Kawasaki or any other OEM elects to use our technology on a gas turbine platform, we likely will incur additional development expenses. The nature and amount of any such expenses cannot be determined at this time and would depend on the nature of the products using our Xonon product.

Because our SG&A expenses have been and are expected to be in excess of \$6.0 million per year, any delay in product development or commercial product launches will result in us continuing to incur significant SG&A expenses without corresponding revenue. In addition, because we are a public company subject to the compliance requirements and corresponding costs relating to the Federal securities laws, it is difficult to reduce such expenses without substantially curtailing our operations. Our liquidity will continue to be impacted by these expenses as long as we are subject to such requirements.

Given the uncertainty as to the specific amounts and timing of our required capital expenditures and other Cash Consumption, as well as the uncertainty related to our commercialization efforts with respect to our diesel emissions control solutions and our Xonon Cool Combustion products, our current cash, cash equivalents and short-term investments, along with any cash generated from operations, may not be sufficient to fund our operations through fiscal 2006 as is currently expected. If our overall Cash Consumption in fiscal 2005 and 2006 exceeds our current expectations because of higher capital expenditures, increased costs of development or commercialization, lower than anticipated revenue from SCR-Tech, diesel retrofit or government and third-party funding, higher SG&A expenditures or for any other reason, we may be required to raise additional funds to continue our operations as presently planned, significantly curtail our business operations and/or change our strategic direction. In addition, we may enter into acquisitions or strategic arrangements which could require the use of cash, reducing our available capital prior to December 31, 2006, or which could require additional equity or debt financing. Moreover, the integration and operation of any business acquired could require significant expenditures that materially and adversely impact our liquidity and capital resources. In this regard, our recent acquisition of SCR-Tech required, and will continue to require, significant cash outlays for payments related to debt acquired as a result of the acquisition.

Any additional funding requirements, whether for operations, acquisitions or otherwise, may be significant, may not be available when required or may be available only on terms unsatisfactory to us. Furthermore, if we issue equity securities, the ownership percentage of our then existing stockholders may be reduced, and the holders of new equity securities may have rights senior to those of our existing holders of common stock. If we issue debt securities, these securities would be senior in priority to any equity securities, including our common stock, and would subject us to the risks inherent in issuing debt, including ongoing payment and maturity obligations. Funding requirements satisfied through strategic relationships with industry participants could result in substantial dilution of our then existing equity holders and could require us to limit our potential return from our products by making significant business or financial concessions to such participants.

Beyond December 31, 2006, our cash requirements will depend on many factors, including the amount and rate of sales growth of our diesel retrofit products, the level of growth, if any, in the small gas turbine market, the market acceptance of our products, the ability of our diesel OEM product to achieve market acceptance and commitment from significant industry participants, the timing and level of development funding from private and government sources, the ability of SCR-Tech to generate significant cash flow, the rate of expansion of our sales and marketing activities, the rate of expansion of our manufacturing capacity, and the timing and extent of research and development projects.

The recent acquisition of SCR-Tech and any additional acquisitions we may make could disrupt our business and harm our financial condition.

As part of our growth strategy, we intend to review opportunities to acquire other businesses or technologies that would complement our current products, expand the breadth of our markets or enhance our technical capabilities. We have limited experience in making acquisitions. SCR-Tech was our first acquisition, and there can be no assurance this acquisition will prove to be successful or ultimately beneficial to us. See "Additional Risks Relating to SCR Catalyst and Management Services." The SCR-Tech acquisition and any future acquisitions entail a number of risks that could materially and adversely affect our business and operating results, including but not limited to:

- issues associated with integrating the acquired operations, technologies or products with our existing business and products;
- potential disruption of our ongoing business activities and distraction of our management;
- difficulties in retaining business relationships with suppliers and customers of the acquired companies;
- difficulties in coordinating and integrating overall business strategies, sales and marketing, and research and development efforts;
- difficulties associated with the maintenance of corporate cultures, controls, procedures and policies;
- risks associated with entering markets in which we lack prior experience;
- the potential loss of key employees; and
- the potential for write-offs of goodwill and other acquired intangibles.

The market price of our common stock is highly volatile and may decline.

The market price of our common stock is highly volatile and has declined significantly since our stock began trading in December 2000. Factors that could cause fluctuation and further declines in our stock price may include, but are not limited to:

- announcements or cancellations of orders or research and development arrangements;
- conditions or trends in our industry;
- changes in the market valuations of other companies in our industry;
- the effectiveness and commercial viability of products offered by us or our competitors;
- the results of our research and development or test activities;
- announcements by us or our competitors of technological innovations, new products, significant acquisitions, strategic partnerships, divestitures, joint ventures or other strategic initiatives;
- changes in environmental regulations; and
- additions or departures of key personnel.

Many of these factors are beyond our control. These factors may cause the market price of our common stock to decline regardless of our operating performance. In addition, stock markets have experienced extreme price volatility in recent years. This volatility has had a substantial effect on the market prices of securities issued by many companies for reasons that may be unrelated to the operating performance of the specific companies. These broad market fluctuations may adversely affect the market price of our common stock.

We expect our revenue and operating results to vary significantly from quarter to quarter. As a result, quarterly comparisons of our financial results are not necessarily meaningful and investors should not rely on them as an indication of our future performance. In addition, due to our stage of development, we cannot predict our future revenue or results of operations accurately. As a consequence, our operating results may fall below the expectations of securities analysts and investors, which could cause the price of our common stock to decline. Factors that may affect our operating results include:

- the status of development of our technology, products and manufacturing capabilities;
- the cost of our raw materials and key components;
- warranty and service costs for products in the field;
- the introduction, timing and market acceptance of new products introduced by us or our competitors;
- the development of our strategic relationships and distribution channels;
- general economic conditions, which can affect our customers' capital investments and the length of our sales cycle;
- the development and/or market acceptance of NOx adsorbers; and
- Government regulations.

We may have difficulty managing our current operations or any expansion of our operations.

Currently our management team is responsible for the operations of our recently acquired SCR-Tech business, our diesel programs, our Xonon gas turbine program, exploring and evaluating potential acquisitions or other business opportunities, and other programs. In light of employee headcount reductions within the past few years, including management level employees, and the increasing number of Federal and NASDAQ securities regulatory requirements, substantial additional burdens have been placed on our management. It may prove difficult for current management to successfully operate these differing areas and meet the demands and requirements of differing business activities. In addition, we would expect to undergo growth in the number of our employees, the size of our physical plant and the scope of our operations as we commercialize our products and as demand for our products increases. Expansion of our manufacturing operations will require significant management attention. This expansion could place a significant strain on our management team and other resources. Our business could be harmed if we encounter difficulties in effectively managing the issues presented by such an expansion. Recent management changes at SCR-Tech also have required increased management attention to SCR-Tech's business. No assurance can be given that management resources will be sufficient to address current and future business activities or that we will not be required to incur substantial additional expenses to add to our management capabilities.

We have historically focused on research and development activities and have limited experience in marketing, selling and servicing our products.

We have primarily focused on research and development activities to date. Consequently, our management team has limited experience directing the commercialization efforts that are essential to our future success. To date, we only have limited experience marketing, selling and servicing our Xonon combustion systems, and no experience marketing, selling or servicing our diesel emissions reduction systems. We will have to expand our marketing and sales organization, as well as our maintenance and support capability as our products become commercially available. We may not be successful in our efforts to market and service our products, which could compromise our ability to increase our revenue.

If we are unable to attract or retain key personnel, our ability to adapt our technology to diesel engines, gas turbines, or other products, to continue to develop and commercialize our technology, to effectively market our products and to manage our business could be harmed.

Our business requires a highly skilled management team and specialized workforce, including scientists, engineers, researchers, and manufacturing and marketing professionals who have developed essential proprietary skills. Our future success will therefore depend on attracting and retaining qualified management and technical personnel. We do not know whether we will be successful in hiring or retaining these qualified personnel. Our inability to hire qualified personnel on a timely basis, or the departure of key employees, could harm our existing business as well as our expansion and commercialization plans.

Certain of our manufacturing equipment is unique to our business and would be difficult and expensive to repair or replace.

Certain of the capital equipment used in the manufacture of our products has been developed and made specifically for us and would be difficult to repair or replace if it were to become damaged or stop working. In addition, certain of our manufacturing equipment is not readily available from multiple vendors. Consequently, any damage to or breakdown of our manufacturing equipment at a time we are manufacturing commercial quantities of our products may have a material adverse impact on our business.

Significant price increases in key materials may reduce our gross margins and profitability of our NO_x reduction products.

The prices of palladium, platinum, molybdenum and vanadium, all of which are used in various components of our business, can be volatile. If the long-term costs of these materials were to increase significantly, we would attempt to reduce material usage or find substitute materials. If these efforts were not successful or if these cost increases could not be reflected in our price to customers, then our gross margins and profitability would be reduced.

We are subject to significant potential environmental and product liability exposure.

Since our business relates to NO_x and related emissions controls, solutions and services, we are subject to significant potential environmental and product liability risks. These include risks relating to the chemicals and other materials used to manufacture our products and provide our services; risks relating to hazardous waste and hazardous waste disposal; potential environmental damage caused in the manufacture, sale, distribution or operation of our products and services relating thereto; employee and third party injuries from the manufacture, sale, distribution or operation of our products and services relating thereto, including claims by our customers and their end users, including in certain cases, consumers; the inability of our products to meet environmental or other standards imposed by federal, state or local law or by our customers; and other claims relating to our products and services. Because of our very limited experience and the limited distribution of our products and services, we do not have any experience with the nature or type of claims which may arise from our business. Only limited insurance is available for environmental and product liability claims, and any such claims could have an adverse impact on our business and financial condition. This could be the case even if we ultimately had no liability on any particular claim, since the costs of defending any environmental or product liability claim could be prohibitive. To date, the Company has not been identified as a potential responsible party to such environmental or product liability risks, nor have any amounts been recorded to accrue for these potential exposures.

Many of the risks of our business have only limited insurance coverage and many of our business risks are uninsurable.

Our business operations are subject to potential environmental, product liability, employee and other risks. Although we have insurance to cover some of these risks, the amount of this insurance is limited and includes numerous exceptions and limitations to coverage. Further, no insurance is available to cover certain types of risks, such as acts of god, war, terrorism, major economic and business disruptions and similar events. In the event we were to suffer a significant environmental, product liability, employee or other claim in excess of our insurance or a loss or damages relating to an uninsurable risk, our financial condition could be negatively impacted. In addition, the cost of our insurance has increased substantially in recent years and may prove to become prohibitively expensive, thus making it impractical to obtain insurance. This may result in the need to abandon certain business activities or subject ourselves to the risks of uninsured operations.

If we are unable to protect our intellectual property, or our intellectual property protection efforts are unsuccessful, others may duplicate our technology.

We rely on a combination of patents, copyrights and trade secret laws and restrictions on disclosure to protect our intellectual property rights. Our ability to compete effectively will depend, in part, on our ability to protect our proprietary technology, systems designs and manufacturing processes. In this regard, we recently entered into new emissions control solution markets in which we do not have as broad of intellectual property protection as we do in the NOx control solutions area. Consequently, our ability to compete effectively in such new markets may be adversely affected. The ability of others to use our intellectual property could allow them to duplicate the benefits of our products and reduce our competitive advantage. We do not know whether any of our pending patent applications will issue or, in the case of patents issued or to be issued, that the claims allowed are or will be sufficiently broad to protect our technology or processes. Further, a patent issued covering one use of our technology may not be broad enough to cover uses of that technology in other business areas. Even if all our patent applications are issued and are sufficiently broad, they may be challenged or invalidated. We could incur substantial costs in prosecuting or defending patent infringement suits. While we have attempted to safeguard and maintain our proprietary rights, we do not know whether we have been or will be completely successful in doing so.

Further, our competitors may independently develop or patent technologies or processes that are equivalent or superior to ours. If we are found to be infringing on third party patents, we may be unable to obtain licenses to use those patents on acceptable terms, or at all. Any inability on our part to obtain needed licenses could delay or prevent the development, manufacture and sale of our systems.

We rely, in part, on contractual provisions 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 known without breach of such agreements or may be independently developed by competitors.

We incur substantial costs as a result of being a public company.

As a public company, we incur significant legal, accounting, and other expenses. In addition, both the Sarbanes-Oxley Act of 2002, and new rules subsequently implemented by the Securities and Exchange Commission and NASDAQ, have required changes in corporate governance practices of public companies. These new rules and regulations have already increased our legal and financial compliance costs and the amount of time and effort we devote to compliance activities. We expect these new rules and regulations to further increase our legal and financial compliance costs and to make compliance and other activities more time-consuming and costly. In addition, we incur costs associated with our public company reporting requirements. Further, due to increased regulations, it may be more difficult for us to attract and retain

qualified persons to serve on our board of directors or as executive officers. We have attempted to address some of these attraction and retention issues by offering contractual indemnification agreements to our directors and executive officers, but this may not be sufficient. We continue to regularly monitor and evaluate developments with respect to these new rules with our legal counsel, but we cannot predict or estimate the amount of additional costs we may incur or the timing of such costs.

Because a small number of stockholders own a significant percentage of our common stock, they may exert significant influence over major corporate decisions, and our other stockholders may not be able to do so.

As of December 31, 2004, our executive officers, directors and greater than 5% stockholders controlled approximately 60% of our outstanding common stock. If these parties were to act together, they could significantly influence the election of directors and the approval of actions requiring the approval of a majority of our stockholders. The interests of our management or these investors may not always be aligned with the interests of our other stockholders.

Based on shares outstanding as of December 31, 2004, the funds managed by Morgan Stanley Capital Partners and their affiliates own approximately 19% of our outstanding common stock. The Morgan Stanley Capital Partners funds also have stockholder rights, including rights to appoint directors and registration rights. As a result, Morgan Stanley Capital Partners and its affiliates hold a substantial voting position in us and may be able to significantly influence our business.

Provisions in our charter documents, our Shareholder Rights Plan and Delaware law may prevent or delay an acquisition of us, which could decrease the value of our securities.

Our certificate of incorporation and bylaws and Delaware law contain provisions that could make it more difficult for a third party to acquire us without the consent of our board of directors. Furthermore, we have adopted a Shareholder Rights Plan with anti-takeover provisions which are triggered if any stockholder acquires 20% or more (or 21.5% in the case of Morgan Stanley Capital Partners III, L.P. and its affiliates) of our outstanding common stock, resulting in significant dilution of the shares owned by such stockholder unless such stockholder obtains consent of our Board of Directors to purchase shares in excess of the threshold. Thus, the plan could substantially impede the ability of public stockholders to benefit from a change in control or change in our management and board of directors.

ADDITIONAL RISKS RELATING TO SCR CATALYST AND MANAGEMENT SERVICES

In addition to the risks discussed elsewhere, any of which also could adversely impact our SCR-Tech subsidiary and its business, the following additional risks specifically relate to SCR-Tech and could negatively impact SCR-Tech and our entire company.

We recently completed the acquisition of SCR-Tech, and we have very limited experience with the operations of SCR-Tech.

We completed the acquisition of SCR-Tech in February 2004. SCR-Tech was a privately held company, which commenced commercial operations in the U.S. in March 2003. At the time we acquired SCR-Tech, we had no experience in the SCR-related business and we have just begun to integrate our management, technology and systems with SCR-Tech. In addition, SCR-Tech did not previously have audited financial statements. Thus, there is a risk of unknown financial or other liabilities which could negatively impact SCR-Tech and us. Although we have limited indemnification from the sellers of SCR-Tech, there can be no assurance that any such indemnification would be adequate to cover any unknown liabilities.

SCR-Tech has experienced a significant decline in new orders and resulting backlog for cleaning and regeneration services.

SCR-Tech has failed to generate significant new orders for cleaning and regeneration services, which accounted for approximately 80% of SCR-Tech's revenues in 2004. Backlog as of 12/31/04 for SCR Catalyst and Management Services was approximately \$775,000 including \$190,000 of deferred revenue. We anticipate that the Company will realize substantially all of its current backlog in the first quarter of 2005. As a result, SCR-Tech may experience a significant decline in revenue resulting in significant losses in 2005 and beyond. In addition, the termination of the former president of SCR-Tech likely will negatively impact SCR management services revenues in the short-term. Although this revenue represented only approximately 10% of SCR-Tech's revenue in 2004, the ability of SCR-Tech to generate new orders for cleaning and regeneration services may be significantly dependent on SCR-Tech's ability to provide SCR management services. No assurance can be given that SCR-Tech will be able to generate significant SCR management services or an increase in cleaning and regeneration orders or that SCR-Tech will be profitable in 2005 or in any future period.

Recent management changes at SCR-Tech may adversely affect our overall business.

Hans Hartenstein, the former president of SCR-Tech, was one of the founders of SCR-Tech and was principally responsible for the generation of the business opportunities and for providing SCR management and consulting services for SCR-Tech. Mr. Hartenstein's employment with the Company terminated in March 2005. It is uncertain whether the loss of Mr. Hartenstein's SCR management and consulting services expertise will adversely impact the ability of SCR-Tech to obtain new orders for cleaning and regeneration services.

William J. McMahon was appointed president of SCR-Tech effective March 21, 2005, and will be responsible for reinvigorating the business of SCR-Tech. Mr. McMahon is a seasoned executive with more than 25 years experience in the energy and utility industries, but has limited experience specifically associated with SCR Catalyst and Management Services; thus, no assurance can be given that Mr. McMahon will be successful in reinvigorating the business of SCR-Tech.

As a result of recent management changes, SCR-Tech may be subject to potential litigation with Mr. Hartenstein and/or his affiliates. No assurance can be given as to the likelihood or potential outcome of any such litigation.

SCR-Tech has very limited operating experience in North America. SCR-Tech may not be able to profitably operate its business.

SCR-Tech commenced commercial operations in its U.S. regeneration facility in March 2003 and has completed only a limited number of SCR cleaning and regeneration projects. Thus SCR-Tech does not have a substantial operational history in this facility to determine whether it can successfully operate its business under differing environments and conditions or at any level of profitability.

The size of the market for SCR-Tech's business is uncertain.

SCR-Tech offers catalyst cleaning, rejuvenation and regeneration, as well as SCR system management and consulting services. The size and growth rate for this market will ultimately be determined by a number of factors, including environmental regulations, the growth in the use of SCR systems to reduce NOx and other pollutants, the length of operation of SCR systems without the need for cleaning, rejuvenation or regeneration, the expansion of warranty coverage from SCR catalyst OEMs, the cost of new SCR catalyst, and other factors, most of which are beyond the control of SCR-Tech. There is limited historical evidence in North America as to the cycle of replacement, cleaning and regeneration of SCR catalyst so as to accurately estimate the potential growth of the business. In addition, the number of times a

catalyst can be regenerated is unknown, which also may affect the demand for regeneration in lieu of purchasing new catalyst. Any delay in the development of the market could significantly and adversely affect the value of SCR-Tech and the nature of any return on our acquisition of SCR-Tech.

SCR-Tech may be subject to vigorous competition with very large competitors that have substantially greater resources and operating histories.

Although there does not appear to be a direct competitor in the business of SCR catalyst regeneration in North America, we are aware of at least one other company, Enerfab, Inc. (which uses a process developed by Envirgy/Integral), providing SCR catalyst management, rejuvenation and cleaning services. There also are a number of SCR catalyst manufacturers with substantial parent companies that may seek to maintain market share by significantly reducing or even eliminating all profit margins. These companies include Cormetech Inc. (owned by Mitsubishi Heavy Industries and Corning, Inc.), Argillon GmbH (formerly Siemens), Haldor-Topsoe, Inc. and KWH. Further, if the SCR catalyst regeneration market expands, competitors could emerge. If the intellectual property protection acquired by us becomes weakened, competition could more easily develop.

SCR-Tech's business will be subject to potential seasonality.

Because some utilities and IPPs currently operate their SCR units only during the "ozone season" (May 1–September 30), SCR-Tech's business may be more limited than if SCR units were required to operate on a continual basis. The NOx SIP Call was configured to impose a summer ozone season NOx cap over 19 states and the District of Columbia. During this period, utilities and IPPs seek to operate their SCR catalyst at maximum capacity so as to reduce NOx emissions during this period. During non-ozone season periods, most operators currently have limited (if any) requirements to run their SCR systems. Unless and until such regulations are tightened, much of SCR-Tech's business will be concentrated outside ozone season each year. This will result in less business than if SCR units were required to be operated throughout the year and this also may result in quarters of relatively higher cash flow and earnings and quarters where cash flow and earnings may be minimal. These potential fluctuations in revenue and cash flow during a year may be significant and could materially impact our quarterly earnings and cash flow. This may have a material adverse effect on the perception of our business and the market price for our common stock.

SCR-Tech may be subject to warranty claims from its customers.

SCR-Tech typically must provide warranties to its customers relating to the level of success of its catalyst cleaning and regeneration services. In the event SCR-Tech is unable to perform a complete regeneration of an SCR catalyst, SCR-Tech may be required to re-perform a regeneration or repay all or part of the fees earned for the regeneration efforts. SCR-Tech also may be required to provide warranties with respect to its other SCR catalyst services provided to its customers. Since SCR-Tech has only a limited operating history in North America, it is not possible to determine the amount or extent of any potential warranty claims that SCR-Tech may incur. There is a risk that any such claims could be substantial and could affect the profitability of SCR-Tech and the financial condition of our Company.

SCR-Tech is dependent on third parties to perform certain testing required to confirm the success of its regeneration.

In connection with the regeneration of SCR catalyst by SCR-Tech, SCR-Tech must have an independent company provide testing services to determine the level of success of regeneration. We are not aware of any company currently providing such services in the United States. Thus, SCR-Tech must ship samples to Europe for testing. Without such cost-effective testing, SCR-Tech cannot perform its regeneration services.

SCR-Tech is significantly dependent on Envica.

SCR-Tech has required significant assistance of an affiliate of one of the former owners of SCR-Tech, ENVICA Kat GmbH ("Envica"), to successfully complete certain contracts. In addition, SCR-Tech has been relying to a significant extent on the assistance of Envica on various technical and support matters relating to its business. Although the terms of our acquisition of SCR-Tech provides that Envica will provide continuing intellectual property transfers and training, there can be no assurance that SCR-Tech and its current employees will be ultimately able to successfully operate the business or expand the business. Further, there can be no assurance that SCR-Tech will not incur significant unanticipated technical problems and costs which could adversely affect SCR-Tech's business.

SCR-Tech is highly dependent upon the strength of its intellectual property to protect its business.

In addition to the intellectual property risks relating to ongoing dealings with Envica, there can be no assurance the intellectual property acquired by us as part of the acquisition of SCR-Tech will prove sufficient or enforceable. The infringement representation and indemnification from SCR-Tech's sellers to us is short and of limited value. Further, much of the intellectual property from Envica is in the form of trade secrets, for which patent protection is not available.

SCR-Tech does not own its regeneration facilities and it is subject to risks inherent in leasing the site of its operations.

SCR-Tech does not own its regeneration site; instead it leases it from Clariant Corporation, the U.S. subsidiary of a Switzerland-based public company. Although we believe the lease terms are favorable, the dependence on Clariant and the site could subject SCR-Tech to increased risk in the event Clariant experiences financial setbacks or loses its right to operate the site upon which SCR-Tech leases property. This risk is heightened because of the fact the site is a Super Fund site, which increases the risks the site ultimately could be shut down or that Clariant will be financially unable to continue its ownership of the site. It may be difficult to locate to another site on a cost-effective basis, and SCR-Tech's business could be negatively impacted by any problems with continuing to conduct its operations at its current site.

SCR-Tech could be subject to environmental risks as a result of the operation of its business and the location of its facilities.

The operation of SCR-Tech's business and the nature of its assets create various environmental risks. SCR-Tech leases its site for operations at a property listed on the National Priority List as a Federal Superfund site (under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA")). Five CERCLA Areas (those areas of concern identified under the CERCLA program) are identified on the property, and while SCR-Tech does not lease any property identified as a CERCLA Area, one such Area has resulted in contamination of groundwater flowing underneath one of the building leased by SCR-Tech. Although SCR-Tech has indemnification from Clariant Corporation for any environmental liability arising prior to the operation of SCR-Tech's business at the site, there can be no assurance that such indemnification will be sufficient or that SCR-Tech could be protected from an environmental claim from the nature of the site. In addition, the operation of SCR-Tech's business involves removal of hazardous wastes from catalyst and the use of significant chemical materials. As a result, SCR-Tech could be subject to potential liability from such operations. To-date, the Company has not been identified as a potential responsible party to such environmental risks, nor have any amounts been recorded to accrue for these potential exposures.

ADDITIONAL RISKS RELATING TO EMISSIONS CONTROL SOLUTIONS FOR DIESEL ENGINES

In addition to the risks discussed elsewhere, any of which could adversely impact our efforts to develop emissions control solutions for diesel engines, the following additional risks particularly relate to our efforts to develop emissions control solutions for diesel engines and could negatively impact our entire company.

We may never complete the research and development of a commercially viable NOx control solution for diesel engines.

We are in the very early development stage associated with emissions control solutions for diesel engines. We do not know when or whether we will successfully complete research and development of a commercially viable product in the diesel OEM, diesel retrofit, or stationary diesel genset markets. Economic and technical difficulties may prevent us from completing development of products for diesel engines or commercializing those products. Furthermore, a viable market for our product concept may never develop. This is further complicated by the limited time frame we have to develop a diesel retrofit solution to meet immediate market requirements. If a market were to develop in the diesel OEM, diesel retrofit, or stationary genset markets using our NOx control solutions, we likely would face intense competition from various competitors, including large diesel engine OEMs, and we may be unable to compete successfully. In addition, diesel engine OEMs and other competitors may create technology alternatives that could render our systems obsolete prior to commercialization. Moreover, we may conclude that the potential return from our investment in the diesel OEM, diesel retrofit, or stationary diesel genset markets does not justify our continued investment in these opportunities. Thus, we may at any time terminate any or all of our diesel programs, even if we do develop a commercially viable solution.

We have only a limited time to take advantage of the retrofit market for diesel engines.

The diesel retrofit market has a limited time frame, since new diesel engines produced in 2007 and beyond likely will not need retrofit products. As older vehicles and other machines using diesel engines are retired from service and replaced with vehicles and other machines using newer diesel engines, the need to retrofit older engines will decline. Thus, in order to take advantage of the diesel retrofit market, we must develop a solution that can quickly come to market and which results in significant NOx reduction with an economically viable fuel penalty and have it verified to comply with federal and state emissions requirements. It is likely we will not have our solution ready for verification testing until the end of 2005, and there can be no assurance we will be able to meet such testing requirements or find the necessary market for our retrofit product. Thus, we may expend significant sums on developing our diesel retrofit solution with no assurance that we will be successful in developing the solution or that we will develop the solution in sufficient time to take advantage of the potential market. Even if we are successful in developing a diesel engine retrofit solution, our product market window will be limited and decreasing in size as new diesel engines are introduced into the market. Further, a successful diesel retrofit solution does not imply this technology or a derivative of this technology can be employed in the diesel OEM market.

We will be heavily dependent on developing relationships with retrofit integrators in order to enter the diesel retrofit marketplace.

Our diesel retrofit solution does not address a number of significant requirements to enter this market. We will need to develop relationships with integrators who can procure necessary products and services for our solution, including project management, installation of our solution on mobile, stationary or off-road applications with necessary attachments and system controls and other necessary components. Since this will be a retrofit as opposed to an OEM product, we will likely not have the assistance of any of the manufacturers of the original equipment to supply our solution. This may make installation and operation of our diesel retrofit solution more difficult and expensive. Further, although we may develop

appropriate relationships with retrofit integrators, we may find that they are deficient in their abilities to complete system development, manage, market, install and/or sell our solution.

We will be heavily dependent on developing relationships with diesel OEMs and their commitment to adopt and market our diesel fuel processor technology for their diesel engines in order to enter the diesel OEM marketplace; any agreements with these OEMs may limit our market opportunities.

In order to take advantage of the opportunities for NOx control solutions in the diesel OEM market, we must develop a solution that results in significant NOx reduction (approximately 90%) to meet impending United States, European Union or Japanese requirements for diesel engines. This will require us to partner with one or more diesel OEMs. Until we can demonstrate the viability of our diesel fuel processor for the diesel OEM market, it is unlikely we can develop the necessary OEM relationships. In addition, if we are unable to develop a diesel retrofit solution, it is less likely we will develop the necessary credibility with diesel OEMs with respect to our diesel OEM solution.

Even if we are successful in entering into agreements with a diesel OEM, the agreements may provide the OEM with the right to be the exclusive market channel for distribution of our diesel fuel processor and may otherwise limit our ability to enter into other OEM agreements. An agreement may provide for exclusivity for particular engine sizes and for limited periods of time. The agreements also may provide that either party can terminate the agreement, but not necessarily the exclusivity provision. A decision by an OEM to discontinue the commercialization of our diesel fuel processor in its engines could significantly limit or foreclose our access to the market for that OEM's engines or prevent us from entering into agreements with other OEMs regarding the application of our diesel fuel processor to some of their competing engines.

We may incur significant costs in developing our diesel technology with OEMs; if any OEM does not complete development for any reason, we may not be able to recover costs incurred for the development with that OEM.

We may incur significant costs in developing our diesel technology with OEMs for the diesel OEM market. Further, the technological development required to meet the requirements for this decade may be significant, and the capital required to be invested in such a development is likely to be substantial. Moreover, there can be no assurance that any solution developed by us will be technically feasible, cost-effective or acceptable to OEMs. We are not likely to recover any significant portion of these costs through contractual reimbursement from the OEMs. Thus, we will likely bear the majority of the development costs ourselves. If OEMs do not complete development work for any reason, we will not be able to recover our development costs through product sales.

We will be dependent on third party development of NOx adsorbents for our diesel products.

Even if our diesel fuel processor is accepted in the diesel markets, if NOx adsorbents do not evolve to a state of commercial viability, OEMs will not ultimately adopt our technology. Although our diesel fuel processor has the benefit of lessening certain NOx adsorbent limitations, significant technological hurdles, including cost, size, durability, operating range and the level of NOx reduction from NOx adsorbents must be overcome to ensure the feasibility of commercializing our diesel fuel processor in combination with a NOx adsorbent. The failure of third parties to develop solutions to current NOx adsorbent limitations in a timely manner will effectively eliminate our diesel fuel processor from market consideration. We may not have any ability to significantly influence the resolution of NOx adsorbent issues. Further, a supplier's failure to develop and supply components in a timely manner or at all, or to develop or 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 harm our ability to manufacture our products. In addition, to the extent that our supply partners use technology or manufacturing processes that are proprietary, we may be unable to obtain comparable components from alternative sources.

We will be dependent on third party suppliers for the supply of key components for our diesel products.

We have not entered into commercial arrangements with suppliers of the key components which may be required for our diesel solutions. We do not know when or whether we will secure arrangements with suppliers of required materials and components for our diesel solutions, even if they are successfully developed, or whether these arrangements will be on terms that will allow us to achieve our objectives. Even if we can develop a commercially viable diesel retrofit, diesel OEM or stationary diesel genset solution, if we are unable to obtain suppliers of all the required materials and components for our systems, our business could be harmed. A supplier's failure to supply materials or components in a timely manner, its failure to supply materials or components that meet our quality, quantity or cost requirements, or our inability to obtain substitute sources of these materials and components on a timely basis or on terms acceptable to us, could harm our ability to manufacture our diesel solutions.

We may be subject to significant competition from companies with substantially greater resources and market credibility.

The size of the diesel retrofit, diesel OEM and stationary diesel genset markets has attracted a number of significant participants. In the diesel retrofit market, a number of companies have already developed verified NOx reduction solutions in this market, including Cleaire, Clean Air Power, Extengine Transport Systems, and Lubrizol. In addition, a number of other companies have announced they are developing NOx reduction solutions for the retrofit market, including Clean Air Worldwide, Combustion Components Associates, Converter Technologies Incorporated, Johnson Matthey, ROTEC Design Ltd., and STT Emtec. Many of these participants have substantially greater resources and credibility than we do in this market. In the diesel OEM market, there are a number of significant competitors, some of which have announced solutions to the initial United States requirements for NOx reduction in 2007, including Eaton Corporation and the major diesel OEMs such as Cummins, Caterpillar, Detroit Diesel, ITEC and Volvo. These competitors also have substantially greater resources and credibility than we do in this market. There can be no assurance that we can successfully compete in either the diesel retrofit or the diesel OEM markets, even if we were to develop a technologically feasible solution to NOx reduction in these markets.

Alternate technologies may provide a more effective solution than our diesel NOx reduction technology.

Even if we are able to develop and commercialize a NOx reduction solution for diesel engines, there can be no assurance that any such solution will be either practical or cost-effective. Currently, a number of competitors have developed verified NOx control solutions in the diesel retrofit market and a number of competitors have developed announced solutions in the diesel OEM market to comply with the United States 2007 regulations. These solutions are based on different technology than the basis for our proposed NOx solution, including Clean Diesel Combustion and Low-Temperature Combustion such as Homogenous Charge Compression Ignition. An additional potential competitive threat may come from power generation proven SCR technology. We are aware that some European diesel engine OEMs are planning to implement SCR for heavy-duty diesel engine applications in Europe to meet the Euro IV emissions standards beginning in October 2005. Although we believe our proposed solution, if successful, in either the diesel retrofit or diesel OEM market will constitute a cost-effective and competitive solution, no assurance can be given that alternate technologies will not prove to be more reliable or otherwise more successful in the market.

Failure to successfully demonstrate our technology in field tests could negatively impact demand for our products.

During 2005 we plan to field-test our diesel retrofit product, and we plan to conduct additional field tests of our other diesel products in the future. We may encounter technical problems and/or delays during

these field tests for a number of reasons, including the failure of our technology or the technology of third parties, as well as our failure to maintain and service our products properly. Many of these potential problems and delays are beyond our control. Any problem or perceived problem with our field tests could materially harm our reputation and impair market acceptance of, and demand for, our products.

We may not meet our product development and commercialization milestones, which could have a material adverse effect on our operations.

We have established product development and commercialization milestones that we use to assess our progress toward developing commercially viable NO_x control solutions for our diesel engine applications. These milestones relate to technology and design improvements as well as to dates for achieving product development goals. To gauge our progress, we operate, test and evaluate our diesel products under various testing conditions. If our systems exhibit technical defects or are unable to meet cost or performance goals, including targeted levels of NO_x reduction, temperature variability, durability and fuel economy, our commercialization schedule could be delayed and potential purchasers of our initial commercial products may decline to purchase them or choose to purchase alternative technologies. We cannot be sure that we will successfully achieve our milestones in the future or that any failure to achieve these milestones will not result in potential competitors gaining advantages in our target market. Failure to meet publicly announced milestones could also have a material adverse effect on our operations.

Significant warranty and product liability risks could arise from our diesel emissions reduction solutions.

Even if we are able to successfully develop and commercialize emissions control solutions for the diesel OEM, diesel retrofit, or stationary diesel genset markets, we will be required to provide product warranties. It is unclear as to the nature of these warranties at this time, but the warranties are likely to include NO_x reduction at agreed upon levels for substantial time and/or mileage requirements. If we are unable to satisfy these warranties, we could incur significant liability to diesel OEMs, retrofit market regulators, and potentially end users, including consumers. In addition, the manufacture, sale and distribution of our diesel fuel processor could expose us to potential product liability to customers and end users, including consumers. Any such liability could be significant and may not be insurable.

We have no experience manufacturing our diesel products on a commercial basis.

To date, we have focused primarily on research and development and have no experience manufacturing diesel products on a commercial scale. We may not be able to develop efficient, low-cost manufacturing capability and processes that will enable us to meet the quality, price, engineering, design and production standards or production volumes required to manufacture our diesel products on a commercial scale. We may also encounter difficulty purchasing components and materials, particularly those with long lead times. Even if we are successful in developing our manufacturing capability and processes, we do not know whether we will do so in time to meet our product commercialization schedules or to satisfy the requirements of our customers.

ADDITIONAL RISKS RELATING TO NO_x CONTROL SOLUTIONS FOR GAS TURBINES

In addition to the risks discussed elsewhere, any of which could adversely impact our Xonon-equipped gas turbine success, the following additional risks particularly relate to our Xonon Cool Combustion technology for gas turbines and could negatively impact our entire company:

The market for small gas turbines has been adversely impacted by current unfavorable conditions in the power generation and energy markets.

The market for Xonon-equipped gas turbines is dependent on various factors, including those relating to the power generation and energy markets, none of which are under our control. There has been a

significant decline in the demand for gas turbines in recent years as a result of a substantial surplus in energy production capacity in the United States and Canada, a slow to emerge demand for distributed generation which especially impacts demand for small gas turbines, and uncertain supplies of natural gas and corresponding substantial increases in natural gas prices, which have reduced the demand for gas turbines of all sizes. The number of gas turbines producing between one and 15 MW of power ordered in North America declined from approximately 53 during the 12-month period from June 1999 to May 2000 to 30 during the 12-month period from June 2003 to May 2004. Regardless of the performance capabilities of our Xonon Cool Combustion system with respect to lowering NOx emissions in gas turbines, if the market for small gas turbines continues to be weak, there will be very limited opportunity for us to sell Xonon catalyst modules and we may be unable to obtain any return on our prior investment and may never achieve profitability. As of the date of this filing, it does not appear the market for small gas turbines will increase in any significant manner in the near future.

Xonon-equipped gas turbines may never attain market acceptance.

Xonon-equipped gas turbines represent an emerging market. If our Xonon technology does not attain widespread market acceptance, end-users may be less inclined to purchase turbines equipped with Xonon Cool Combustion. If a significant commercial market fails to develop, we may be unable to recover the losses incurred to develop our Xonon product and may be unable to achieve profitability. The development of a commercial market for our systems may be impacted by factors that are not within our control, including:

- the cost competitiveness of the Xonon Cool Combustion system;
- the overall demand for new gas turbines;
- the future costs of natural gas and other fuels;
- the status of the power generation market;
- economic demand for new power generation sources;
- economic factors that could impact capital spending decisions;
- the demand for distributed generation of power;
- changing regulatory requirements;
- the emergence of alternative technologies and products; and
- changes in Federal, State or local environmental regulations.

We must successfully complete further development and adaptation work before certain Xonon-equipped gas turbines can be shipped.

Incorporating our technology in a specific gas turbine model requires adaptation work by us and the manufacturer of the gas turbine engine, or original equipment manufacturer ("OEM"), such as additional engineering work and, for some turbines, technology development. Except with respect to the Kawasaki 1.4 MW GPB15X, that work has not yet been completed. We may not be successful in adapting our Xonon technology to particular gas turbine models, and even if we are successful, the development work may result in delays in commercial shipments or significant expenses. Delays in completing this work could result in the loss of orders. Additionally, the emergence of significant technical issues, resource constraints on the part of OEMs, or limited market opportunities could result in termination by OEMs of their agreements to adapt Xonon to their gas turbines.

We are heavily dependent on our relationships with OEMs and their commitment to adopt and market Xonon technology on their gas turbines, and some of our agreements with OEMs may limit our market opportunities.

Today, we have ongoing programs with only two OEMs, Kawasaki and GE Energy ("GE"), formerly GE Power Systems. In regard to our Kawasaki program, our product has been commercially available since 2001 on a 1.4 MW Kawasaki GPB15X. Since its introduction, Kawasaki has completed two fully operational installations of Xonon-equipped gas turbines. These commercial installations have accumulated more than 25,000 operating hours. Given the limited number of commercial installations to date and the December 31, 2005 expiration of the Kawasaki agreement, we have no assurance that Kawasaki will continue to market Xonon combustion systems for their gas turbines.

In regard to our GE program, we are in the midst of incorporating our Xonon technology into the GE10 gas turbine. In January 2005, we completed a full-scale engine test with GE during which our technology demonstrated NOx emissions well below our 3 ppm guarantee. Nonetheless, at this time, we do not know whether or not the test fully met GE's commercial specifications. We and GE are currently determining the next steps for this program. This program still may require significant additional funding and may never result in the commercial launch of a Xonon-equipped GE10.

Our agreement with GE provides that GE has the right to be the exclusive market channel for distribution of Xonon combustion systems in GE's gas turbines. Additionally, this agreement provides for exclusivity in a limited turbine size range and for limited periods of time. Our GE agreement provides that either party can terminate the agreement, but not necessarily the exclusivity, if technical issues arise that cannot be resolved. A decision by GE to discontinue the commercialization of Xonon combustion systems in its product line could significantly limit or foreclose our access to the market for GE's turbines or prevent us from entering into agreements with other OEMs regarding the application of Xonon to competing turbines.

Our ability to sell Xonon modules for those gas turbines for which Xonon combustion systems become commercially available is heavily dependent upon the OEM's marketing and sales strategies for Xonon combustion systems and their worldwide sales and distribution networks and service capabilities. Many OEMs develop and offer alternative emissions control systems in competition with our Xonon system. Any decision on their part to limit, constrain or otherwise fail to aggressively market and sell Xonon combustion systems, including limiting their availability or pricing them uncompetitively, could harm our potential earnings by depriving us of full access to their markets.

Finally, if we and GE decided to not pursue commercialization of the GE10, and we are unable to attract GE or another OEM to commercialize a different gas turbine platform, we will consider alternatives to maximize our return on investment in Xonon, which could include a decision to sell or liquidate our Xonon gas turbine business.

We will incur significant costs in developing our technology with OEMs; if any OEM does not complete development for any reason, we may not be able to recover costs incurred for our development work with that OEM.

We incur significant costs in developing our Xonon technology with OEMs. At times, we recover a portion of these costs through contractual reimbursement from the OEMs. However, we bear the balance of the development costs ourselves. If OEMs do not complete development work for any reason, we will not be able to recover our share of development costs through product sales.

Competition from alternative technologies may adversely affect our Xonon business.

The market for emissions reduction technologies is intensely competitive. There are alternative technologies which reduce gas turbine emissions to levels comparable to or lower than Xonon-equipped gas turbines. These technologies include lean pre-mix combustion systems, which are used in conjunction with gas turbine exhaust cleanup systems such as selective catalytic reduction. Lean pre-mix systems are offered by several gas turbine OEMs, each of whom may prefer to use their internally developed emissions reduction technology rather than ours. There are also a number of companies, universities, research institutions and governments engaged in the development of emissions reduction technologies that could compete with our Xonon technology.

Xonon combustion systems will be deployed in complex and varied operating environments, and they may have limitations or defects that we find only after full deployment.

Gas turbines equipped with Xonon combustion systems are expected to be subjected to a variety of operating conditions and to be deployed in a number of extremely demanding environments. For example, gas turbines will be deployed in a wide range of temperature conditions, in the presence of atmospheric or other contaminants, under a wide range of operating requirements and with varying maintenance practices. As a result, technical limitations may only become apparent in the field after many Xonon-equipped gas turbines have been deployed. These limitations could require correction, and the corrections could be costly. In addition, any need to develop and implement corrective measures could temporarily delay or permanently prevent the sale of new Xonon-equipped gas turbines.

Any failure of gas turbines incorporating our technology could damage our reputation, reduce our revenues or otherwise harm our business.

The Xonon combustion system includes components that are located in a critical section of the gas turbine. A mechanical failure of a Xonon-equipped gas turbine may be attributed to the Xonon combustion system, even if the immediate cause is not clear. If this occurs, the reputation of the Xonon combustion system and its acceptability in the marketplace could be negatively impacted. This also could result in product or other liability to us for which we may not have insurance or adequate insurance.

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

We have entered into commercial arrangements with suppliers of the key components of our Xonon system. We do not know, however, when or whether we will secure arrangements with suppliers of other required materials and components for our Xonon modules, or whether these arrangements will be on terms that will allow us to achieve our objectives. If we are unable to obtain suppliers of all the required materials and components for our systems, our business could be harmed. A supplier's failure to supply materials or components in a timely manner, its failure to supply materials or components that meet our quality, quantity or cost requirements, or our inability to obtain substitute sources of these materials and components on a timely basis or on terms acceptable to us, could harm our ability to manufacture our Xonon modules. One of our components is provided by a single supplier and is not currently available from any other supplier. Additionally, some of our suppliers use proprietary processes to manufacture components. Although alternative suppliers are available, a switch in suppliers could be costly and take a significant amount of time to accomplish.

We have limited experience manufacturing Xonon modules on a commercial basis.

To date, we have focused primarily on research and development of Xonon and have limited experience manufacturing Xonon modules on a commercial basis. We may not be able to develop efficient, low-cost manufacturing capability and processes that will enable us to meet the quality, price, engineering, design

and production standards or production volumes required to manufacture Xonon modules on a commercial scale. We may also encounter difficulty purchasing components and materials, particularly those with long lead times. Even if we are successful in developing our manufacturing capability and processes, we do not know whether we will do so in time to meet our product commercialization schedule or to satisfy the requirements of our customers.

ADDITIONAL RISKS RELATING TO FUEL PROCESSING FOR FUEL CELL APPLICATIONS

In addition to the risks discussed elsewhere, the following additional risks particularly relate to our efforts developing fuel processing solutions for fuel cell applications. Any of the other risks discussed elsewhere also may impact these business activities.

We may never complete the research and development of a commercially viable fuel processor to be utilized with PEM fuel cell applications.

We are in the very early development stage of a commercially viable fuel processor to be utilized with PEM fuel cells in stationary, auxiliary and back-up power applications. We do not know when or whether we will successfully complete research and development of a commercially viable product. Economic and technical difficulties may prevent us from completing development of products or commercializing these products. Furthermore, a viable market for our product concept may never develop. If a market were to develop, we could face intense competition from large OEMs, as well as companies currently established in the PEM fuel cell business, and may be unable to compete successfully. In addition, automotive OEMs or PEM fuel cell companies may create technology alternatives that could render our systems obsolete prior to commercialization.

Item 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The primary objective of our investment activities is to preserve principal while at the same time maximizing the income we receive from our investments without significantly increasing risk. Some of the securities we invest in have market risk. This means that a change in prevailing interest rates would cause the principal amount of the investment to fluctuate. For example, if we hold a security issued with a fixed interest rate at the then prevailing rate and the prevailing interest rate later rises, the principal amount of our investment will decline. In an effort to minimize this risk, we maintain our portfolio of cash equivalents and short-term investments in a variety of securities, including commercial paper, money market funds, government and non-government debt securities. The average duration of our investments in 2004 and 2003 was less than one year. Due to the short-term nature of these investments, we believe we have no material exposure to interest rate risk arising from our investments. Therefore, no quantitative tabular disclosure is required.

Item 8. CONSOLIDATED FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Our Consolidated Financial Statements and the report of the independent registered public accounting firm appear on pages 68 through 73 of this Form 10-K.

Item 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

Item 9A. EVALUATION OF DISCLOSURE CONTROLS AND PROCEDURES

- (a) **Evaluation of disclosure controls and procedures.** Our chief executive officer and our chief financial officer, after evaluating the effectiveness of our "disclosure controls and procedures" (as defined in the Securities Exchange Act of 1934 Rules 13a-14(c) and 15-d-14(c)) as of a date

within 90 days before the filing date of this annual report (the "Evaluation Date"), have concluded that as of the Evaluation Date, our disclosure controls and procedures were adequate and designed to ensure that material information relating to us and our consolidated subsidiaries would be made known to them by others within those entities.

- (b) **Changes in internal controls.** There have been no significant changes in our internal controls or in other factors that could significantly affect our disclosure controls and procedures subsequent to the Evaluation Date.

PART III

Certain information required by Part III is omitted from this Annual Report as we intend to file our definitive Proxy Statement for our 2004 Annual Meeting of Stockholders, pursuant to Regulation 14A of the Securities Exchange Act of 1934, as amended, not later than 120 days after the end of the fiscal year covered by this Report, and certain information in the Proxy Statement is incorporated herein by reference.

Item 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT

Information concerning directors and executive officers of Catalytica Energy Systems, Inc. required to be included in this item is set forth under the headings "Information about our Directors," "Section 16(a) Beneficial Ownership Reporting Compliance," and "Executive Officers" in Catalytica Energy's Proxy Statement, and is incorporated into this report by reference.

The section entitled "Audit Committee Financial Expert" appearing in our Proxy Statement will set forth certain information with respect to the presence of an Audit Committee Financial Expert and is incorporated herein by reference. The section entitled "Code of Ethics" appearing in our Proxy Statement will set forth certain information with respect to our Code of Ethics and is incorporated herein by reference.

Item 11. EXECUTIVE COMPENSATION

The section entitled "Executive Compensation" appearing in our Proxy Statement will set forth certain information with respect to the compensation of our management and is incorporated herein by reference.

Item 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The section entitled "Security Ownership of Principal Stockholders and Management" appearing in our Proxy Statement will set forth certain information with respect to the ownership of our common stock and is incorporated herein by reference.

The "Equity Compensation Plan Table" is contained in Item 5 of this annual report and is incorporated herein by reference.

Item 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

The section entitled "Transactions with Management" appearing in our Proxy Statement will set forth certain information with respect to certain business relationships and transactions between us and our directors and officers and is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The section entitled "Fees Billed to the Company by Independent Registered Public Accountants" appearing in our Proxy Statement will set forth certain information with respect to various accounting fees billed to us and is incorporated herein by reference.

PART IV

Item 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES AND REPORTS ON FORM 8-K

A. (1) Consolidated Financial Statements

The following consolidated financial statements of the Registrant are filed as part of this Report:

	<u>Page</u>
Report of Ernst & Young LLP, Independent Registered Public Accounting Firm	68
Consolidated Statements of Operations for the years ended December 31, 2004, 2003 and 2002	69
Consolidated Balance Sheets at December 31, 2004 and 2003	70
Consolidated Statements of Stockholders' Equity for the period from January 1, 2002 through December 31, 2004	71
Consolidated Statements of Cash Flows for the years ended December 31, 2004, 2003 and 2002	72
Notes to Consolidated Financial Statements	73

(2) Consolidated Financial Statement Schedules

None. Schedules have been omitted because the information required to be set forth therein is not applicable or is shown in the financial statements or notes thereto.

(3) Exhibits

<u>Exhibit Number</u>	<u>Notes</u>	<u>Description</u>
2.1	(5)	Assignment and Assumption Agreement between Catalytica, Inc. and the Registrant, effective as of July 25, 1995.
2.1A	(28)	Membership Interests and Asset Purchase Agreement dated as of January 21, 2004 by and among EnBW Energy Solutions GmbH, with respect to Articles VII and X only, ENVICA GmbH, ENVICA Kat GmbH, E&EC Energy & Environmental Consultants GmbH, SCR-Tech GmbH, CESI-SCR, Inc. and, with respect to Section 11.18 and Articles VI and IX only, Catalytica Energy Systems, Inc., filed as Exhibit 2.1, dated as of January 21, 2004.
2.2	(11)	Employee Matters Agreement between Catalytica, Inc. and the Registrant, effective as of December 15, 2000.
2.2A	(28)	Amendment No. 1 to Membership Interests and Asset Purchase Agreement by and among EnBW Energy Solutions GmbH, ENVICA GmbH, ENVICA Kat GmbH, E&EC Energy & Environmental Consultants GmbH, SCR-Tech GmbH, SCR-Tech LLC, CESI-SCR, Inc., filed as Exhibit 2.2, dated as of February 20, 2004.
2.3	(11)	Form of Master Trademark Ownership and License Agreement between Catalytica, Inc. and the Registrant, effective as of December 15, 2000.
2.4	(11)	Tax Sharing Agreement between Catalytica, Inc., Synotex, Inc. and the Registrant, dated as of December 15, 2000.
2.5	(11)	Master Confidential Disclosure Agreement between Catalytica, Inc. and the Registrant, effective as of December 15, 2000.
2.6	(5)	Cross-License Agreement between Catalytica, Inc. and the Registrant, effective as of July 1995.
2.7	(5)	Cross-License Agreement between Catalytica Advanced Technologies, Inc. and Catalytica, Inc., dated July 1995.
2.8	(5)	Tax Sharing Agreement between Catalytica, Inc., Catalytica Bayview, Inc., Catalytica Advanced Technologies, Inc. and the registrant, dated March 4, 1999.

<u>Exhibit Number</u>	<u>Notes</u>	<u>Description</u>
2.8A	(11)	Indemnification Agreement between Catalytica, Inc. and the Registrant, filed as Exhibit 2.8, dated December 15, 2000.
2.9	(11)	Transition Services Agreement between Catalytica, Inc. and the Registrant, dated December 15, 2000.
2.10	(11)	Real Estate Matters Agreement between Catalytica, Inc. and the Registrant, dated December 15, 2000.
2.11	(11)	Master Separation Agreement between Catalytica, Inc. and the Registrant, dated December 15, 2000.
3.1	(11)	Amended and Restated Certificate of Incorporation of Catalytica Energy Systems, Inc., dated December 13, 2000.
3.1A	(18)	Certificate of Designation, the form of Rights Certificate and the Summary of Rights attached thereto as Exhibits A, B and C, respectively, filed as Exhibit 4.1, dated January 29, 2002.
3.2	(8)	Form of Amended and Restated Bylaws.
3.3	(13)	Audit Committee Charter.
4.1	(11)	Stock Specimen of the Registrant.
4.1A	(18)	Preferred Stock Rights Agreement between the Registrant and Mellon Investor Services LLC, including the Certificate of Designation, the form of Rights Certificate and the Summary of Rights attached thereto as Exhibits A, B, and C, respectively, filed as Exhibit 4.1, dated January 29, 2002.
4.1B	(35)	Amended and Restated Preferred Stock Rights Agreement with Mellon Investor Services LLC, filed as Exhibit 4.1, dated November 22, 2004.
10.4	(5)*	Promissory Notes from Peter B. Evans issued to Registrant, both dated July 20, 1999.
10.6	(3)	Limited Liability Company Operating Agreement of GENXON Power Systems, LLC, dated October 21, 1996.
10.7	(4)	Amendment No. 1 to the Operating Agreement of GENXON Power Systems, LLC, dated December 4, 1997.
10.8	(1)+	Agreement between Catalytica, Inc. and Tanaka Kikinzoku Kogyo K.K, dated as of July 18, 1988.
10.9	(2)+	Agreement between Catalytica, Inc. and Tanaka Kikinzoku Kogyo K.K, dated as of January 31, 1995.
10.11	(5)	Omnibus Agreement by and among Catalytica, Inc., Sundance Assets, L.P., Enron North America Corp. and the Registrant, dated August 29, 2000.
10.12	(5)+	Collaborative Commercialization and License Agreement among General Electric Co., GENXON Power System, LLC and the Registrant, dated as of November 19, 1998.
10.17	(8)	Registration Rights Agreement between Morgan Stanley Capital Partners III and its affiliates and the Registrant, dated September 2000.
10.18	(7)*	2000 Employee Stock Purchase Plan of the Registrant.
10.20	(12)*	Catalytica Energy Systems, Inc. (formerly Catalytica Combustion Systems, Inc.) 1995 Stock Plan, as amended and restated October 26, 2000.
10.23	(12)	Share Transfer Agreement between the Registrant and JSB Asset, LLC, dated December 15, 2000.
10.24	(12)	Stock Purchase Warrant Agreement between the Registrant and GlaxoWellcome, Inc., dated December 15, 2000.
10.26	(16)+	Technology Development and Transfer Agreement between Kawasaki Heavy Industries, Ltd. and Registrant, dated December 13, 2000.

Exhibit Number	Notes	Description
10.27	(16)+	Xonon Module Supply Agreement by and among Kawasaki Heavy Industries, Ltd. and Registrant, dated December 13, 2000.
10.28	(14)*	Change of Control Severance Agreements between Patrick T. Conroy and the Registrant dated April 5, 2001, Dennis S. Riebe and the Registrant dated April 5, 2001, Craig N. Kitchen and the Registrant dated April 5, 2001, and Ralph A. Dalla Betta and the Registrant, dated April 17, 2001.
10.30	(19)+	Amendment No. 1 to the Collaborative Commercialization and License Agreement between Catalytica Combustion Systems, Inc. and GENXON Power Systems, LLC and General Electric Company, dated January 3, 2002.
10.32	(19)	GENXON Membership Transfer and Settlement Agreement between the Registrant, Woodward Governor Company, and GENXON Power Systems, LLC, dated December 19, 2001.
10.33	(19)	Control Patent Assignment and Cross-License Agreement between the Registrant and Woodward Governor Company, dated December 19, 2001.
10.35	(20)*	Letter Agreement with Dominic Geraghty, dated February 25, 2002.
10.36	(20)*	Change of Control Severance Agreement with Dominic Geraghty, dated March 29, 2002.
10.39	(24)*	Letter Agreement with Michael J. Murry, dated December 6, 2002.
10.40	(24)*	Change of Control Severance Agreement with Michael J. Murry, dated March 23, 2003.
10.41	(25)*	Change of Control Severance Agreement with Robert W. Zack, dated August 16, 2002.
10.42	(25)*	Letter Agreement with Robert W. Zack, dated February 6, 2003.
10.43	(26)	Third Amendment and Extension to Lease Agreement between Jack Dymond Associates and Catalytica Energy Systems, Inc., dated June 20, 2003.
10.46	(29)	Lease Agreement dated December 16, 2002 between Clariant Corporation and SCR-Tech, LLC, dated December 16, 2002, and First Amendment to Lease Agreement between Clariant Corporation and SCR-Tech, LLC., dated February 18, 2004.
10.47	(34)	Loan Modification Agreements between the Arizona State Compensation Fund and the Registrant, as amended, dated August 9, 2004.
10.48	(36)	Form of Indemnification Agreement between the Registrant and executive officers and directors of the Registrant.
10.49	(36)	Consulting Agreement between the Registrant and David Merrion, dated February 1, 2005
14.1	**	Code of Ethics
21.1	**	Subsidiaries of Registrant.
23.1	**	Consent of Independent Registered Public Accounting Firm.
24.1	**	Power of Attorney (see Signatures page).
31.1	**	Certification of Chief Executive Officer pursuant to Rule 13a-14(a) / 15d-14(a) of the Securities Exchange Act of 1934, as amended.
31.2	**	Certification of Chief Financial Officer pursuant to Rule 13a-14(a) / 15d-14(a) of the Securities Exchange Act of 1934, as amended.
32.1	**	Certification of Chief Executive Officer pursuant to 18 U.S.C. 1350.
32.2	**	Certification of Chief Financial Officer pursuant to 18 U.S.C. 1350.

+ Confidential treatment has been granted for portions of these agreements.

* Represents management contracts or compensatory plans for executive officers and directors.

** Filed herewith.

- (1) Incorporated by reference to exhibits filed with Catalytica, Inc.'s Registration Statement on Form S-1 (Registration Statement No. 33-55696).
- (2) Incorporated by reference to exhibits filed with Catalytica, Inc.'s Form 10-K (File No. 0-20966) for the year ended December 31, 1994.
- (3) Incorporated by reference to exhibits filed with Catalytica, Inc.'s Form 10-K (File No. 0-20966) for the year ended December 31, 1996.
- (4) Incorporated by reference to exhibits filed with Catalytica, Inc.'s Form 10-K (File No. 0-20966) for the year ended December 31, 1997.
- (5) Incorporated by reference to exhibits filed with our Registration Statement on Form S-1 (File No. 333-44772), filed on August 29, 2000.
- (7) Incorporated by reference to exhibits filed with our Amendment No. 2 to Form S-1 (File No. 333-44772), filed on October 16, 2000.
- (8) Incorporated by reference to exhibits filed with our Amendment No. 3 to Form S-1 (File No. 333-44772), filed on November 1, 2000.
- (11) Incorporated by reference to exhibits filed with our Post-Effective Amendment No. 1 to Form S-1 (File No. 333-44772), filed on January 12, 2001.
- (12) Incorporated by reference to exhibits filed with our Form 10-K for the year ended December 31, 2000, filed on March 15, 2001.
- (13) Incorporated by reference to Appendix A to the Proxy Statement filed on Schedule 14A dated April 24, 2001, filed on April 24, 2001.
- (14) Incorporated by reference to exhibits filed with our Registration Statement on Form S-1 (File No. 333-64682), filed on July 6, 2001.
- (16) Incorporated by reference to exhibits filed with our Amendment No. 2 to Form S-1 (File No. 333-64682), filed on August 6, 2001.
- (18) Incorporated by reference to exhibits filed with our Amendment No. 1 to Form 8-A12G/A, filed on February 6, 2002.
- (19) Incorporated by reference to exhibits filed with our Form 10-K for the year ended December 31, 2001, filed on April 01, 2002.
- (20) Incorporated by reference to exhibits filed with our Form 10-Q for the quarter ended March 31, 2002, filed on May 14, 2002.
- (24) Incorporated by reference to exhibits filed with our Form 10-K for the year ended December 31, 2002, filed on March 31, 2003.
- (25) Incorporated by reference to exhibits filed with our Form 10-Q for the quarter ended March 31, 2003, filed on May 9, 2003.
- (26) Incorporated by reference to exhibits filed with our Form 10-Q for the quarter ended June 30, 2003, filed on August 5, 2003.
- (28) Incorporated by reference to exhibits filed with our Form 8-K, filed on March 4, 2004.
- (29) Incorporated by reference to exhibits filed with our Form 10-K for the year ended December 31, 2003, filed on March 30, 2004.

- (34) Incorporated by reference to exhibits filed with our Form 10-Q for the quarter ended September 30, 2004, filed on November 12, 2004.
- (35) Incorporated by reference to exhibits filed with our Amendment No. 1 to Form 8-A12G/A, filed on November 22, 2004.
- (36) Incorporated by reference to exhibits filed with our Form 8-K, filed on February 4, 2005.

B. Reports on Form 8-K

The Company filed the following reports on Form 8-K during the quarter ended December 31, 2004:

Current Report on Form 8-K dated November 4, 2004, furnishing a copy of the November 4, 2004 press release announcing the Company's financial results for the fiscal quarter ended September 30, 2004.

Current Report on Form 8-K dated November 22, 2004, furnishing a copy of the November 22, 2004 press release announcing the Company had amended its Preferred Stock Rights Agreement.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Stockholders
Catalytica Energy Systems, Inc.

We have audited the accompanying consolidated balance sheets of Catalytica Energy Systems, Inc. as of December 31, 2004 and 2003, and the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2004. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. We were not engaged to perform an audit of the Company's internal control over financial reporting. Our audit included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of Catalytica Energy Systems, Inc. at December 31, 2004 and 2003, and the consolidated results of their operations and their cash flows for each of the three years in the period ended December 31, 2004, in conformity with U.S. generally accepted accounting principles.

/s/ Ernst & Young LLP

Phoenix, Arizona
February 23, 2005

CATALYTICA ENERGY SYSTEMS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
for the years ended December 31, 2004, 2003 and 2002
(In thousands, except per share amounts)

	<u>For the year ended December 31,</u>		
	<u>2004</u>	<u>2003</u>	<u>2002</u>
Revenues			
SCR catalyst & management services	\$ 2,960	\$ —	\$ —
Research and development	2,641	3,498	4,795
Total revenues	<u>5,601</u>	<u>3,498</u>	<u>4,795</u>
Costs and expenses:			
Cost of revenues	5,227	4,341	5,977
Research and development	7,498	6,919	8,252
Selling, general and administrative	6,339	7,224	9,654
Total costs and expenses	<u>19,064</u>	<u>18,484</u>	<u>23,883</u>
Operating loss	<u>(13,463)</u>	<u>(14,986)</u>	<u>(19,088)</u>
Interest and other income	758	823	1,405
Interest expense	(564)	(236)	(191)
Net loss	<u><u>\$(13,269)</u></u>	<u><u>\$(14,399)</u></u>	<u><u>\$(17,874)</u></u>
Basic and diluted net loss per share	<u><u>\$ (0.74)</u></u>	<u><u>\$ (0.81)</u></u>	<u><u>\$ (1.02)</u></u>
Weighted average shares used in computing basic and diluted net loss per share	<u>17,850</u>	<u>17,669</u>	<u>17,529</u>

See accompanying notes.

CATALYTICA ENERGY SYSTEMS, INC.

CONSOLIDATED BALANCE SHEETS

at December 31, 2004 and 2003

(In thousands, except per share amounts)

	<u>December 31,</u>	
	<u>2004</u>	<u>2003</u>
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 26,901	\$ 32,806
Short-term investments	8,691	19,876
Trade accounts receivable, less allowance of \$30 and \$25 at December 31, 2004 and 2003, respectively	1,222	567
Inventory	474	460
Prepaid expenses and other assets	601	527
Total current assets	<u>37,889</u>	<u>54,236</u>
Property and equipment:		
Land	611	611
Building and leasehold improvements	9,608	11,325
Equipment	8,842	8,776
Less accumulated depreciation and amortization	(11,584)	(13,636)
Total property and equipment	<u>7,477</u>	<u>7,076</u>
Notes receivable from related parties, less allowance of \$687 and \$692 at December 31, 2004 and 2003, respectively	—	18
Goodwill	4,257	—
Other intangible assets	1,584	—
Other assets	310	355
Total assets	<u>\$ 51,517</u>	<u>\$ 61,685</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 248	\$ 380
Accrued payroll and benefits	1,315	1,590
Accrued liabilities and other	1,213	1,243
Current portion of long-term debt and capital lease obligations	748	135
Total current liabilities	<u>3,524</u>	<u>3,348</u>
Long-term debt and other long-term liabilities	<u>5,654</u>	<u>3,110</u>
Total liabilities	<u>9,178</u>	<u>6,458</u>
Stockholders' equity:		
Series A convertible preferred stock, \$0.001 par value; authorized— 5,000 shares, none issued	—	—
Common stock, \$0.001 par value; authorized—70,000 shares; issued and outstanding—17,890 and 17,744 at December 31, 2004 and 2003, respectively	18	18
Additional paid-in capital	167,358	166,977
Deferred compensation	(20)	(20)
Retained deficit	(125,017)	(111,748)
Total stockholders' equity	<u>42,339</u>	<u>55,227</u>
Total liabilities and stockholders' equity	<u>\$ 51,517</u>	<u>\$ 61,685</u>

See accompanying notes.

CATALYTICA ENERGY SYSTEMS, INC

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
for the period from January 1, 2002 through December 31, 2004
(In thousands)

	Convertible Preferred Stock Series A		Common Stock		Additional Paid-In Capital	Deferred Compensation	Retained Deficit	Stockholders' Equity
	Shares	Amount	Shares	Amount				
Balance at January 1, 2002	—	\$ —	17,463	17	\$ 166,439	\$ (260)	\$ (79,475)	\$ 86,721
Exercise of stock options.....	—	—	5	—	2	—	—	2
Purchase of shares through employee stock purchase plan	—	—	93	1	309	—	—	310
Issuance of stock options.....	—	—	—	—	9	(9)	—	—
Cancellation of stock options	—	—	—	—	(203)	203	—	—
Re-measurement of deferred compensation	—	—	—	—	(23)	23	—	—
Amortization of deferred compensation	—	—	—	—	—	20	—	20
Net loss	—	—	—	—	—	—	(17,874)	(17,874)
Balance at December 31, 2002	—	\$ —	17,561	\$ 18	\$ 166,533	\$ (23)	\$ (97,349)	\$ 69,179
Exercise of stock options.....	—	—	86	—	158	—	—	158
Purchase of shares through employee stock purchase plan	—	—	97	—	226	—	—	226
Issuance of stock options.....	—	—	—	—	56	(56)	—	—
Re-measurement of deferred compensation	—	—	—	—	4	(4)	—	—
Amortization of deferred compensation	—	—	—	—	—	63	—	63
Net loss	—	—	—	—	—	—	(14,399)	(14,399)
Balance at December 31, 2003	—	\$ —	17,744	\$ 18	\$ 166,977	\$ (20)	\$ (111,748)	\$ 55,227
Exercise of stock options.....	—	—	24	—	74	—	—	74
Purchase of shares through employee stock purchase plan	—	—	122	—	281	—	—	281
Issuance of stock options.....	—	—	—	—	91	(91)	—	—
Forfeiture of stock options	—	—	—	—	(27)	27	—	—
Re-measurement of deferred compensation	—	—	—	—	(38)	38	—	—
Amortization of deferred compensation	—	—	—	—	—	26	—	26
Net loss	—	—	—	—	—	—	(13,269)	(13,269)
Balance at December 31, 2004	—	\$ —	17,890	\$ 18	\$ 167,358	\$ (20)	\$ (125,017)	\$ 42,339

See accompanying notes.

CATALYTICA ENERGY SYSTEMS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
for the years ended December 31, 2004, 2003 and 2002
(In thousands)

	<u>For the year ended December 31,</u>		
	<u>2004</u>	<u>2003</u>	<u>2002</u>
Cash flows from operating activities:			
Net loss	\$(13,269)	\$(14,399)	\$(17,874)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation/impairment of property and equipment	1,229	2,108	2,715
Amortization of investments premium	200	242	172
Amortization of intangible assets	144	—	—
Accretion of interest on long-term debt	352	—	—
Forgiveness of notes receivable from related parties	52	57	60
Provision for uncollectable accounts and notes	—	92	—
Notes payable issued for contract modification	—	—	200
Stock based compensation	26	63	20
Loss on sale of property and equipment	225	—	—
Changes in:			
Trade accounts receivable	83	859	(48)
Inventory	46	19	(301)
Prepaid expenses and other assets	14	(118)	68
Accounts payable	(807)	(358)	(16)
Accrued payroll and benefits	(275)	(838)	(4)
Accrued liabilities and other	(414)	(455)	(3,138)
Net cash used in operating activities	<u>(12,394)</u>	<u>(12,728)</u>	<u>(18,146)</u>
Cash flows from investing activities:			
Purchase of business	(4,300)	—	—
Purchases of investments	(10,164)	(19,257)	(26,674)
Maturities of investments	21,149	19,945	23,280
Loans to equity investments	—	—	(500)
Sale of property and equipment	25	—	—
Additions to property and equipment	(435)	(1,315)	(5,298)
Net cash provided by (used in) investing activities	<u>6,275</u>	<u>(627)</u>	<u>(9,192)</u>
Cash flows from financing activities:			
Proceeds from issuance of long-term debt	2,940	—	3,010
Repayments of long-term debt	(3,075)	(130)	(21)
Payments on capital lease obligations	(6)	(58)	(62)
Proceeds from exercise of stock options	74	158	2
Proceeds from issuance of common stock to employees through stock plans	281	226	310
Net cash provided by financing activities	<u>214</u>	<u>196</u>	<u>3,239</u>
Net decrease in cash and cash equivalents	<u>(5,905)</u>	<u>(13,159)</u>	<u>(24,099)</u>
Cash and cash equivalents at beginning of period	<u>32,806</u>	<u>45,965</u>	<u>70,064</u>
Cash and cash equivalents at end of period	<u>\$ 26,901</u>	<u>\$ 32,806</u>	<u>\$ 45,965</u>
Additional disclosure of cash flow information:			
Interest paid	<u>\$ 208</u>	<u>\$ 225</u>	<u>\$ 183</u>
Deferred compensation for issuance and revaluation of stock options to non-employees	<u>\$ 27</u>	<u>\$ 60</u>	<u>\$ (14)</u>
Debt assumed for purchase of business	<u>\$ 3,133</u>	<u>\$ —</u>	<u>\$ —</u>

See accompanying notes.

CATALYTICA ENERGY SYSTEMS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
DECEMBER 31, 2004

Note 1. Description of Business

Description of Business. Catalytica Energy Systems, Inc. ("Catalytica Energy," "the Company," "we," "us" or "our") provides innovative emissions solutions to ease the environmental impact of combustion-related applications in the power generation and transportation industries. Through our SCR-Tech, LLC ("SCR-Tech") subsidiary, we offer a variety of services for coal-fired power plants that use selective catalytic reduction ("SCR") systems to reduce nitrogen oxides ("NOx") emissions. These services include SCR catalyst cleaning and regeneration, SCR system management services to optimize efficiency and reduce overall operating and maintenance ("O&M") costs, and consulting services related to the design of SCR systems (collectively "SCR Catalyst and Management Services"). Our business activities also include the design, development, manufacture and servicing of advanced products based on our proprietary catalyst and fuel processing technologies to offer cost-effective solutions for reducing NOx emissions from diesel engines and natural gas-fired turbines. Our diesel fuel processing technology is designed to facilitate significant NOx reduction from mobile, stationary and off-road diesel engine applications by improving performance of NOx adsorber catalyst systems. Our commercially-available Xonon Cool Combustion® system offers a breakthrough pollution prevention approach that enables gas turbines to achieve ultra-low NOx emissions through a proprietary catalytic combustion process. Other activities include the development of fuel processing systems for fuel cells used in stationary, auxiliary and back-up power applications.

Formation and Operations of the Company. Catalytica Energy was incorporated in Delaware in June 1995 as a subsidiary of Catalytica, Inc.. Catalytica Energy operated as part of Catalytica, Inc.'s research and development group from inception through the date of its incorporation as a separate entity. In December 2000, Catalytica Advanced Technologies, Inc., another subsidiary of Catalytica Inc., was merged into us, and the combined entity was spun out from Catalytica, Inc. as Catalytica Energy Systems, Inc., a separate, stand-alone public company.

In December 2001, Catalytica Energy purchased Woodward Governor Company's ("WGC's") equity interest in GENXON Power Systems, LLC ("GENXON") making it the sole equity owner of GENXON. GENXON was formed in October 1996 as a 50/50 joint venture between Catalytica Energy and WGC to develop the potential market for upgrading out-of-warranty turbines with new systems to improve emissions and operating performance. The financial statements of Catalytica Energy and GENXON were consolidated effective December 31, 2001.

In January 2004, Catalytica Energy formed two new wholly-owned subsidiaries, CESI-SCR, Inc. ("CESI-SCR") and CESI-Tech Technologies, Inc. ("CESI-Tech"). On February 20, 2004, CESI-SCR acquired 100% of the outstanding membership interests of SCR-Tech and SCR-Tech became a wholly-owned subsidiary of CESI-SCR. Also on February 20, 2004, CESI-Tech acquired various patents and other intellectual property rights from certain former owners of SCR-Tech. Operating results for the year ending December 31, 2004 include the results of operations of SCR-Tech for the period from February 21, 2004 through December 31, 2004.

Catalytica Energy was in the development stage from inception until February 2004, when the Company acquired SCR-Tech, a company with established commercial operations in the area of NOx solutions, at which point the Company exited the development stage.

CATALYTICA ENERGY SYSTEMS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

We operate in two business segments, defined as follows. See Note 10 in Notes to Financial Statements for business segment disclosures.

- Catalyst regeneration, cleaning and management services for selective catalytic reduction systems used by utility-scale power generating facilities to reduce NO_x emissions—our SCR Catalyst and Management Services segment (“SCMS”).
- Designing, developing and manufacturing advanced products based on our proprietary catalyst and fuel processing technologies to offer cost-effective solutions for reducing NO_x emissions—our Catalyst-Based Technology Solutions segment (“CBTS”).

Note 2. Significant Accounting Policies

Principles of Consolidation. The consolidated financial statements include the accounts of Catalytica Energy and its wholly owned subsidiaries in the United States. Significant intercompany accounts and transactions have been eliminated in consolidation.

Reclassifications. Certain reclassifications have been made to the 2002 and 2003 financial statements to conform to the 2004 presentation. Effective January 1, 2004, the Company elected to reclassify certain expenses in its consolidated statements of operations. Costs of revenue-producing research and development (“R&D”) programs have been reclassified from research and development to cost of revenues. These reclassifications resulted in an increase to cost of revenues and a decrease to research and development of \$4,341,000 and \$5,977,000 for the years ended December 31, 2003 and 2002, respectively.

Use of Estimates. The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the reported amounts in the consolidated financial statements and accompanying notes. Actual results could differ from those estimates.

Cash Equivalents. Catalytica Energy considers all highly liquid investments with a remaining maturity of three months or less from the date of purchase to be cash equivalents. The Company’s investments have consisted of commercial and government short-term paper with a remaining maturity of three months or less and money market accounts.

Short-Term Investments. Catalytica Energy accounts for short-term investments in accordance with Statement of Financial Accounting Standard (“SFAS”) No. 115, “Accounting for Certain Investments in Debt and Equity Securities.” The Company’s investments are classified as available for sale and have been recorded at fair value, which approximates cost. Catalytica Energy’s short-term investments consist principally of commercial paper with maturities of twelve months or less.

Investments in Equity Investments and Joint Ventures. Investments in equity investments and joint ventures where Catalytica Energy has a 20% to 50% ownership interest are accounted for under the equity method. Under this method, Catalytica Energy records its pro rata share of the investee’s net earnings or losses. Investee’s net losses are recorded until Catalytica Energy’s net investment and obligation, if any, to pay down debt are reduced to zero. At December 31, 2004, there were no investments recorded on the balance sheet given the remaining equity investments are recorded at zero value and the Company has no future funding commitments.

Concentrations of Credit Risk. Assets subject to concentrations of credit risk consist principally of cash equivalents, short-term investments, and receivables. Catalytica Energy uses local banks and various

CATALYTICA ENERGY SYSTEMS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

investment firms to invest its excess cash, principally in commercial paper and money market funds from a diversified portfolio of investments with strong credit ratings. Related credit risk would result from a default by the financial institutions or issuers of investments to the extent of the recorded carrying value of these assets. Catalytica Energy performs ongoing credit evaluations of its customers and generally does not require collateral.

Accounts Receivable. Accounts receivable consists of trade receivables generated from research and development contracts, trade receivables from SCR Catalyst and Management Services and revenues in excess of billings from SCR Catalyst and Management Services. Trade receivables are recorded at the invoiced amount. Payment terms for SCR catalyst regeneration and cleaning services are typically defined in the contract for services rendered. Revenues may be earned for those services in advance of amounts billable to the customer and are recognized when the service is complete, unless the contract terms will not result in invoice generation within six months from the date of completion of those services. Revenues recognized in excess of amounts billed are recorded as accounts receivable. Revenues in excess of billings represented \$225,000 and \$0 of net accounts receivable as of December 31, 2004 and December 31, 2003, respectively.

Allowance for Doubtful Accounts and Notes. The Company maintains allowances for doubtful accounts for estimated losses resulting from the inability of its funding parties or customers to make required payments. This allowance is based on specific customer account reviews and historical collections experience. We generally reserve for balances that are 60 days past the invoice due date. If the financial condition of the Company's funding parties or customers were to deteriorate, resulting in an impairment of their ability to make payments, additional allowances may be required. The following table summarizes the activity for the allowance for doubtful amounts on all accounts and notes receivable:

<u>Year ended December 31,</u>	<u>Beginning Balance</u>	<u>Provision</u>	<u>Ending Balance</u>
2002	\$625,000	\$ —	\$625,000
2003	625,000	92,000	717,000
2004	717,000	—	717,000

Fair Value of Financial Instruments. At December 31, 2004, the Company has the following financial instruments: cash and cash equivalents, short-term investments, accounts receivable, notes receivable from related parties, accounts payable, accrued payroll and benefits, accrued legal settlements, accrued liabilities and long-term debt. The carrying value of cash and cash equivalents, short-term investments, accounts receivable, accounts payable, accrued payroll and benefits, accrued legal settlements and accrued liabilities approximates their fair value based on the liquidity of these financial instruments or based on their short-term nature. The carrying value of notes receivable from related parties and long-term debt approximates fair value based on the market interest rates available to Catalytica Energy for debt of similar risk and maturities.

Inventory. Catalytica Energy's inventory consists principally of raw materials and is stated at the lower of cost or market. Raw materials consist mainly of various precious metals and high temperature foils that are used to make catalysts for our gas turbine modules and for use in our research and development activities.

Property and Equipment. We state property and equipment at cost. We state equipment under capital leases at the present value of the minimum lease payments. We capitalize major improvements and

CATALYTICA ENERGY SYSTEMS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

betterments, while maintenance, repairs and minor replacements are expensed as incurred. Depreciation is provided using the straight-line method over the economic lives of the assets ranging from 3 to 30 years. Leasehold improvements are amortized over the shorter of the underlying lease term or asset life. Depreciation expense recorded during the years ended December 31, 2004, 2003 and 2002 was \$1,229,000, \$2,254,000 and \$2,190,000, respectively.

Impairment of Long-Lived Assets. In accordance with SFAS No. 144, "Accounting for the Impairment or Disposal of Long-Lived Assets," the Company reviews long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of such assets may not be fully recoverable. If this review indicates the carrying value of these assets will not be recoverable, as measured based on estimated undiscounted cash flows over their remaining life, the carrying amount would be adjusted to fair value. The cash flow estimates contain management's best estimates, using appropriate and customary assumptions and projections at the time. During the year ended December 31, 2002, the Company determined that certain leasehold improvements were impaired and recorded a reserve of \$545,000 which is reflected as a component of selling, general and administrative expenses.

Goodwill and Other Intangible Assets. The Company accounts for goodwill and other intangible assets in accordance with the provisions of SFAS No. 141, "Business Combinations", and SFAS No. 142, "Goodwill and Other Intangible Assets". Purchase prices of acquired businesses that are accounted for as purchases have been allocated to the assets and liabilities acquired based on the estimated fair values on the respective acquisition dates. Based on these values, the excess purchase prices over the fair value of the net assets acquired were allocated to goodwill. Pursuant to SFAS No. 142, goodwill and other intangible assets acquired in a purchase business combination and determined to have an indefinite useful life are not amortized, but instead tested for impairment at least annually in accordance with the provisions of SFAS No. 142. SFAS No. 142 also requires that intangible assets with estimable useful lives be amortized over their respective estimated useful lives to their estimated residual values and reviewed for impairment in accordance with SFAS No. 144, "Accounting for Impairment or Disposal of Long-Lived Assets."

Goodwill represents the excess of costs over fair value of acquired net assets, including other intangible assets. Other intangible assets that have finite useful lives, including patents, trademarks, trade secrets and other purchased technology, are recorded at fair value at the time of the acquisition, and are carried at such value less accumulated amortization. The Company amortizes these intangible assets on a straight-line basis over their useful lives, estimated at ten years.

CATALYTICA ENERGY SYSTEMS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

The changes in the carrying amount of goodwill and other intangible assets relates only to the SCMS business segment for the year ended December 31, 2004 are as follows (in thousands):

<i>Goodwill</i>	
Balance at December 31, 2003	\$ —
Purchase of SCR-Tech	4,257
Amortization expense	—
Balance at December 31, 2004	<u>\$4,257</u>
<i>Other Intangible Assets</i>	
Balance at December 31, 2003	\$ —
Purchase of SCR-Tech	1,728
Amortization expense	(144)
Balance at December 31, 2004	<u>\$1,584</u>

At December 31, 2004, goodwill totaled \$4,257,000. Other acquisition-related intangibles, net of accumulated amortization, totaled \$1,584,000 at December 31, 2004. Accumulated amortization through December 31, 2004 was \$144,000.

Accrued Warranty Liability. The Company's warrants its Xonon catalytic modules for a period of 8,000 hours of operation or five years from first firing, whichever comes first. The Company's obligations under this warranty are limited to repair or replacement of the defective Xonon module(s). Warranties provided for the Company's SCR cleaning and regeneration services vary by contract, but typically provide limited performance guarantees and complete structural warranties.

Estimated warranty obligations related to Xonon modules are based on the number of modules in operation and are recorded as a cost of revenues. Estimated warranty obligations related to SCR cleaning and regeneration services are provided for as cost of revenues in the period in which the related revenue is recognized. Adjustments are made to accruals as warranty claim data and historical experience warrant. Our warranty obligation may be materially affected by product failure rates and other costs incurred in correcting a product failure. Should actual product failure rates or other related costs differ from our estimates, revisions to the estimated warranty liability would be required.

The following table summarizes the changes in accrued warranty liability (in thousands):

Balance as of December 31, 2002	\$ 50
Warranties issued and adjustment to provision	—
Warranty claims	—
Balance as of December 31, 2003	50
Warranties issued and adjustment to provision	85
Warranty claims	—
Balance as of December 31, 2004	<u>\$135</u>

Comprehensive Income. Catalytica Energy has no significant components of other comprehensive income.

SCR Catalyst and Management Services Revenues. As prescribed in Staff Accounting Bulletin ("SAB") 101 and 104, "Revenue Recognition in Financial Statements", the Company recognizes revenue from SCR

CATALYTICA ENERGY SYSTEMS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Catalyst and Management Services when persuasive evidence of an arrangement exists, services have been rendered, the price is fixed or determinable, and collectibility is reasonably assured.

Revenues related to SCR catalyst regeneration and cleaning services are recognized when the service is completed for each catalyst module. Customer acceptance is not required in that SCR-Tech's contracts currently provide that services are completed upon receipt of testing by independent third parties confirming compliance with contract requirements. Testing generally occurs three times during a particular customer project—at the beginning of the processing, when approximately one-half of the project has been processed, and upon completion of processing. A typical customer project may take 30 to 90 days to complete. Once a successful test result is received from an independent third party, revenue is recognized for each catalyst module processed prior to the receipt of such test results, and revenue is subsequently recognized for each catalyst module as its processing is completed. As the Company utilizes a consistent methodology and formula for each project, it is unlikely that subsequent testing would not be successful. Nonetheless, if a subsequent test result were to indicate failure, the Company would cease recognizing revenue on any subsequent modules until new testing evidence confirms successful processing. We maintain a revenue allowance to provide for any deficient test results that may occur after our initial test.

Due to the nature of the demand for SCR regeneration and cleaning services, some of our contracts provide for extended payment terms. In a situation where the project for a customer is complete; but the customer is not contractually committed to receive an invoice within the succeeding six months (and subsequent payment is due within 30 days of invoice date), revenue is deferred until the contractual invoice date. If the customer contract provides for a deposit or progress payments, we recognize revenue up to the amount invoiced. Because of the fact we perform a service for a customer, no rights of return exist. The customer is responsible for the removal, transportation and subsequent installation of the catalyst. Our revenue arrangements do not have any material multiple deliverables as defined in Emerging Issues Task Force ("EITF") 00-21, "Accounting for Multiple Element Revenue Arrangements".

Costs associated with performing SCR catalyst regeneration and cleaning services are expensed as incurred because of the close correlation between the costs incurred, the extent of performance achieved and the revenue recognized. In the situation where revenue is deferred due to collectibility uncertainties, the Company does not defer costs due to the uncertainties related to payment for such services.

We recognize revenue from our management and consulting services as work is performed. Costs associated with management and consulting services is expensed as incurred.

Research and Development Revenues. Research and development ("R&D") revenues are recognized as contractual services are performed and are recognized in accordance with contract terms, principally based on reimbursement of total costs and expenses incurred. Revenues from government funded R&D programs are often multi-year, cost reimbursement or cost-share types of contracts. We are reimbursed for reasonable and allocable costs up to the reimbursement limits set by the contract. In many cases, we are reimbursed for only a portion of the costs incurred under the contract. The Company generally shares in the cost of these programs with cost-sharing percentages between 30% and 50%. We rely on general revenue recognition guidance, as prescribed in SAB 104, to determine whether persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the price is fixed and determinable, and collection is reasonably assured.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

While government research and development contracts may extend over multiple years, funding is generally provided incrementally on an annual basis with authorization of funds by Congress. Should funding be temporarily delayed or if the Company's strategic objectives change, we may choose to devote resources to other activities, including internally funded research and development programs.

No amounts recognized as revenue are refundable. In return for funding, collaborative partners may receive certain rights in the commercialization of any resulting technology, including royalty payments on future sales (see "Other Commitments"). Most of our R&D contracts are also subject to periodic review by our funding partners, which could result in schedule delays or modifications to project scope, including reduction or termination of funding.

We enter into contracts with government agencies as funding sources to help defray costs of commercializing our NOx control-related technologies. The federal government is not the sole or principal expected end-use customer for the research and development or for products directly resulting from the R&D activity funded by the contract. We believe the funding derived from those sources is incidental to our anticipated costs of bringing the technologies we develop, with government funding support, to the marketplace. As such, we believe it is appropriate to present R&D revenues on a gross, rather than net, basis in the statement of operations.

The following describes the significant R&D contracts under which revenues were recorded for the years ending December 31, 2004, 2003, and 2002.

DOE Components—cost-share research program funded by the U.S. Department of Energy to enhance performance of combustion systems using Xonon technology.

CEC Multi-can—funding from the California Energy Commission for development of a catalytic combustion system for achieving ultra-low emissions in small, multi-combustor gas turbines.

Solar—cost-sharing agreement with Solar, Inc. for the development and adaptation of Xonon to the Solar Taurus 70 gas turbine.

GE—cost-sharing agreement with General Electric, Inc. for the development and adaptation of Xonon to the GE10 gas turbine.

DOE Fuel Processor—cost-share research program funded by the U.S. Department of Energy, associated with the development of fuel reforming technology for PEM fuel cells.

EPRI—funding from a consortium led by the Electric Power Research Institute in support of the development of a greater than 90% NOx reduction system for stationary diesel engines.

TCEQ—grant received from the Texas Commission on Environmental Quality in support of the Company's plans for an on-vehicle demonstration of its diesel mobile retrofit solution.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

The following table summarizes the amounts of compensation earned and related costs, including overhead, incurred under the R&D programs for the years ending December 31, 2004, 2003, and 2002 (in thousands):

	2004		2003		2002	
	Revenue	Costs	Revenue	Costs	Revenue	Costs
DOE fuel processor	\$1,824	\$1,542	\$2,025	\$2,121	\$1,707	\$1,536
EPRI	456	559	—	—	—	—
CEC multi-can	162	427	513	754	929	1,026
TCEQ	68	124	—	—	—	—
Solar	24	94	134	464	638	1,276
DOE components	—	—	—	—	650	858
GE	—	—	753	857	708	1,281
Other	108	—	73	145	163	—
Total R&D	<u>\$2,642</u>	<u>\$2,746</u>	<u>\$3,498</u>	<u>\$4,341</u>	<u>\$4,795</u>	<u>\$5,977</u>

Revenue Cost Reserves. Revenue from our funded research and development contracts is recorded as work is performed and billable hours are incurred by us, in accordance with each contract. Since these programs are subject to government audits, we maintain a revenue cost reserve for our government-funded programs in the event any of these funded costs, including overhead, are disallowed. We estimate this reserve by applying a percentage to the revenue recorded under contracts still subject to audit by those funding agencies.

The following table summarizes the changes in revenue cost reserve (in thousands):

Balance as of December 31, 2002	\$150
Adjustment to provision	—
Revenue refunds issued	—
Balance as of December 31, 2003	150
Adjustment to provision	(31)
Revenue refunds issued	—
Balance as of December 31, 2004	<u>\$119</u>

Research and Development Expenses. Research and development costs are expensed as incurred.

Stock-Based Compensation. The Company accounts for stock-based compensation using the intrinsic value method prescribed in Accounting Principles Board Opinion No. 25, "Accounting for Stock Issued to Employees" ("APB 25") and has adopted the disclosure only alternative of SFAS No. 123, "Accounting for Stock-based Compensation."

Any deferred stock compensation calculated under APB 25 and related interpretations is amortized over the vesting period of the individual options, generally four years, using the straight-line method of amortization.

CATALYTICA ENERGY SYSTEMS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Stock-based awards to non-employees are accounted for at fair value, as generally calculated using the Black-Scholes model, in accordance with SFAS No. 123 and Emerging Issues Task Force Consensus No. 96-18. Related options are subject to periodic re-measurements over their vesting terms.

Had compensation cost for Catalytica Energy's stock-based compensation plan been determined based on the fair value at the grant dates for stock option awards consistent with the method of SFAS No. 123, the Company's net loss would have been increased to the pro forma amounts indicated below (in thousands, except per share amounts):

	Year ended December 31,		
	2004	2003	2002
Net loss, as reported.....	<u>\$(13,269)</u>	<u>\$(14,399)</u>	<u>\$(17,874)</u>
SFAS No. 123 Stock option plan compensation expense.....	<u>(1,625)</u>	<u>(1,211)</u>	<u>(2,798)</u>
Pro forma net loss.....	<u>\$(14,894)</u>	<u>\$(15,610)</u>	<u>\$(20,672)</u>
Pro forma basic and diluted net loss per share	<u>\$ (0.83)</u>	<u>\$ (0.88)</u>	<u>\$ (1.18)</u>

Income Taxes. Catalytica Energy accounts for income taxes under the asset and liability method in accordance with SFAS No. 109, "Accounting for Income Taxes." Under the asset and liability method, deferred income tax assets and liabilities are determined based on the differences between the financial reporting and tax bases of assets and liabilities and are measured using the currently enacted tax rates and laws.

Net Loss per Share. Basic and diluted net loss per share is presented in accordance with SFAS No. 128, "Earnings Per Share." As the Company's potentially dilutive securities (stock options and warrants) were anti-dilutive for the years ended December 31, 2004, 2003 and 2002, they have been excluded from the computation of weighted-average shares outstanding used in computing diluted net loss per share because the Company incurred a net loss for each of those periods. Total options and warrants outstanding as of December 31, 2004, 2003 and 2002 were approximately 3,186,000, 2,488,000 and 2,297,000, respectively.

The following table sets forth the computation of basic and diluted loss attributable to common stockholders per share (in thousands, except per share amounts):

	Year ended December 31,		
	2004	2003	2002
Numerator for basic and diluted loss per share.....	<u>\$(13,269)</u>	<u>\$(14,399)</u>	<u>\$(17,874)</u>
Denominator for basic and diluted loss per share— weighted-average shares outstanding.....	<u>17,850</u>	<u>17,669</u>	<u>17,529</u>
Basic and diluted loss per share.....	<u>\$ (0.74)</u>	<u>\$ (0.81)</u>	<u>\$ (1.02)</u>

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Impact of Recently Issued Accounting Standards. On December 16, 2004, the FASB issued SFAS Statement No. 123 (revised 2004), "Share-Based Payment" (Statement 123(R)), which is a revision of FASB Statement No. 123, "Accounting for Stock-Based Compensation" (Statement 123). Statement 123(R) supersedes APB Opinion No. 25, "Accounting for Stock Issued to Employees", and amends FASB Statement No. 95, "Statement of Cash Flows". Generally, the approach in Statement 123(R) is similar to the approach described in Statement 123. However, Statement 123(R) requires all share-based payments to employees, including grants of employee stock options, to be recognized in the income statement based on their fair values. Pro forma disclosure is no longer an alternative.

Statement 123(R) must be adopted no later than July 1, 2005. Early adoption will be permitted in periods in which financial statements have not yet been issued. We intend to adopt Statement 123(R) on July 1, 2005, the adoption of which will likely have a significant impact on our results of operations, although it will have no impact on our overall financial position. The actual impact of adoption of Statement 123(R) on our results of operations cannot be predicted at this time because it will depend on levels of share-based payments granted in the future. However, had we adopted Statement 123(R) in prior periods, the impact of that standard would have approximated the impact of Statement 123 as described in the disclosure of pro forma net income and earnings per share in Note 2 to our consolidated financial statements. Statement 123(R) also requires the benefits of tax deductions in excess of recognized compensation cost to be reported as a financing cash flow, rather than as an operating cash flow as required under current literature. This requirement will reduce net operating cash flows and increase net financing cash flows in periods after adoption to the extent we do not provide a full valuation reserve on such tax benefits.

Note 3. Purchase of SCR-Tech

On February 20, 2004, we acquired 100% of the outstanding member interests of SCR-Tech and certain patents and related intellectual property. SCR-Tech is a provider of catalyst regeneration technologies and management services for SCR systems, which are used by coal-fired power plants to reduce NOx emissions. As a result of the acquisition, the Company is expanding its commercial operations and leveraging its expertise in NOx control and catalysis within multiple markets.

Due to the acquisition, \$7,194,000 was recorded as an investment in SCR-Tech; consisting of \$3,518,000 initial cash payment, \$237,000 due diligence costs incurred through closing, \$545,000 accrued liability and \$2,894,000 present value of estimated future acquisition payments.

In addition to an initial cash payment of \$3,518,000, we are obligated to the following payments:

- (1) Upon the completion of certain training and delivery of the remaining assets to be acquired, a payment of \$545,000 (which was recorded as an accrued liability and subsequently paid in September 2004).
- (2) On August 20, 2005, a payment of \$725,000 (\$875,000, less \$150,000 adjustment related to closing date balance sheet), which was recorded as long-term debt at the present value of the future payment (\$660,000).
- (3) On February 20, 2006, a payment of \$1,000,000, which was recorded as long-term debt at the present value of the future payment (\$882,000).
- (4) On December 1, 2007 and December 1, 2008, a payment of \$300,000 on each such date provided that Hans-Ulrich Hartenstein is an employee of SCR-Tech or its affiliates on such

CATALYTICA ENERGY SYSTEMS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

dates (collectively, the "Contingent Employment Payments"). These Contingent Employment Payments were not recorded as part of the purchase accounting as the outcome of those payments was contingent upon future services and the performance of those services was not determinable beyond a reasonable doubt. In March 2005, the employment of Hans Hartenstein as president of SCR-Tech terminated, and as such, this payment obligation has been extinguished.

- (5) For each of the calendar years 2004 through 2008, certain amounts, if any, based upon the SCR-Tech business attaining certain revenue targets. No amount was recorded as part of the purchase accounting to reflect these contingent payments as they were not determinable beyond a reasonable doubt.
- (6) For each of the calendar years 2004 through 2008, certain amounts, if any, based upon the SCR-Tech business attaining certain cash flow targets. No amount was recorded as part of the purchase accounting to reflect these contingent payments as they were not determinable beyond a reasonable doubt.
- (7) For each of the calendar years 2004 through 2018, an aggregate of up to \$5,022,220 payable in installments equal to the lesser of (a) 10% of certain revenues for the applicable calendar year and (b) \$502,220 (collectively, the "Acquired Asset Payments"). These payments will be paid over the next 10-15 years. We believe that the total amount payable was resolved and determinable at the date of the acquisition beyond a reasonable doubt; however, we did have to estimate as to when over this period the amounts would be paid. We believe the timing was reasonably estimable as prescribed in SFAS 5 and appropriate to recognize the liability as prescribed in SFAS 141. We recorded these contingent payments as long-term debt at the present value of these future payments (\$1,352,000).

The following table summarizes the estimated fair values of the assets acquired and liabilities assumed due to the acquisition (in thousands):

February 20, 2004

Current assets	\$ 792
Property & equipment	1,422
Other assets	32
Goodwill	4,257
Intangible assets	<u>1,727</u>
Total assets acquired	8,230
Current liabilities	(957)
Non-current liabilities	(79)
Long-term debt	<u>(2,894)</u>
Net assets acquired	<u>\$ 4,300</u>

Goodwill of \$4,257,000 was recorded as part of this purchase. Factors contributing to the purchase price which resulted in the recognition of goodwill include an analysis of the market in which SCR-Tech was conducting business and its potential growth, the technology owned by SCR-Tech and the opportunities to expand the technology with Catalytica know-how, the potential to grow SCR-Tech into other service areas at power plants, the opportunity to access new market channels, the opportunity to expand our breadth in the large NOx control marketplace, and SCR-Tech's competitive position within the marketplace.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Other intangible assets of \$1,727,000 were recorded as part of this purchase that are being amortized over their estimated useful lives of ten years. Acquired patents represented \$1,627,000 of the identifiable intangible assets with the remaining amount attributed to secret formulas and processes, customer contracts and relationships, lease agreements, trademarks, and internet domain names. No intangible assets with indefinite lives were identified.

Goodwill and other intangible assets will be tested for impairment at least annually in accordance with the provisions of SFAS No. 142. The results of operations for SCR-Tech for the period February 21, 2004 through December 31, 2004 are included in the consolidated statements of operations, cash flow and balance sheets as of and for the year ended December 31, 2004.

The acquisition of SCR-Tech did not meet the significance criteria as set forth under Rules 3-05(b) and 11-01(b) of Regulation S-X.

Note 4. Transactions with Related Parties

NovoDynamics, Inc. In 2001, we invested \$2,258,000 in NovoDynamics, a company engaged in the development of data mining, informatics discovery and high throughput synthesis and testing technologies. During 2001, we owned shares of Series A voting preferred stock representing approximately 38% of NovoDynamics' outstanding equity. We recorded the investment in NovoDynamics at our actual cost and, during the period from March 2001 through December 2001, recorded our pro-rata share of losses totaling \$613,000 under the equity method of accounting.

Additionally in 2001, we agreed to loan NovoDynamics \$500,000, which was funded in January 2002. As of December 31, 2001, we recorded a note payable for the \$500,000 and a note receivable of \$500,000 on our balance sheet. Because repayment of the note was not certain at the time it was made, an allowance of \$500,000 was recorded against the loan and this amount was charged as impairment to implied goodwill of an equity investment on December 31, 2001. At December 31, 2004, we believe this note is still collectible and continue to carry this note on the balance sheet with a full reserve in lieu of a permanent write-off. NovoDynamics continues to operate as an ongoing business and recently received receivable financing from a third party bank. Additionally, NovoDynamics continues to pay approximately \$3,000 per month monthly interest on the note.

On December 31, 2001, we determined that an impairment in the carrying value of the equity investment in NovoDynamics had occurred which was other than temporary based on NovoDynamics' financial history and projected future losses. At that time, we determined the estimated fair value of the investment in NovoDynamics was zero and wrote off the net investment amount of \$1,645,000 as impairment to implied goodwill of an equity investment. At that time, we discontinued applying the equity method of accounting because the net investment was zero. Therefore, no loss related to the equity investment in NovoDynamics was recorded during the years ended December 31, 2004, 2003 and 2002. At December 31, 2004, we owned approximately 31.6% of NovoDynamics' outstanding equity.

As of December 31, 2004, two of Catalytica Energy's directors held a direct investment in NovoDynamics Series B voting preferred stock, which represented less than 2% of NovoDynamics' outstanding stock.

Transactions with Officers and Directors. In January 2001, Catalytica Energy's senior vice president of Business Development resigned. His separation agreement provided for a one-time severance payment totaling \$183,000. In addition, a previous loan of \$100,000 was immediately forgiven. Catalytica Energy recorded a charge in the first quarter of 2001 for \$283,000 related to the forgiveness of the officer's loan

CATALYTICA ENERGY SYSTEMS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

and severance. The former officer is currently indebted to Catalytica Energy for \$187,000 which is payable on March 31, 2005. Interest accrues on this note at an annual rate of 6% and is payable in installments through March 31, 2005. This note is fully reserved as a result of previous delinquent interest payments; we intend to seek full repayment of the note upon its maturity on March 31, 2005.

On February 3, 2005, the Board of Directors entered into a consulting agreement with David Merrion, a director of the Company. As a part of the agreement, Mr. Merrion will provide consulting services in diesel engine emission technology and related areas and will be paid a fee of \$7,500 per quarter. The agreement remains in effect until December 31, 2005 and is subject to annual renewal upon the approval of the Board of Directors and Mr. Merrion.

Forgiveness of Notes. Forgiveness of notes receivable from related parties is attributed to forgiveness of housing allowance loans to employees, amortized over a period of five years. Compensation expense related to forgiveness of notes recorded during the years ended December 31, 2004, 2003 and 2002 was \$52,000, \$57,000 and \$60,000, respectively.

Investments. Catalytica Energy had invested \$16,493,000 and \$19,790,000 with Morgan Stanley Private Wealth Management, an affiliate of Morgan Stanley & Co., Incorporated, as of December 31, 2004 and 2003, respectively. This amount is invested primarily in a money market account and commercial and government short-term securities which are classified as cash and cash equivalents or short-term investments. One of Catalytica Energy's board members is the Chairman and Chief Executive Officer of a firm which acts as investment manager for Morgan Stanley Capital Partners.

Note 5. Income Taxes

Recorded income tax benefit differs from the expected benefit determined by applying the U.S. federal statutory rate to the net loss as follows (in thousands):

	Year ended December 31,		
	2004	2003	2002
Income tax benefit at U.S. statutory rate	\$ 4,512	\$ 4,895	\$ 6,077
Valuation allowance for deferred tax assets	(4,512)	(4,895)	(6,077)
Income tax benefit	\$ —	\$ —	\$ —

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes and include the following (in thousands):

	December 31,	
	2004	2003
Deferred tax assets:		
Net operating loss carryforwards	\$ 13,615	\$ 11,700
Capitalized research and development	12,913	9,000
Basis in fixed assets	976	1,800
Accruals and reserves not currently deductible	2,156	1,800
Total gross deferred tax assets	29,660	24,300
Less valuation allowance	(29,660)	(24,300)
Net deferred tax assets	\$ —	\$ —

CATALYTICA ENERGY SYSTEMS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Realization of the deferred tax assets is dependent on future earnings, the timing and amount of which are uncertain. Accordingly, a valuation allowance, in an amount equal to the related deferred tax assets has been established to reflect these uncertainties. The valuation allowance increased by \$5,360,000, \$5,800,000, and \$7,260,000 in 2004, 2003 and 2002, respectively, due to operating losses which increased net operating loss carryforwards that are not likely to be realized in the near future.

As of December 31, 2004, Catalytica Energy's federal and state net operating loss carryforwards were approximately \$35,000,000 and \$26,000,000, respectively. The federal net operating loss carryforward will expire in the years 2020 through 2024 and the state net operating loss carryforward will expire in the years 2006 through 2014 if not used to offset future taxable income.

The valuation allowance includes approximately \$820,000 for net operating loss carryforwards that relate to stock option compensation expense for income tax reporting purposes. Any utilization of these net operating loss carryforwards would be recorded as an increase in additional paid-in capital.

Utilization of the net operating loss carryforwards may be subject to a substantial annual limitation due to the ownership change limitations provided by the Internal Revenue Code of 1986, as amended, and similar state provisions. The annual limitation may result in the expiration of net operating loss carryforwards before utilization.

Note 6. Capital Stock

Shares of Catalytica Energy common stock reserved for future issuance as of December 31, 2004 are as follows:

Employee stock purchase plan.....	1,171,020
Stock options.....	4,370,272
	<u>5,541,292</u>

Shareholder Rights Plan. In January 2002, our Board of Directors adopted a Shareholder Rights Plan, which was amended in November 2004 (the "Plan"). Under the Plan, we distributed Preferred Stock Purchase Rights as a dividend at the rate of one Right for each share of its common stock held by stockholders of record on February 20, 2002 (the "Record Date"). The Board of Directors also authorized the issuance of Rights for each share of common stock issued after the Record Date, until the occurrence of certain specified events. The Plan was adopted to provide protection to stockholders in the event of an unsolicited attempt to acquire the Company. Each Right will entitle the registered holder to purchase from the Company one one-thousandth of a share of Series A Participating Preferred stock at an exercise price of \$45, subject to adjustment. We have authorized 5,000,000 shares of Series A preferred stock for issuance pursuant to this plan.

Under the Plan, the Rights are not exercisable until triggered by certain conditions including the acquisition of beneficial ownership of 20% of our common stock. However, Morgan Stanley Capital Partners III, L.P., and its affiliates could acquire up to 21.5% of the Company's common stock without triggering the Rights. If the Rights are triggered, then each holder of a Right which has not been exercised (other than Rights beneficially owned by the Acquiring Person) will have the right to receive, upon exercise, voting Common Shares having a value equal to two times the Purchase Price.

The Company is entitled to redeem the Rights, for \$0.001 per Right, at the discretion of the Board of Directors, until certain specified times. We may also require the exchange of Rights, under certain additional circumstances. We also have the ability to amend the Rights, subject to certain limitations.

CATALYTICA ENERGY SYSTEMS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Note 7. Employee Benefit Plans

Stock Option Plan. In 1995, the Company adopted the Catalytica Energy Systems, Inc. 1995 Stock Plan (the "1995 Plan") which was subsequently amended. Under the 1995 Plan, the Company's Board of Directors is authorized to grant incentive stock options to eligible employees and nonqualified stock options to eligible employees, consultants, and directors. Through December 31, 2004, the Company had reserved 5,000,000 shares of common stock for issuance under the 1995 Plan. The incentive stock options generally vest ratably over four years from the date of grant and expire no later than ten years from the date of grant. Nonqualified stock options offered to directors vest ratably over one to four years from the date of grant and expire no later than ten years from the date of grant.

The following table summarizes related stock option plan activity:

	Shares Available for Grant	Outstanding Options	
		Number of Shares	Average Exercise Price
Balance at December 31, 2001	1,627,998	1,357,313	\$12.26
Authorized	1,500,000	—	—
Granted	(947,592)	947,592	3.50
Expired/forfeited	334,046	(334,046)	8.66
Exercised	—	(5,250)	0.40
Balance at December 31, 2002	2,514,452	1,965,609	8.68
Granted	(1,238,263)	1,238,263	2.80
Expired/forfeited	630,187	(630,187)	9.96
Exercised	—	(85,891)	1.84
Balance at December 31, 2003	1,906,376	2,487,794	5.66
Granted	(872,668)	872,668	3.84
Expired/forfeited	150,129	(150,129)	5.29
Exercised	—	(23,898)	3.09
Balance at December 31, 2004	<u>1,183,837</u>	<u>3,186,435</u>	\$ 5.20

A summary of Catalytica Energy's stock options as of December 31, 2004 is as follows:

Range of Exercise Prices	Options Outstanding			Options Exercisable	
	Number Outstanding	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price	Number Exercisable	Weighted Average Exercise Price
\$0.400-\$2.650	337,175	3.82	\$ 1.118	260,953	\$ 0.758
\$2.660-\$2.750	11,500	7.95	2.693	5,803	2.695
\$2.760	448,474	8.11	2.760	237,029	2.760
\$2.770	500,000	8.02	2.770	239,583	2.770
\$2.840-\$3.500	119,025	8.30	3.323	50,486	3.306
\$3.530	394,916	7.24	3.530	308,820	3.530
\$3.550-\$3.980	207,500	8.07	3.730	144,217	3.736
\$4.031	621,940	9.07	4.031	145,052	4.031
\$4.550-\$16.937	406,577	5.77	13.030	393,028	13.188
\$19.250-\$30.000	139,328	5.33	22.774	138,860	22.783
\$0.400-\$30.000	<u>3,186,435</u>	7.31	\$ 5.201	<u>1,923,831</u>	\$ 6.372

CATALYTICA ENERGY SYSTEMS, INC.
NOTES TO FINANCIAL STATEMENTS—(Continued)

Pro forma information regarding net loss is required by SFAS No. 123, which also requires that the information be determined as if the Company has accounted for its employee stock awards granted subsequent to December 31, 1994, under the fair value method of this Statement. The fair value for these options was estimated at the date of grant using a Black-Scholes multiple option pricing model with the following weighted average assumptions:

	<u>2004</u>	<u>2003</u>	<u>2002</u>
Expected Volatility.....	58.50%	63.55%	71.04%
Risk Free Interest Rate.....	3.15%	2.98%	4.29%
Weighted Average Expected Life (years).....	5.15	5.28	5.24
Dividend Yield	—	—	—

For pro forma purposes, the estimated fair value of the Company's stock-based awards to employees is amortized over the options' vesting period. The weighted average fair value of options granted during 2004, 2003 and 2002, was \$2.13, \$1.66, and \$2.18 respectively, as calculated in accordance with SFAS No. 123.

Deferred Stock Compensation. During 2001 through 2004, Catalytica Energy granted stock options to a charitable foundation at the request of a member of the Company's board of directors who otherwise would have received the options for his board service. Since the recipient of these options is not an employee or director of Catalytica Energy, the Company recorded deferred compensation, which was re-measured at each reporting period and charged to operations over the vesting periods. During June 2004, this board member resigned and the remaining deferred compensation was reversed. The following table summarizes activity related to these grants (in thousands):

<u>Grant Date</u>	<u># of Shares</u>	<u>Price</u>	<u>Vest Period</u>	<u>Year Ending</u>	<u>Deferred Compensation</u>					
					<u>Beginning Balance</u>	<u>Granted</u>	<u>Expensed</u>	<u>Remeasured</u>	<u>Forfeited</u>	<u>Ending Balance</u>
Dec-01	20,000	\$4.55	4 years	2001	\$—	\$ 91	\$ —	\$(34)	\$ —	\$57
				2002	57	—	(13)	(22)	—	22
				2003	22	—	(8)	4	—	18
				2004	18	—	(4)	—	(14)	—
Feb-02	4,000	\$3.53	1 year	2002	—	9	(7)	(1)	—	1
				2003	1	—	(1)	—	—	—
Feb-03	10,000	\$2.76	1 year	2003	—	18	(16)	—	—	2
				2004	2	—	(2)	—	—	—
Feb-04	10,000	\$3.90	1 year	2004	—	22	(7)	(2)	(13)	—
					<u>\$—</u>	<u>\$140</u>	<u>\$(58)</u>	<u>\$(55)</u>	<u>\$(27)</u>	<u>\$—</u>

In April 2003, the Company granted a consultant and former officer options to purchase 25,800 shares of its common stock at a price of \$2.50 per share as compensation for consulting services, vesting over a six-month period. Since the recipient of these options is not an employee or director of Catalytica Energy, the Company recorded a deferred compensation obligation of \$38,000, of which \$38,000 was earned and charged to operations in the year ended December 31, 2003.

CATALYTICA ENERGY SYSTEMS, INC.
NOTES TO FINANCIAL STATEMENTS—(Continued)

In January 2004, the Company granted four consultants options to purchase 7,500 shares each of common stock at \$4.03 per share, vesting over a four year period. Since the recipients of these options are not employees or directors of Catalytica Energy, the Company recorded a deferred compensation obligation of \$69,000, of which \$13,000 was earned and charged to operations in the year ended December 31, 2004. This obligation was re-measured at reporting periods during the year ended December 31, 2004 resulting in a reduction to the deferred compensation obligation of \$36,000. In each subsequent reporting period (through the vesting period) this obligation will be re-measured.

Employee Stock Purchase Plan. In 2000, the Company adopted the Catalytica Energy Systems, Inc. 2000 Employee Stock Purchase Plan (the "2000 Plan") under which employees are eligible to purchase shares of the Company's common stock at a discount through periodic payroll deductions. The 2000 Plan is intended to meet the requirements of Section 423 of the Internal Revenue Code. Purchases occur following six month offering periods ending on June 30 and December 31 each year at a purchase price equal to 85% of the market value of the Company's common stock at either the beginning of the offering period or the end of the offering period, whichever is lower. According to the 2000 Plan, a new offering period begins each time the market value of the Company's common stock at the end of the offering period is lower than the market value of the Company's common stock at the beginning of the offering period. The 2000 Plan allows for the offering period to be no less than six and no more than twenty-four months, determined every six months.

Participants may elect to have up to 10% of their pay withheld for purchase of common stock at the end of the offering period, up to a maximum of \$25,000 per calendar year. Through December 31, 2004, the Company had reserved 1,500,000 shares of common stock for issuance under the 2000 Plan and had issued 328,980 shares under the 2000 Plan. For the year ended December 31, 2004, employees purchased 122,204 shares for \$281,160. The weighted average fair value of those purchased shares granted during the years ended December 31, 2004 and 2003 was \$1.13 and \$1.10, respectively. As of December 31, 2004, 1,171,020 shares were available for future issuance under the 2000 Plan.

401(k) Savings & Retirement Plan. The Company offers a 401(k) Savings & Retirement Plan to eligible employees meeting certain age and service requirements. This plan permits participants to contribute up to the maximum allowable by the Internal Revenue Service regulations. The plan provides for both a bi-monthly Company match and a discretionary annual contribution. Participants are immediately vested in their voluntary contributions plus actual earnings and in the Company's matching contributions. The Company's expense for this plan was \$319,000, \$303,000 and \$474,000 for the years ended December 31, 2004, 2003 and 2002, respectively.

CATALYTICA ENERGY SYSTEMS, INC.
NOTES TO FINANCIAL STATEMENTS—(Continued)

Note 8. Major Customers and Geographic Revenues

Major customers (as a % of consolidated revenue) are as follows:

	Segment	Year ended December 31,		
		2004	2003	2002
U.S. Department of Energy	CBTS	33%	58%	49%
Electric Power Research Institute	CBTS	8%	—	—
California Energy Commission	CBTS	3%	15%	23%
General Electric	CBTS	—	22%	15%
Solar Turbines	CBTS	—	4%	13%
Customer A	SCMS	19%	—	—
Customer B	SCMS	13%	—	—
Customer C	SCMS	13%	—	—
Other		11%	1%	—
		<u>100%</u>	<u>100%</u>	<u>100%</u>

Revenue by geographic region is as follows:

	Year ended December 31,		
	2004	2003	2002
United States	100%	78%	86%
Europe	—	22%	14%

Note 9. Debt, Leases, Commitments and Contingencies

Debt agreements. In March 2002, we received a term loan of \$3,010,000 from the Arizona State Compensation Fund. Proceeds of this loan were applied to the purchase of a 43,000 square foot manufacturing and administrative facility in Gilbert, Arizona. This five-year term loan bore interest at a fixed annual rate of 7.4% and was scheduled to mature in April 2007. In August 2004, the remaining \$2,940,254 principal balance on this loan was refinanced with a five-year term loan which bears interest at a fixed annual rate of 6.5% and matures in April 2009. Under terms of this new loan, payments of principal and interest totaling \$19,105 are due monthly with a final principal payment of \$2,737,228 due at maturity. This loan is secured by a deed of trust in the acquired real property.

Due to the acquisition of SCR-Tech in February 2004, long-term debt bearing an imputed interest rate of 6.3% was recorded consisting of \$660,000 due in August 2005 and \$882,000 due in February 2006. In addition, long-term debt bearing an imputed interest rate of 20% was recorded in the amount of \$1,352,000 and payable between 2006 and 2016.

Pursuant to an April 2002 settlement agreement with Woodward Governor Company ("WGC"), Catalytica Energy recorded two notes payable of \$100,000 each. These notes are non-interest bearing and were paid in full in January 2003 and January 2004.

CATALYTICA ENERGY SYSTEMS, INC.
NOTES TO FINANCIAL STATEMENTS—(Continued)

At December 31, 2004, future payments under debt agreements are as follows over each of the next five years and thereafter (in thousands):

<u>Year</u>	<u>Amount</u>	
2005.....	\$ 778	
2006.....	1,358	
2007.....	430	
2008.....	551	
2009.....	3,248	
Thereafter	<u>3,319</u>	
Total	9,684	
	(3,501)	Less amounts representing interest
	(748)	Less current portion
	219	Plus other long-term accrued liabilities
	<u>\$ 5,654</u>	Total long-term debt and other long-term liabilities

Operating leases. Catalytica Energy leases its research and development facility, consisting of portions of two leased building covering approximately 32,500 square feet located in Mountain View, California, under an operating lease agreement entered into April 2003 which extended a lease agreement which expired on December 31, 2003. The amended lease is effective January 1, 2004, for a term of two years, with two options to renew for two additional years each. We currently sublease approximately 6,300 square feet leased at this site. Through November 2004, Catalytica Energy leased a site from the City of Santa Clara, California, which housed a gas turbine used for field demonstrations of the Company's Non-Cool Combustion system. Additionally, Catalytica Energy leases copiers, manufacturing equipment and office equipment under various lease agreements which expire through 2008.

From October 2001 to March 2002, Catalytica Energy leased its manufacturing and administrative facility in Gilbert, Arizona. In March 2002, Catalytica Energy completed the purchase of this facility which comprises 43,000 square feet for \$4,097,000. In connection with the purchase of this building, the lease agreement was cancelled and Catalytica Energy has no further lease obligation. The Company currently leases to tenants approximately 16,000 square feet of this facility.

The Company leases approximately 62,000 square feet of office, production, laboratory and warehouse space in Charlotte, North Carolina. This lease expires on December 31, 2012, with two options to renew for five years each.

At December 31, 2004, future payments under all non-cancelable operating leases are as follows over each of the next five years and thereafter (in thousands):

<u>Year</u>	
2005.....	\$318
2006.....	38
2007.....	34
2008.....	33
2009.....	32
Thereafter	<u>102</u>
	<u>\$557</u>

CATALYTICA ENERGY SYSTEMS, INC.
NOTES TO FINANCIAL STATEMENTS—(Continued)

Rent expense consisting of building and equipment rent was \$412,000, \$1,079,000 and \$1,230,000 during the years ended December 31, 2004, 2003, and 2002, respectively. Rental income from the various lease and sublease arrangements was \$403,000, \$1,233,000 and \$1,201,000 during the years ended December 31, 2004, 2003 and 2002, respectively. Rental income from leases of Company-owned facilities is recorded as other income; rental income from subleases of Company-leased facilities is recorded as an offset to operating expenses. Rent expense and rental income decreased significantly in 2004 due to the negotiation of amended lease agreements with our landlord and the expiration of a sublease agreement with one of our tenants.

Scheduled rental income as of December 31, 2004 under the various lease and sublease arrangements, which expire through December 31, 2007, is as follows (in thousands):

<u>Year</u>	
2005.....	\$455
2006.....	191
2007.....	<u>111</u>
	<u>\$757</u>

Commitments. We have entered into research collaboration arrangements that may require us to make future royalty payments. These payments would generally be due once specified milestones, such as the commencement of commercial sales of a product incorporating the funded technology, are achieved. Currently we have four such arrangements, with Tanaka Kikinzoku Kogyo K.K. ("Tanaka"), Gas Technology Institute ("GTI") (formally known as Gas Research Institute), the California Energy Commission ("CEC") and Woodward Governor Company ("WGC").

A significant amount of the development effort related to our catalytic combustion technology for gas turbines was funded by Tanaka under a January 1995 development agreement which divides commercialization rights to the technology between the parties along product market lines. We have exclusive rights to manufacture and market catalytic combustion systems for gas turbines of greater than 25 megawatt ("MW") power output and non-exclusive rights for gas turbines of 25 MW power output or less. Tanaka has reciprocal exclusive rights to manufacture and market catalytic combustors for use in automobiles and non-exclusive rights for gas turbines of 25 MW power output or less. In each case, the manufacturing and marketing party will pay a royalty of 5% of net sales to the other party. Each party is responsible for its own development expenses, and any invention made after May 1, 1995 is the sole property of the party making the invention, while the other party has a right to obtain a royalty-bearing, non-exclusive license to use the invention in its areas of exclusivity. As commercialized, the Xonon system contains significant technology developed by us after May 1, 1995 and no technology developed by Tanaka after this date. Our development agreement with Tanaka expires in 2005, and we have no further royalty obligations to Tanaka after 2005.

In January 2000, we entered into a funding arrangement with GTI to fund the development of our Xonon combustor and demonstrate its performance. We will be required to make royalty payments to GTI of \$243,000 per year for seven years beginning with the sale, lease or other transfer of the twenty-fifth catalyst module for gas turbines rated greater than 1 MW, up to a maximum of \$1,701,000.

In September 1998, we entered into a funding arrangement with the CEC under which they agreed to fund a portion of our Xonon engine test and demonstration facility located in Santa Clara, California. Under this agreement, we are required to pay a royalty of up to 1.5% of the sales price on the sale of each

CATALYTICA ENERGY SYSTEMS, INC.
NOTES TO FINANCIAL STATEMENTS—(Continued)

product or right developed under this project for fifteen years upon initiation of the first commercial sale of a Xonon-equipped engine greater than 1 MW.

On December 19, 2001, we entered into a Control Patent Assignment and Cross License Agreement (“Patent Assignment Agreement”) with WGC pursuant to which WGC assigned a patent to us, and we and WGC cross-licensed certain intellectual property to each other. Under the Patent Assignment Agreement, we must pay WGC between \$5,000 and \$15,000 upon each shipment of a Xonon commercial unit. Additionally, as part of an April 2002 settlement agreement with WGC (the “Settlement Agreement”), we agreed to increase royalties by \$2,500 per unit on our shipment of the first 100 gas turbines greater than 10 MW. These increased royalties are guaranteed, and we must pay them on 100 units even if we do not ship any units of this size. We prepaid \$50,000 of these royalties to WGC in April 2002. We paid WGC \$100,000 in January 2003 and an additional \$100,000 in January 2004. These guaranteed payments totaling \$250,000 were recorded as a component of SG&A expenses during the three months ended March 2002 and are in addition to the \$5,000 we must pay to WGC under the Patent Assignment Agreement upon each shipment of a Xonon commercial unit in a gas turbine of this size.

The Patent Assignment Agreement also provides that each time we sublicense the WGC technology to a gas turbine manufacturer or third party control manufacturer; we will pay WGC a control technology license fee of \$50,000, as well as a \$3,000 additional license fee for each sale of a Xonon control system sold by such manufacturer. As a part of the Settlement Agreement, we paid \$200,000 in April 2002 representing a pre-payment of the control technology license fees for our first four \$50,000 sublicenses of the WGC control technology. This payment was recorded as a component of SG&A expenses in March 2002. We are obligated to make the foregoing license payments to WGC through December 31, 2014 or until our cumulative payments and license fees to WGC total \$15,250,000, whichever occurs first.

WGC must pay us a fee of 1% of the sale price of each WGC control system installed in conjunction with Xonon catalytic modules for new and retrofit turbines. WGC is obligated to make these payments through December 31, 2014 or until we have received total payments of \$2,000,000, whichever occurs first.

Note 10. Segment Disclosures

SFAS No. 131, “Disclosures about Segments of an Enterprise and Related Information”, requires disclosures of certain information regarding operating segments, products and services, geographic areas of operation and major customers. The method for determining what information to report under SFAS No. 131 is based upon the “management approach,” or the way that management organizes the operating segments within the Company, for which separate financial information is available that is evaluated regularly by the Chief Operating Decision Maker (“CODM”) in deciding how to allocate resources and in assessing performance. Our CODM is our Chief Executive Officer.

We have the following two reportable operating segments:

- Catalyst regeneration, cleaning and management services for selective catalytic reduction systems used by utility-scale power generating facilities to reduce NOx emissions—our SCR Catalyst and Management Services segment (“SCMS”).
- Designing, developing and manufacturing advanced products based on our proprietary catalyst and fuel processing technologies to offer cost-effective solutions for reducing NOx emissions—our Catalyst-Based Technology Solutions segment (“CBTS”).

CATALYTICA ENERGY SYSTEMS, INC.
NOTES TO FINANCIAL STATEMENTS—(Continued)

All intercompany transactions are eliminated in consolidation and there are no differences between the accounting policies used to measure profit and loss for our operating segments and on a consolidated basis. The Company evaluates performance of segments based on profit or loss from operations before interest and income taxes. Segment costs and expenses considered in deriving segment operating income include cost of revenues, depreciation and amortization, research and development, and selling, general and administrative expenses. The Company does not allocate corporate general and administrative expenses (“corporate SG&A”) on a segment basis for internal management reporting; corporate SG&A is reported within the CBTS segment. Financial performance of the segments is evaluated primarily on operating income.

Major customers by segment are disclosed in Note 8. Goodwill and other intangible assets by segment is disclosed in Note 2.

As our SCMS segment evolved from the acquisition of SCR-Tech on February 20, 2004, the SCMS segment information below represents operating results for the period from February 21, 2004 through December 31, 2004. As the Company operated as one segment prior to the acquisition of SCR-Tech, no prior year’s data is presented.

The table below presents information about our reportable operating segments as of and for the year ended December 31, 2004 (in thousands):

	<u>CBTS</u>	<u>SCMS</u>	<u>Consolidated</u>
Year Ended December 31, 2004			
Total revenue	\$ 2,641	\$2,960	\$ 5,601
Operating loss	\$(13,275)	\$ (188)	\$(13,463)
Depreciation and amortization	\$ 1,229	\$ 344	\$ 1,573
Capital expenditures	\$ 407	\$ 28	\$ 435
Total assets	\$ 43,115	\$8,402	\$ 51,517

Note 11. Selected Quarterly Financial Data (Unaudited) (In thousands, except per share amounts)

	<u>First Quarter</u>		<u>Second Quarter</u>		<u>Third Quarter</u>		<u>Fourth Quarter</u>	
	<u>2004</u>	<u>2003</u>	<u>2004</u>	<u>2003</u>	<u>2004</u>	<u>2003</u>	<u>2004</u>	<u>2003</u>
Revenues	\$ 986	\$ 531	\$ 1,100	\$ 959	\$ 1,942	\$ 1,107	\$ 1,573	\$ 901
Total expenses	4,323	5,256	5,125	4,577	4,664	4,351	4,952	4,300
Operating loss	\$(3,337)	\$(4,725)	\$(4,025)	\$(3,618)	\$(2,722)	\$(3,244)	\$(3,379)	\$(3,399)
Net loss	\$(3,241)	\$(4,555)	\$(4,004)	\$(3,480)	\$(2,696)	\$(3,116)	\$(3,328)	\$(3,248)
Basic and diluted net loss per share	\$ (0.18)	\$ (0.26)	\$ (0.22)	\$ (0.20)	\$ (0.15)	\$ (0.18)	\$ (0.19)	\$ (0.18)

SIGNATURES

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

CATALYTICA ENERGY SYSTEMS, INC.
(Registrant)

Dated: March 30, 2005

By: /s/ MICHAEL J. MURRY
Michael J. Murry
President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Michael J. Murry his attorney-in-fact, for him in any and all capacities, to sign any amendments to this Report on Form 10-K, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that said attorney-in-fact, or his substitute, may do or cause to be done by virtue hereof.

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

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ MICHAEL J. MURRY</u> Michael J. Murry	President, Chief Executive Officer (Principal Executive Officer) and Director	March 21, 2005
<u>/s/ ROBERT W. ZACK</u> Robert W. Zack	Chief Financial Officer (Principal Accounting and Financial Officer)	March 21, 2005
<u>/s/ RICARDO B. LEVY</u> Ricardo B. Levy	Chairman of the Board	March 19, 2005
<u>/s/ RICHARD A. ABDOO</u> Richard A. Abdo	Director	March 22, 2005
<u>/s/ WILLIAM B. ELLIS</u> William B. Ellis	Director	March 20, 2005
<u>/s/ HOWARD I. HOFFEN</u> Howard I. Hoffen	Director	March 21, 2005
<u>/s/ DAVID F. MERRION</u> David F. Merrion	Director	March 24, 2005
<u>/s/ FREDERICK M. O'SUCH</u> Frederick M. O'Such	Director	March 22, 2005
<u>/s/ SUSAN F. TIERNEY</u> Susan F. Tierney	Director	March 22, 2005
<u>/s/ JOHN A. URQUHART</u> John A. Urquhart	Director	March 21, 2005

Board of Directors

Ricardo B. Levy, Ph.D.³
 Chairman of the Board
 Catalytica Energy Systems, Inc.

Michael J. Murry
 President & Chief Executive Officer
 Catalytica Energy Systems, Inc.

Richard A. Abdo¹
 President
 R.A. Abdo & Company LLC

William B. Ellis, Ph.D.¹
 Retired Chairman & Chief Executive Officer
 Northeast Utilities

Howard I. Hoffen^{1,2}
 Chairman & Chief Executive Officer
 Metalmark Capital LLC

David F. Merrion
 Retired Executive Vice President
 of Engineering
 Detroit Diesel Corporation

Frederick M. O'Such³
 Private Investor

Susan F. Tierney, Ph.D.³
 Managing Principal
 Analysis Group, Inc.

John A. Urquhart²
 President
 John A. Urquhart Associates

¹ Audit Committee
² Compensation Committee
³ Nominating / Governance Committee

Officers and Management

Michael J. Murry
 President & Chief Executive Officer

Joseph C. Barry
 Vice President
 Program Management & Engineering

Ralph A. Dalla Betta, Ph.D.
 Vice President & Chief Technology Officer

Dominic M. Geraghty, Ph.D.
 Senior Vice President
 Corporate Development

Robert W. Zack
 Vice President & Chief Financial Officer

Corporate Offices

Catalytica Energy Systems, Inc.
 Corporate Headquarters
 1388 North Tech Boulevard
 Gilbert, AZ 85233
 Phone: 480-556-5555
 Fax: 480-315-3745

Catalytica Energy Systems, Inc.
 Research & Development Center
 430 Ferguson Drive
 Mountain View, CA 94043

www.CatalyticaEnergy.com

SCR-Tech LLC
 11701 Mt. Holly Road, Building #51
 Charlotte, NC 28214

www.SCR-Tech.com

Investor Information

To obtain additional information, or to be placed on our e-mail distribution list, please contact Investor Relations:

Catalytica Energy Systems, Inc.
 430 Ferguson Drive
 Mountain View, CA 94043
 Phone: 650-960-3000
 Fax: 650-968-5184
 Info@CatalyticaEnergy.com

Annual Meeting of Stockholders

The Annual Meeting of Stockholders will be held at 10:00 a.m. on Thursday, June 2, 2005 at our Corporate Headquarters:

Catalytica Energy Systems, Inc.
 1388 North Tech Boulevard
 Gilbert, AZ 85233

Stockholder Inquiries

Communications concerning stock transfer requirements, lost certificates and changes of address should be directed to Mellon Investor Services LLC, The Transfer Agent.

Mellon Investor Services LLC
 85 Challenger Road
 Ridgefield Park, NJ 07660
 1-800-356-2017

www.melloninvestor.com

Auditors

Ernst & Young LLP
 One Renaissance Square
 Two North Central, Suite 2300
 Phoenix, AZ 85004

Corporate Counsel

Wilson Sonsini Goodrich & Rosati, P.C.
 650 Page Mill Road
 Palo Alto, CA 94304

Stock Symbol

Catalytica Energy Systems' common stock is traded on the Nasdaq National Market under the symbol CESI.

Common Stock

At March 18, 2005, there were approximately 752 holders of record of the Company's common stock.

Quarter Ended	2004	
	High	Low
3/31	\$4.26	\$3.20
6/30	\$3.64	\$2.25
9/30	\$2.85	\$2.00
12/31	\$2.62	\$1.66

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This annual report contains forward-looking statements relating to Catalytica Energy Systems' business that involve risks and uncertainties. Our actual results could differ materially from the results anticipated in these forward-looking statements as a result of certain risk factors including those set forth in the Form 10-K for the year ended December 31, 2004, which is included in this report. Catalytica Energy Systems undertakes no obligation to update publicly any forward-looking statements to reflect new information, events or circumstances after the date of this report. Investors are encouraged to review our Form 10-K included in this report for additional factors that could affect Catalytica Energy Systems' future performance. Additional copies of the Form 10-K can be obtained from the Company or the Securities and Exchange Commission.

CATALYTICA ENERGY SYSTEMS, INC. is a leading provider of innovative products and services to meet the rapidly growing demand for emissions control solutions in the power generation and transportation industries. Through our SCR-Tech subsidiary, we offer a variety of services for coal-fired power plants that use selective catalytic reduction ("SCR") systems to reduce nitrogen oxides ("NOx") emissions. These services include SCR catalyst cleaning and regeneration, SCR system management services to optimize efficiency and reduce overall operating and maintenance costs, and consulting services related to the design of SCR systems. Our business activities also include the design, development, manufacture and servicing of advanced products based on our proprietary catalyst and fuel processing technologies to offer cost-effective solutions for reducing NOx emissions from diesel engines and natural gas-fired turbines. Our Xonon® Diesel Fuel Processing technology is designed to facilitate significant NOx reduction from mobile, stationary, and off-road diesel engine applications by improving the performance of NOx adsorber catalyst systems. Our commercially available Xonon Cool Combustion® system offers a breakthrough pollution prevention approach that enables gas turbines to achieve ultra-low NOx emissions through a proprietary catalytic combustion process. Other activities include the development of fuel processing systems for fuel cells used in stationary, auxiliary, and back-up power applications.

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