MECHANICAL TECHNOLOGY INC
Form 10-K
March 30, 2009

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

x **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
FOR THE FISCAL YEAR ENDED DECEMBER 31, 2008
OR

o **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
FOR THE TRANSITION PERIOD FROM _____ TO _____

_____

Mechanical Technology, Incorporated

(Exact name of registrant as specified in its charter)

_____

New York	**0-6890**	**14-1462255**
(State or Other Jurisdiction of Incorporation)	**(Commission File Number)**	**(IRS Employer Identification No.)**

431 New Karner Road, Albany, New York 12205
(Address of registrant's principal executive office)

(518) 533-2200
(Registrant's telephone number, including area code)

Securities Registered Pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock ($0.01 par value)	The NASDAQ Stock Market LLC

Securities Registered Pursuant to Section 12(g) of the Act: None

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

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

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

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (Section 229.405 of this chapter) is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. o

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

Large Accelerated Filer o Accelerated Filer o Non-Accelerated Filer o Smaller reporting company x

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates as of June 30, 2008 (based on the last sale price of $1.25 per share for such stock reported by NASDAQ for that date) was $5,846,862. Such value excludes common stock held by executive officers, directors, and 10% or greater stockholders as of June 30, 2008. The identification of 10% or greater stockholders as of June 30, 2008is based upon Schedule 13G and amended Schedule 13G reports publicly filed before June 30, 2008. This calculation does not reflect a determination that such parties are affiliates for any other purposes.

As of March 23, 2009, the Registrant had 4,771,658 shares of common stock outstanding.

Documents incorporated by reference: Portions of the registrant's Proxy Statement for its 2009 Annual Meeting of Stockholders are incorporated by reference into Part III of this Form 10-K.

PART I

Item 1: Business

Unless the context requires otherwise in this Annual Report, the terms "we", "us" and "our" refer to Mechanical Technology, Incorporated, a New York corporation, "MTI Micro" refers to MTI MicroFuel Cells, Inc., a Delaware corporation and our majority owned subsidiary, and "MTI Instruments" refers to MTI Instruments, Inc., a New York corporation and our wholly owned subsidiary. We have a registered trademark in the United States for "Mobion". Other trademarks, trade names, and service marks used in this Annual Report are the property of their respective owners.

We are developing and commercializing off-the-grid rechargeable power sources for portable electronics. We have developed a patented, proprietary direct methanol fuel cell technology platform called Mobion, which generates electrical power using up to 100% methanol as fuel. Our proprietary fuel cell power solution consists of two primary components integrated in an easily manufactured device: the direct methanol fuel cell power engine, which we refer to as our Mobion Chip, and methanol replacement cartridges. Our current Mobion Chip weighs less than one ounce and is small enough to fit in the palm of one's hand. The methanol used by the technology is fully biodegradable. We have demonstrated power density of over 62 mW/cm^2 while producing more than 1,800 Wh/kg of energy from the direct methanol fuel feed. For these reasons, we believe our technology offers a compelling alternative to current lithium-ion and similar rechargeable battery systems currently used by original equipment manufacturers and branded partners, or OEMs, in many handheld electronic devices, such as mobile phones (including smart phones) and mobile phone accessories, digital cameras, portable media players, personal digital assistants (PDAs), and global positioning systems (GPS) devices. We believe our platform will facilitate the development of numerous product advantages, including small size, environmental friendliness, and simplicity of

design, all critical for commercialization in the consumer market, and can be implemented as three different product options: a compact external charging device, a snap-on or attached power accessory, or an embedded fuel cell power solution. We have strategic arrangements with Samsung Electronics, an OEM of mobile phones and mobile phone accessories, with a global Japanese consumer electronics company, with a U.S. based developer and marketer of universal chargers and a letter of intent with Duracell, part of the Procter & Gamble Company. Our goal is to become a leading provider of portable power for handheld electronic devices and, assuming available financing, we intend to commercialize Mobion products in 2009.

Our Mobion technology eliminates the need for active water recirculation pumps or the inclusion of water as a fuel dilutant. The water required for the electrochemical process is transferred internally within the Mobion Chip from the site of water generation on the air-side of the cell. This internal flow of water takes place without the need for any pumps, complicated re-circulation loops or other micro-plumbing tools. Our Mobion technology is protected by a patent portfolio that includes 110 U.S. patent applications covering five key technologies and manufacturing areas.

We also design, manufacture, and sell high-performance test and measurement instruments and systems serving several global markets. These products consist of: electronic, computerized gauging instruments for position, displacement and vibration applications for the design, manufacturing and test markets; wafer characterization tools for the semiconductor and solar markets; and engine balancing and vibration analysis systems for military and commercial aircraft.

The Portable Power Source Industry

Industry Background

Consumers demand portable electronics that offer an enhanced experience through expanded memory, improved display technologies, constant connectivity, robust software, and a reduced form factor. In addition, technological advances in semiconductor manufacturing, LED displays, memory costs and availability, wireless technologies, and software applications have resulted in a dramatic increase in the number of portable electronic devices, their usage, and power requirements. As a result of these consumer demands and technological advances, there are a number of handheld electronic devices, such as mobile phones (including smart phones) and mobile phone accessories, digital cameras, portable media players, PDAs, and GPS devices, that have been introduced into the market. Many of these devices provide consumers and mobile professionals with the ability to communicate any time, anywhere and have effectively enabled the creation of an □always-on□ environment independent of the end user□s location. This trend towards increased functionality in portable electronic devices has led to a □power gap□ in which the disparity between a device□s power supply, typically a rechargeable lithium-ion battery, and its power need are not being met. This power gap leads to a need for the end user to plug-in their devices to the electrical grid on a regular basis, which limits their ability to use these electronic devices where and when the need arises.

The Power Source Bottleneck

Improvements in rechargeable battery technology have not kept pace with the evolution of consumer electronic device performance. Over the last ten years, device performance as measured by silicon processor speed has increased by a factor of 128 times, while the energy density of lithium-ion technology has only doubled. We believe that further gains in lithium-ion technology for portable electronics will be incremental at best, as any achievable benefits may be outweighed by the decreasing stability, availability, integrity, and relative safety of these higher energy output batteries. In addition to their performance shortfalls, lithium-ion battery technology poses an environmental risk as the various heavy metals incorporated in these batteries require special disposal to prevent contamination of waste disposal sites.

According to a report dated February 2008 by Frost and Sullivan, an independent research firm, the global rechargeable lithium-ion battery market was approximately 1.8 billion units in 2006 and is projected to increase to roughly 3.9 billion units by 2013. This market can be divided into two segments: consumer and industrial applications. Consumer applications represented approximately 77% of this market and are projected to represent an overwhelming majority of sales through at least 2013.

OEMs are actively seeking improved power sources to replace existing rechargeable lithium-ion batteries and to power additional improvements to their mobile electronic devices. The development of new products using

technologies that already exist, such as radio frequency technologies and 4G wireless capabilities, but cannot be effectively commercialized on mobile devices will result from the availability of portable, compact, economical, rechargeable/replaceable higher energy density power sources, including micro fuel cells.

Our Solution

At the core of our solution is our proprietary Mobion Chip engine, a design architecture that embodies a reduction in the size, complexity, and cost of fuel cell construction, which results in a reliable, manufacturable, and affordable power solution that we believe provides improved energy density and portability over competing rechargeable battery technologies. Our proprietary fuel cell power solution consists of two primary components integrated in an easily manufactured device: the direct methanol fuel cell power engine, which we refer to as our Mobion Chip, and methanol replacement cartridges. Our Mobion Chip weighs less than one ounce and is small enough to fit in the palm of one□s hand. For these reasons, we believe that our Mobion platform is ideally suited to provide a replacement for rechargeable lithium-ion batteries. Based upon our ability to provide a compact, efficient, clean, safe, and long-lasting power source for lower power applications, we intend to initially target power solutions for applications, such as mobile phones (including smart phones) and mobile phone accessories, digital cameras, portable media players, PDAs, and GPS devices.

For handheld consumer electronic applications, we have demonstrated power density of over 62 mW/cm ^{2} with energy efficiencies of 1.4 Wh/cc of fuel, which is a direct result of our Mobion platform□s ability to use 100% methanol □ a widely available, environmentally friendly, inexpensive, and biodegradable fuel. These advantages result in higher energy density and reduced size, cost, and complexity of our power solution offering consumers portable on-demand power, independence from power outlets, and freedom from the need to constantly recharge their devices.

Our Strategy

Our goal is to become a leading provider of portable power for handheld electronic devices. Key elements of our strategy designed to achieve this objective include the following:

Business Focus. We are focusing our efforts on the development and commercialization of our portable power source products and test and measurement instrumentation business. We continue to seek external or debt investments to finance our portable power business. We will also continue to evaluate our test and measurement instrumentation business, and may explore other strategic alternatives for both of our portable power and test and measurement instrument businesses, including but not limited to, the sale of assets and/or either company.

Design for Mass Manufacturing. Our portable power source products will be manufactured using standard processes, such as injection molding and automated test and assembly, which are broadly employed throughout the electronics manufacturing industry. In preparing Mobion for commercialization, our current Mobion Chip is injection molded and is being designed for mass manufacturing. In addition, we have continued integrating more functionality into our Mobion Chip while reducing its part count to one piece. Our current Mobion Chip is small enough to fit in the palm of a hand.

Outsource Manufacturing. We plan to outsource manufacturing to expand rapidly and diversify our production capacity. This strategy will allow us to maintain a variable cost model in which we do not incur most of our manufacturing costs until our proprietary fuel cell power solution has been shipped and billed to our customers. We intend to concentrate on our core competencies of research and development and product design. This approach should reduce our fixed capital expenditures and allow us to efficiently scale production.

Utilize our Technology to Provide Compelling Products. We plan to utilize our intellectual property portfolio and technological expertise to develop and offer portable power source products across multiple electronic device markets. We intend to employ our technological expertise to reduce the overall size and weight of our portable power source products while increasing their ease of manufacturing, power capacity, and power duration and decreasing their cost. We believe that these efforts will enable us to meet customer expectations and to achieve our goal of supplying on a timely and cost-effective basis the most environmentally friendly portable power source products to our target markets. We believe our products will offer advantages in terms of performance, functionality, size, weight, and ease of use. We plan to continue enhancing our customers□ industrial design alternatives and device functionality through innovative product development based on our existing capabilities

and technological advances.

Capitalize on Growth Markets. We intend to capitalize on the growth of the electronic device markets, including new products that may be brought about by the convergence of computing, communications, and entertainment devices. We believe our portable power source products will address the growing need for portability, connectivity, and functionality in the evolving electronic device markets. We plan to offer these power solutions to OEM customers to enable them to offer products that have advantages in terms of size, weight, power duration, and environmental friendliness. We plan to utilize our existing technologies, as well as aggressively pursue new technologies and evolving markets that demand enhanced power solutions.

Develop Strong Customer Relationships. We plan to develop strong and long-lasting customer relationships with leading electronic device OEMs and to provide them with power solutions for their products. We believe that our portable power source products will enable our OEM customers to deliver a more positive user experience and to differentiate their products from those of their competitors. We will attempt to enhance the competitive position of our customers by providing them with innovative, distinctive, and high-quality portable power supply products on a timely and cost-effective basis. We will work continually to improve our portable power source products, to reduce costs, and to speed the delivery of our products. We will endeavor to streamline our designs and delivery processes through ongoing design, engineering, and production improvement efforts. We will also devote considerable effort to support our customers after the purchase of our portable power source products.

Pursue Strategic Relationships. We intend to develop and expand strategic relationships to enhance our ability to offer value-added customer solutions, penetrate new markets, and strengthen the technological leadership of our portable power source products.

Products

Portable Power Source Products

We are developing three product categories of our Mobion technology: (i) external power charger products, (ii) snap-on or attached power source products, and (iii) embedded power source products. In addition, we are working with our strategic partners and suppliers to develop removable methanol cartridges that will be used to fuel our portable power source products.

External Power Charger: Our design for an external power charger is a standalone device that uses a standard and widely used universal serial bus, or USB, interface as a power output connector that can be used to recharge handheld mobile devices. Our current design for the device is roughly the size of two decks of playing cards (see photo below) and employs a 100% methanol fuel cartridge, which occupies the same volume as a pack of chewing gum. For each removable cartridge, our current prototype external power charger provides up to one month of power for the typical mobile phone. It can also be designed to enable a professional photographer to take over 5,000 pictures using a high end digital camera from a single cartridge. Our device is designed to provide 2.5 watts of power from its USB interface and also offer fast charge, ultra-long run time and self-charging modes.

Mobion external power charger with removable cartridge prototype

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Snap-on or Attached Power Source Products: Similar to aftermarket battery attachments, our snap-on direct methanol fuel cell power solution is an attached power supply that is compatible with existing portable electronic devices and offers users extended run-time power. In this category, we envision a number of product applications, including attachments for digital cameras, portable media players, GPS devices, and other consumer and electronic products. Our initial design is a direct methanol fuel cell camera-grip (see photo below) that replaces comparable rechargeable lithium-ion battery-pack grips and is designed to provide twice as much energy as similar rechargeable lithium-ion battery-based products. Our Mobion direct methanol fuel cell camera grip allows photographers the benefits of extended usage plus the freedom to refill using a methanol cartridge rather than by plugging into a wall outlet.

Sample Mobion attached power source camera-grip prototype

Embedded power source products: Our goal is to produce direct methanol fuel cells that can be embedded into portable electronic devices in order to increase their run time and to provide fast charge capability by hot-swapping 100% methanol cartridges. We have developed an embedded fuel cell prototype for a GPS unit that we believe will generate three times as much usage time as GPS devices powered by conventional disposable AA batteries (see photo below.)

Prototype of a GPS unit with an embedded Mobion power source

We have also developed an embedded fuel cell concept model designed for a smart phone (see photo below) and believe that this concept model highlights the anticipated future product direction for our portable power source products in the consumer market.

Concept model of a smart phone with an embedded Mobion power source

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Advantages of our Portable Power Source Products

We believe that our portable power source products will offer the following advantages:

- *Off-the-grid power source.* Our products provide users of consumer electronic devices with extended mobility by providing power without having to attach to a wall outlet to recharge their devices.
- *Small size and low weight.* The dimensions of our products will enable our OEM customers to reduce the overall size and weight of their products.
- *Power density.* Our products will have power density of over 50 mW/cm^2 and high energy efficiencies of 1.4 Wh/cc of methanol.
- *Power duration.* Our products will offer longer run time than currently available portable charging systems.
- *Ease of manufacturing.* Our products will be manufactured using traditional injection molding techniques that will easily transfer to mass-manufacturing production lines.
- *Safety.* Our products will utilize methanol fuel, which does not require storage under pressure or at low temperatures.
- *Environmentally friendly.* Our products will utilize fully biodegradable methanol fuel.

Codes and Standards

In 2004, we became the world□s first company to obtain micro fuel cell safety compliance certifications for a fuel cell product from Underwriter□s Laboratory and CSA International. In addition, we received United Nations packaging certification and our methanol cartridges were deemed compliant by the U.S. Department of Transportation for worldwide cargo shipment. Certification is required for every commercial product prior to its shipment. Based upon our previous experiences with these regulatory agencies, we do not anticipate delays associated with seeking Underwriter□s Laboratory and CSA International product certifications for our commercial products, which, assuming available financing, are anticipated to begin shipping in 2009.

Also, we helped to develop a proposal adopted by the United Nations to provide methanol fuel cartridges a separate classification and we worked with other micro fuel cell companies, and the appropriate regulatory bodies, to generate the first draft of the international standards for methanol safety and use related to transport

on commercial airplanes.

As a result of our industry coalition efforts, the International Civil Aviation Organization technical instructions and the International Air Transport Association Dangerous Goods Regulations now permit airline passengers and crew to carry on and use certain fuel cell power systems and fuel cell cartridges containing methanol. On April 30, 2008, the U.S. Department of Transportation issued a final ruling adopting the International Civil Aviation Organization, or ICAO, regulations permitting commercial aircraft passengers and crew to bring in their carry-on baggage methanol fuel cell cartridges and fuel cell systems designed for portable electronic devices. The effective date of this ruling is February 13, 2009.

Test and Measurement Instrumentation Products

We are a global supplier of computerized gauging instruments, metrology systems for semiconductor wafers, and jet engine balancing systems.

General Dimensional Gauging: Our gauging instruments employ fiber optic, laser, and capacitance technologies to make precision measurements in product design, production, and quality related processes. Our gauging instruments include capacitance gauging systems offering ultra-high precision measurement, a fiber-optic based vibration sensor system with extremely high frequency response, a high-speed laser sensor system utilizing the latest complementary metal-oxide semiconductor/charge-coupled device technology, and a stand-alone data acquisition system that incorporates multiple sensor technologies. These products are targeted towards the data storage, semiconductor, and automotive industries.

Semiconductor: Our family of wafer metrology systems range from manually operated units to fully automated systems, which test key wafer characteristics critical to producing high-quality chips used in the semiconductor industry. These units are used as quality control tools delivering highly precise measurements for thickness variations, bow, warp, resistivity, and flatness. These systems can be used on substrates varying widely in size and materials. Our wafer metrology systems include an automated wafer characterization system, a semi-automated, full wafer surface scanning system, and a device that provides for manual, non-contact measurements.

Jet Engine Balancing Systems: Our portable and test cell balance systems automatically collect and record aircraft engine vibration data, identify vibration or balance issues in an engine, and calculate a solution to the problem. These units are used by major aircraft engine manufacturers, the U.S. Air Force, other military and commercial airlines and gas turbine manufacturers.

Technology

A fuel cell is an electrochemical energy conversion device, which is similar to a battery, that produces electricity from a liquid or gaseous fuel, such as methanol, and an oxidant, such as oxygen. Fuel cells are different from batteries in that they consume a reactant, which must be replenished, while batteries store electrical energy chemically in a closed system. Generally, the reactants flow in and reaction products flow out of the fuel cell. While the electrodes within a battery react and change as a battery is charged or discharged, a fuel cell□s electrodes are catalytic and relatively stable.

The direct methanol fuel cell relies upon the reaction of water with methanol at the catalytic anode layer to release protons and electrons, and form carbon dioxide. The electrons pass through a circuit and generate electricity that can be used to power external devices. The protons generated through this reaction pass through the proton exchange membrane to the cathode, where they combine to form water. The anode and cathode layers of a direct methanol fuel cell are usually made of platinum particles and platinum ruthenium particles embedded on either side of a proton exchange membrane.

Methanol fuel cells need water at the anode and therefore pure methanol cannot be used without the provision of water via either active transport, such as the pumping of water generated at the cathode back to the anode layer (see Chart A), or a passive recirculation mechanism that incorporates pressurized internal ducts or piping. Without either an active or a passive recirculation mechanism, a direct methanol fuel cell would require the inclusion of water as a dilutant in the methanol fuel, which limits the energy content of the diluted fuel (see Chart

B).

Direct Methanol Fuel Cell with Active Water Transport (Chart A)

Methanol Fuel Cell With Water As A Fuel Dilutant (Chart B)

Our Mobion technology eliminates the need for active water recirculation pumps or the inclusion of water as a fuel dilutant. The water required for reaction at the anode is transferred internally within the Mobion Chip from the site of water generation on the air-side of the cell through a proprietary, passive design that eliminates the need for water movement by external pumps, complicated re-circulation loops or other micro-plumbing tools (see Chart C).

Our Mobion Technology with 100% Methanol and Passive Water Recirculation (Chart C)

Our Mobion solution contains a passive water recirculation sub-system that allows for the consumption of 100% methanol, results in a reduced parts count design and offers the advantage of higher energy density than competing fuel cell technologies for portable electronic devices.

Strategic Agreements

On September 10, 2008, MTI Micro and Duracell, part of The Gillete Company, which is part of the Procter & Gamble Company (Duracell) entered into a letter of intent whereby both parties agree to explore a new relationship to collaborate on the market development and commercialization of Mobion based fuel cell systems and methanol fuel cartridges for the consumer market.

On October 31, 2008, we signed an agreement with a U.S. based developer and marketer of universal chargers to evaluate the feasibility, development and production of our Mobion products. This agreement, which took effect on August 29, 2008, will enable us and this developer to collaborate in evaluating and adopting our Mobion technology for use with a number of their products.

On July 9, 2008, we entered into an agreement with NeoSolar Corporation, or NeoSolar, a Korean manufacturer of portable digital devices and energy products, to develop Mobion fuel cell technology for use in future models of NeoSolar portable digital devices, including ultra mobile portable computers. We intend to work together to develop, test, and evaluate Mobion prototypes for their integration with a number of NeoSolar products, which could lead to the use of external Mobion power sources, like chargers and snap-on attachments, and embedded Mobion power sources for integration into various digital products.

On April 28, 2008, we entered into a development agreement with a global Japanese consumer electronics company to evaluate the feasibility, development, and production of our Mobion products. This agreement will enable us and this developer to collaborate in evaluating and adopting our Mobion technology for use in various precision imaging applications, including digital cameras. On May 12, 2008, we announced that we delivered a Mobion prototype to this company for their evaluation.

On December 13, 2007, we entered into an agreement with Trident Systems, Inc. to pursue opportunities to leverage our consumer market platform into low-power military markets. Teaming opportunities include demonstrations of unattended ground sensor prototypes powered by Mobion and evaluations and potential submissions of proposals for military programs.

On May 16, 2006, we entered into an alliance with Samsung Electronics Co., Ltd., or Samsung, to develop next-generation fuel cell prototypes for Samsung's mobile phone business. We developed, and together with Samsung we jointly tested and evaluated, our Mobion technology for several Samsung mobile phone applications. We are continuing to work with Samsung on a non-exclusive collaboration under which we continue to refine our Mobion baseline product design.

On August 1, 2004, we entered into a $6.1 million cost-shared development contract with the U.S. Department of Energy, or the DOE, for the development of manufacturing techniques and the optimization of our Mobion product solutions. Through December 2008, the DOE has authorized $6.1 million of spending on a cost-shared basis. This contract expires on March 31, 2009.

Manufacturing

We plan to outsource manufacturing of our portable power source products through third-party relationship contract manufacturers. We believe this strategy will provide us with a business model that allows us to concentrate on our core competencies of research and development and technological know-how and reduce our capital expenditures. In addition, this strategy will significantly reduce our working capital requirements for inventory because we will not incur most of our manufacturing costs until we have actually shipped our portable power source products to our customers and billed those customers for those products. To date, we have established an internal developmental pilot production line to test our design and engineering capabilities and a representative office in Shanghai to facilitate our efforts to develop relationships with manufacturers and low cost component suppliers in China. Although we have developed an internal developmental pilot production line, we intend to rely upon third parties to forecast production requirements and have established the basic design, function, and performance of our in-house engineering capabilities to foster the successful commercialization of our products.

The commercialization of our Mobion power solution will depend upon our ability to reduce the costs of our portable power source products, as they are currently more expensive than existing rechargeable battery technologies. In addition, we continue to work on enhancing our Mobion power source design, including our injection molded Mobion Chip, to ensure its manufacturability (including engineering, verification and product testing), design for assembly, design for testability, and design for serviceability, all of which are critical to successful high-volume production.

We assemble and test our test and instrumentation measurement products at our facilities located in Albany, New York. We believe that our existing assembly and test capacity is sufficient to meet our current needs and short-term future requirements. We believe that most of the raw materials used in our test and measurement products are readily available from a variety of vendors.

Sales and Marketing

We plan to sell our portable power source products for incorporation into the products of our OEM customers or to be sold as accessories through them. We plan to generate sales to OEM customers through direct sales employees as well as outside sales representatives and distributors. We have established sales representatives in South Korea and Japan.

We build awareness in our target markets through a series of targeted campaigns, which include our website, e-mails, conferences, tradeshows, and other standard marketing efforts. In addition, we provide progress reports on our Mobion developments through a wide array of publications, active public relations, updates with industry analysts and the investment community, and speaking engagements.

We market our test and measurement instrumentation products through a combination of direct sales personnel and domestic and international distributors.

Customers

We expect that our customers for our portable power source products will include a number of the world□s leading electronic device OEMs.

Revenue from our test and measurement instrumentation products to Koyo, our Japanese distributor, and the U.S. Air Force accounted for 13.9% and 15.6%, respectively, of product revenue in 2008. In 2007, sales to Koyo and the U.S. Air Force accounted for 26.4% and 27.8%, respectively, of product revenue. In 2006, sales to Koyo and the U.S. Air Force accounted for 22.9% and 23.1%, respectively, of product revenue. No other single customer accounted for greater than 10% of product revenue in 2006, 2007 or 2008.

Competition

We expect that the primary competitive factor in our portable power source business will be market acceptance of our portable power source products as an alternative power source to conventional lithium-ion and other rechargeable batteries. Market acceptance of our portable power source products will depend on a wide variety of factors, including the compatibility of direct methanol fuel cell power sources with portable electronic devices and the market□s assessment of the advantages offered by our products in terms of size, weight, power density and duration, safety, reliability, and environmental friendliness when measured against price disadvantages. We anticipate direct competition from large Asian-based companies and some of our potential OEM customers.

Competition in the sale of our measurement and instrumentation products is based on product quality, performance, price, and timely delivery. Our competitors for test and measurement instrumentation products include National Instruments, KLA-Tencor, Capacitec, Sigma Tech, Corning Tropel, Chadwick-Helmuth, ACES Systems, Micro-Epsilon, and Keyence.

Product Development

Over the past three years, we have developed and built a number of engineering prototypes used to validate our technology and to generate discussions with potential customers about the inclusion of our technology in new products. During the same period, we have created four generations of external power charger prototypes, each of which has shown a dramatic size reduction over the previous generation. Our latest external power charger prototype achieved a 60% reduction in volume over our first generation prototype and it has incorporated a removable methanol cartridge.

We have improved the capabilities of our Mobion Chip technology during the last three years, which we expect will continue to evolve as we integrate greater functionality into our designs. This continuous iterative integration process is intended to reduce the size, simplify the design and construction, and reduce assembly complexity of our technology. We continue to improve the product design of the Mobion Chip and believe that future product generations will deliver performance improvements in terms of energy density, size, weight, and power duration and should be able to power wireless electronic devices for longer periods of time than rechargeable lithium-ion batteries.

Intellectual Property and Proprietary Rights

We rely on a combination of patent (both national and international), trade secret, trademark, and copyright protection to protect our intellectual property. Our strategy is to apply for patent protection for all significant design requirements. Additionally, we systematically analyze the existing intellectual property landscape for direct methanol fuel cells to determine where the greatest opportunities for developing intellectual property exist. We also enter into standard confidentiality agreements with our employees, consultants, vendors, partners and potential customers and seek to control access to and distribution of our proprietary information.

As of March 23, 2009 we had filed over 110 U.S. patent applications, 51 of which have been awarded. Of the awarded patents, 42 are assigned to us and 9 are assigned to Duracell as part of our strategic alliance agreement with them. We have filed 30 Patent Cooperation Treaty Applications and have filed for National Phase Patent Protection for 25 pieces of intellectual property in multiple countries, including Japan, the European Union, and South Korea. We have developed a portfolio of patent applications in areas including fuel cell systems, components, controls, manufacturing processes, and system packaging.

Research and Development

Our research and development team is responsible for advanced research, product planning, design and development, and quality assurance. Through our supply chain, we are also working with subcontractors in developing specific components of our technologies.

The primary objective of our research and development program is to advance the development of our direct methanol fuel cell technology to enhance the commercial value of our products and technology, as well as to develop next generation fuel cell products.

We have incurred research and development costs of approximately $12.9 million, $11.8 million and $8.3 million for the years ended December 31, 2006, 2007, and 2008, respectively. We expect to continue to invest in research and development in the future.

Employees

As of March 23, 2009 we had 57 employees. Of these employees, 25 were involved in our portable power source business (including 14 scientists and engineers, of whom 10 have advanced degrees) and 30 were involved in our test and measurement instrumentation business. Two of our employees are involved in corporate functions.

Properties

We presently lease two premises in the United States, one located at 325 Washington Avenue Extension, Albany, New York and the other at 431 New Karner Road, Albany, New York. Both leases expire at the end of 2009. We are currently in negotiations with our landlords to renew and potentially restructure our lease agreements. The 325 Washington Avenue Extension premise consists of approximately 20,700 useable square feet of space, and the 431 New Karner Road consists of approximately 23,500 useable square feet of space. Together, the premises are adequate for our current and foreseeable needs. We also lease a representative office in Shanghai, China. The lease expires in 2009 and the premise consists of approximately 160 useable square feet of space.

Legal Proceedings

We are not currently involved in any legal proceeding that we believe would have a material adverse effect on our business or financial condition.

Availability of Information

We make available through our website *(http://www.mechtech.com),* free of charge, our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and amendments to those reports, filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, as soon as reasonably practicable after such reports are electronically filed with, or furnished to, the SEC. These reports may be accessed through our website□s Investor Relations page.

The public may read and copy any materials we file with the SEC at the SEC Public Reference Room at 100 F Street, NE, Room 1580, Washington, DC 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. We file electronically with the SEC and the SEC maintains an Internet site (http://www.sec.gov) that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC.

Item 1A: Risk Factors

Factors Affecting Future Results

This Annual Report on Form 10-K and the documents we have filed with the SEC that are incorporated by reference into this Annual Report on Form 10-K contain forward-looking statements that involve risks and uncertainties. Any statements contained, or incorporated by reference, in this Form 10-K that are not statements of historical fact may be forward-looking statements. When we use the words □anticipate,□ □estimate,□ □plans,□ □projects, □continuing,□ □ongoing,□ □expects,□ □management believes,□ □we believe,□ □we intend,□ □should,□ □could,□ □may,□ □will□ words or phrases, we are identifying forward-looking statements. Forward-looking statements involve risks, uncertainties, estimates and assumptions which may cause our actual results, performance or achievements to be materially different from those expressed or implied by forward-looking statements. These factors include, among others:

- our need to raise additional financing;
- our history of recurring net losses and the risk of continued net losses;
- our independent auditors have included a going concern paragraph in their opinion:
- sales revenue growth of our test and measurement instrumentation business may not be achieved;
- the dependence of our test and measurement instrumentation business on a small number of customers and potential loss of government funding;
- our ownership position in MTI Micro may be reduced as a result of our plans to seek external financing for MTI Micro s operations;
- risks related to developing Mobion direct methanol fuel cells and whether we will ever successfully develop reliable and commercially viable Mobion fuel cell solutions;
- the risk that certain European Union regulations will not be changed to permit methanol to be carried onto airplanes;
- our portable power source products or our customers products that utilize our portable power source products may not be accepted by the market;
- our inability to build and maintain relationships with our customers;
- our limited experience in manufacturing fuel cell systems on a commercial basis;
- our dependence on others for our production requirements for our portable power source products;
- our dependence on our manufacturing subcontractors to provide high levels of productivity and satisfactory delivery schedules for our portable power source products;
- our dependence on third-party suppliers for most of the manufacturing equipment necessary to produce our portable power source products;
- our inability to obtain sufficient quantities of components and other materials, including platinum and ruthenium, necessary for the production of our portable power source products;
- our dependence on OEMs integrating Mobion fuel cell systems into their devices;
- our lack of long-term purchase commitments from our customers and the ability of our customers to cancel, reduce, or delay orders for our products;
- risks related to protection and infringement of intellectual property;
- our new technologies may not result in customer or market acceptance;
- our ability to commercialize our proposed portable power source solutions and develop new product solutions on a timely basis;
- our ability to develop and utilize new technologies that address the needs of our customers;

- intense competition in the direct methanol fuel cell and instrumentation businesses;

- changes in policies by U.S. or foreign governments that hinder, disrupt, or economically disadvantage international trade;
- the impact of future exchange rate fluctuations;
- the uncertainty of the U.S. economy;
- the historical volatility of our stock price;
- the cyclical nature of the electronics industry;
- failure of our strategic alliances to achieve their objectives or perform as contemplated and the risk of cancellation or early termination of such alliance by either party;
- product liability or defects;
- risks related to the flammable nature of methanol as a fuel source;
- the loss of services of one or more of our key employees or the inability to hire, train, and retain key personnel;
- significant periodic and seasonal quarterly fluctuations in our results of operations;
- risks related to the limitation of the use of our net operating losses in the event of certain ownership changes; and
- other factors discussed under the headings Risk Factors below.

Except as may be required by applicable law, we do not undertake or intend to update or revise our forward-looking statements, and we assume no obligation to update any forward-looking statements contained in, or incorporated by reference into, this Annual Report on Form 10-K as a result of new information or future events or developments. Thus, assumptions should not be made that our silence over time means that actual events are bearing out as expressed or implied in such forward-looking statements.

Risk Factors

Set forth below are certain risks and uncertainties that could adversely affect our results of operations or financial condition and cause our actual results to differ materially from those expressed in our forward-looking statements. Also refer to Factors Affecting Future Results.

We have incurred recurring net losses and anticipate continued net losses as we execute our commercialization plan for our portable power source business. If we do not raise financing in the next few months, we will be required to dramatically downsize, discontinue, or sell our portable power source business and/or our test and measurement instrumentation business.

We have incurred recurring net losses, including net losses of $13.7 million in 2006, $9.6 million in 2007 and $12.5 million in 2008, which includes a net gain of $0.7 million on derivatives and a gain of $1.0 million on sales of Plug Power stock in 2008. As a result of ongoing operating losses, we had an accumulated deficit of approximately $117.6 million as of December 31, 2008. If external resources permit, we expect to continue to incur significant expenditures to develop and commercialize our proposed portable power source products, which may entail developing our manufacturing, sales, and distribution networks; implementing internal systems and infrastructure; and hiring additional personnel. Failure to secure sufficient external funding for our portable power source business may cause us to dramatically downsize, discontinue, or sell our portable power source business.

At present, the Company does not expect to fund MTI Micro s development and commercialization of its portable power source products. Based on MTI Micro s projected cash requirements for 2009 and their current cash and cash equivalents, we believe MTI Micro will have adequate resources to fund operations into the month of April 2009. MTI Micro will be required to raise additional funds through issuance of its equity or debt, government funding and/or explore other strategic alternative, including the sale of assets and/or the company. If MTI Micro

is unable to raise additional financing, it may be required to discontinue its business operations. Based upon projected cash requirements and current cash and cash equivalents for MTI Instruments, along with cash necessary to operate the public parent company, we believe that we will have adequate resources to fund MTI Instruments and the public parent company at least through December 2009.

Our independent auditors have included a going concern paragraph in their opinion.

Our auditors have included an explanatory paragraph in their opinion that accompanies our audited consolidated financial statements as of December 31, 2008, indicating that our recurring losses from operations, net capital deficiency, and current liquidity position raise substantial doubt about our ability to continue as a going concern. The accompanying consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Continuing uncertainty of the U.S. economy may have serious implications for the growth and stability of our business and may negatively affect our stock price.

The revenue growth and profitability of our business will depend significantly on the overall demand for test and measurement instrumentations as well as electronic devices. Softening demand in these markets caused by ongoing economic uncertainty may result in decreased revenue or earnings levels. The U.S. economy has been historically cyclical and market conditions continue to be challenging, which has resulted in individuals and companies delaying or reducing expenditures. Further delays or reductions in spending could have a material adverse effect on demand for our products, and consequently on our business, financial condition, results of operations, prospects, stock price, and ability to continue to operate.

We currently derive all of our product revenue from our test and measurement instrumentation business, but our principal focus is the development and commercialization of our portable power source business.

We currently derive all of our product revenue from our test and measurement instrumentation business, but our principal focus is the development and commercialization of our portable power source business. Our test and measurement instrumentation business is subject to a number of risks, including the following:

- a continued slow down or cancellation of sales to the military as a result of a potential redeployment of governmental funding;
- a failure to expand or maintain the business as a result of competition, a lack of brand awareness, or market saturation; and
- an inability to launch new products as a result of intensive competition, uncertainty of new technology development, and developmental timelines.

In addition, our test and measurement instrumentation products can be sold in quantity to a relatively few number of customers, resulting in a customer concentration risk. This business experienced a significant decline in sales in 2008 and sales are currently expected to be comparable in 2009. The further loss of any significant portion of such customers or a material adverse change in the financial condition of any one of these customers could have a material adverse effect on our business.

If we are required to discontinue our portable power source business due to lack of funding, all of our corporate overhead costs would be allocated to the test and measurement instrumentation business.

We have not generated any product revenue from our portable power source business and currently have no portable power source commercial products.

We have not generated any product revenue from our portable power source business and currently have no portable power source commercial products. The successful development and commercialization of our portable power source products will depend on a number of factors, including the following:

- continuing our research and development efforts;
- finalizing the design of our portable power source products;
- securing OEM customers to incorporate our portable power source products into products sold by them;
- arranging for adequate manufacturing capabilities; and
- completing, refining, and managing our supply chain and distribution channels.

Additionally, our technology is new and complex, and there may be technical barriers to the development of our portable power source products. The development of our portable power source products may not succeed or may be significantly delayed. Our portable power source products will be produced through manufacturing arrangements that have not been finalized or tested on a commercial scale. If we fail to successfully develop or experience significant delays in the development of our portable power source products, or if there are significant delays in commercialization, we are unlikely to recover those losses, thus making it impossible for us to become profitable through the sales of these products. This would materially and adversely affect our business and financial condition. If adequate funds are not available in the second quarter of 2009, we may have to delay development or commercialization of our portable power source products, license to third parties the rights to commercialize products or technologies that we would otherwise seek to commercialize. Any of these factors could harm our business and financial condition.

Any revenue derived in the relatively near-term relating to our portable power source business likely will result from governmental contracts or other governmental funding. We can offer no assurance that we will be able to secure continued government funding. The loss of such contracts or the inability to obtain additional contracts could materially harm our business.

We currently do not have sufficient funds to commercialize our portable power source products.

We will need additional funding to commercialize our portable power source business. Based upon projected cash requirements for the portable power source business in 2009 and its cash and cash equivalents of $0.7 million at December 31, 2008, plus a $0.5 million bridge loan in February 2009, we believe this business will have adequate resources to fund operations into the month of April 2009. If we are unable to secure the necessary additional funding, we will need to delay further commercialization plans. In order to conserve cash and extend operations while we pursue any additional necessary financing, we would be required to reduce operating expenses. There is no assurance that funds raised in any such a financing will be sufficient, that the financing will be available on terms favorable to us or to existing stockholders and at such times as required, or that we will be able to obtain the additional financing required for the continued operation and growth of our business. During the last twelve months, we have raised $2.2 million in external debt financing. If we raise additional funds by issuing equity securities, our stockholders will experience dilution. Additional debt financing, if available, may involve restrictive covenants. Any debt financing or additional equity financing may contain terms that are not favorable to us or our stockholders. If we raise additional funds through collaboration and licensing arrangements with third parties, it may be necessary to relinquish some rights to our technologies or our products, or grant licenses on terms that are not favorable to us. If we are unable to raise adequate funds, we may have to liquidate some or all of our assets or delay, reduce the scope of or eliminate some or all of our research and development programs, or discontinue our portable power source business.

Our ownership position in MTI Micro may be reduced as a result of our plans to seek external financing for MTI Micro's operations, which could limit our ability to control the operations.

We currently own approximately 97% of the outstanding equity in MTI Micro and have control over the operations of this subsidiary. In February 2009 and September 2008, MTI Micro issued $0.5 million and $1.5 million, respectively of secured notes to outside investors, which notes are convertible into shares of MTI Micro. If the notes are converted, our ownership could decrease significantly. In addition, we do not currently expect to advance additional resources to MTI Micro to fund its continued direct methanol fuel cell development and commercialization programs. Instead, MTI Micro will seek additional capital from external sources to fund future development and operations. Depending on the valuation of MTI Micro at the time of future financings, if any, our ownership position could be substantially diluted, and we may no longer have sufficient equity to control the

operations of MTI Micro. If MTI Micro is unable to secure the necessary additional external financing, we may be forced to substantially downsize or eliminate its operations.

Our portable power source products may not be accepted by the market.

Any portable power source products that we develop may not achieve market acceptance. The development of a successful market for our proposed portable power source products and our ability to sell those products at favorable prices may be adversely affected by a number of factors, many of which are beyond our control, including the following:

- our failure to produce portable power source products that compete favorably against other products on the basis of price, quality, performance, and life;
- competition from conventional lithium-ion or other rechargeable battery systems;
- the ability of our technologies and product solutions to address the needs of the electronic device markets, the requirements of OEMs, and the preferences of end users;
- our ability to provide OEMs with portable power source products that provide advantages in terms of size, weight, peak power, power duration, reliability, durability, performance, and value-added features compared to alternative solutions; and
- our failure to develop and maintain successful relationships with OEMs, manufacturers, distributors, and others as well as strategic partners.

Target markets for our proposed portable power source products, such as those for mobile phones (including smart phones) and mobile phone accessories, digital cameras, portable media players, PDAs, and GPS devices, are volatile, cyclical, and rapidly changing and could continue to utilize existing technology or adopt other new competing technologies. The market for certain of these products depends in part upon the development and deployment of wireless and other technologies, which may or may not address the needs of users of these new products.

Many manufacturers of portable electronic devices have well-established relationships with competitive suppliers. Penetrating these markets will require us to offer better performance alternatives to existing solutions at competitive costs. The failure of any of our target markets to continue to expand, or our failure to penetrate these markets to a significant extent, will impede our sales growth. We cannot predict the growth rate of these markets or the market share we will achieve in these markets in the future.

If our proposed portable power source products fail to gain market acceptance, it could materially and adversely affect our business and financial condition.

Market acceptance of our customers products that utilize our portable power source products may decline or may not develop and, as a result, our sales will be harmed.

We currently do not anticipate selling our portable power source products directly to end users. Instead, we plan to produce portable power source products that our OEM customers incorporate into their products. As a result, the success of our proposed portable power source products will depend upon the widespread market acceptance of the products of our OEM customers. We will not control or influence the manufacture, promotion, distribution, or pricing of the products that incorporate our portable power source products. Instead, we will depend on our OEM customers to manufacture and distribute products incorporating our portable power source products and to generate consumer demand through their marketing and promotional activities. Even if our technologies and products successfully meet our customers price and performance goals, our sales would be harmed if our OEM customers do not achieve commercial success in selling their products to consumers that incorporate our portable power source products.

Any lack of adoption in the use of our portable power source products by OEM customers in the electronic device markets, the reduced demand for our OEM customers products, or a slowdown in their markets would adversely

affect our sales.

If we fail to build and maintain relationships with our customers and do not satisfy our customers, we may lose future sales and our revenue may stagnate or decline.

Because our success depends on the widespread market acceptance of our customers products, we must develop and maintain our relationships with leading global OEMs of electronic devices, such as mobile phones (including smart phones) and mobile phone accessories, digital cameras, portable media players, PDAs, and GPS devices. In addition, we must identify areas of significant growth potential in other markets, establish relationships with OEMs in those markets, and assist them in developing products that use our portable power source products and technologies. Our failure to identify potential growth opportunities, particularly in new markets, or establish and maintain relationships with OEMs in those markets, would prevent our business from growing in those markets.

Our ability to meet the expectations of our customers will require us to provide portable power source products for customers on a timely and cost-effective basis and to maintain customer satisfaction with our product solutions. We must match our design and production capacity with customer demand, maintain satisfactory delivery schedules, and meet specific performance goals. If we are unable to achieve these goals for any reason, our customers could reduce their purchases from us and our sales would decline or fail to develop.

Our customer relationships also can be affected by factors affecting our customers that are unrelated to our performance. These factors can include a myriad of situations, including business reversals of customers, determinations by customers to change their product mix or abandon business segments, or mergers, consolidations, or acquisitions involving our customers.

We have no experience manufacturing portable power source products on a commercial scale.

To date, we have focused primarily on research, development, and pilot production, and we have no experience manufacturing any portable power source products on a commercial scale. Our pilot production efforts to date have been limited in scale. It is our intent to manufacture our portable power source products through OEM customers and third-party manufacturers. Failure to secure manufacturing capabilities could materially and adversely affect our business and financial condition.

We will rely on others for our production, and any interruptions of these arrangements could disrupt our ability to fill our customers orders.

We plan to rely on others for all of our production requirements for our portable power source products. The majority of this manufacturing is anticipated to be conducted in Asia by manufacturing subcontractors that also perform services for numerous other companies. We do not expect to have a guaranteed level of production capacity with any of our manufacturing subcontractors. Qualifying new manufacturing subcontractors is time consuming and might result in unforeseen manufacturing and operating problems. The loss of any relationships with our manufacturing subcontractors or assemblers or their inability to conduct their manufacturing and assembly services for us as anticipated in terms of cost, quality, and timeliness could adversely affect our ability to fill customer orders in accordance with required delivery, quality, and performance requirements. If this were to occur, the resulting decline in revenue would harm our business.

We will depend on third parties to maintain satisfactory manufacturing yields and delivery schedules, and their inability to do so could increase our costs, disrupt our supply chain, and result in our inability to deliver our portable power source products, which would adversely affect our results of operations.

We will depend on our manufacturing subcontractors to maintain high levels of productivity and satisfactory delivery schedules for our portable power source products from manufacturing and assembly facilities likely located primarily in Asia. We plan to provide our manufacturing subcontractors with rolling forecasts of our production requirements. We do not, however, anticipate having long-term agreements with any of our manufacturing subcontractors that guarantee production capacity, prices, lead times, or delivery schedules. Our manufacturing subcontractors will serve other customers, many of which will have greater production requirements than we do. As a result, our manufacturing subcontractors could determine to prioritize production capacity for other customers or reduce or eliminate deliveries to us on short notice. We may experience lower

than anticipated manufacturing yields and lengthening of delivery schedules. Lower than expected manufacturing yields could increase our costs or disrupt our supply chain. We may encounter lower manufacturing yields and longer delivery schedules while commencing volume production of any new products. Any of these problems could result in our inability to deliver our product solutions in a timely manner and adversely affect our operating results.

We plan to rely on third-party suppliers for most of our manufacturing equipment.

We plan to rely on third-party suppliers for most of the manufacturing equipment necessary to produce our portable power source products. The failure of suppliers to supply manufacturing equipment in a timely manner or on commercially reasonable terms could delay our commercialization plans and otherwise disrupt our production schedules or increase our manufacturing costs. Further, our orders with certain of our suppliers may represent a very small portion of their total orders. As a result, they may not give priority to our business, leading to potential delays in or cancellation of our orders. If any single-source supplier were to fail to supply our needs on a timely basis or cease providing us with key components, we would be required to substitute suppliers. We may have difficulty identifying a substitute supplier in a timely manner and on commercially reasonable terms. If this were to occur, our business would be harmed.

Shortages of components and raw materials may delay or reduce our sales and increase our costs, thereby harming our results of operations.

The inability to obtain sufficient quantities of components and other materials, including platinum and ruthenium, necessary for the production of our portable power source products could result in reduced or delayed sales or lost orders. Any delay in or loss of sales could adversely impact our operating results. Many of the materials used in the production of our portable power source products will be available only from a limited number of foreign suppliers, particularly component suppliers located in Asia. In most cases, neither we nor our manufacturing subcontractors will have long-term supply contracts with these suppliers. As a result, we will be subject to economic instability in these Asian countries as well as to increased costs, supply interruptions, and difficulties in obtaining materials. Our customers also may encounter difficulties or increased costs in obtaining the materials necessary to produce their products into which our product solutions are incorporated.

From time to time, materials and components necessary for our portable power source products or in other aspects of our customers products may be subject to allocation because of shortages of these materials and components. Shortages in the future could cause delayed shipments, customer dissatisfaction, and lower revenue.

We will be subject to lengthy development periods and product acceptance cycles, which can result in development and engineering costs without any future revenue.

We plan to provide portable power source solutions that are incorporated by OEMs into the products they sell. OEMs will make the determination during their product development programs whether to incorporate our portable power source solutions or pursue other alternatives. This process may require us to make significant investments of time and resources in the design of portable customer-specific power source solutions well before our customers introduce their products incorporating our product solutions and before we can be sure that we will generate any significant sales to our customers or even recover our investment. During a customers entire product development process, we will face the risk that our portable power source products will fail to meet our customers technical, performance, or cost requirements or that our products will be replaced by competing products or alternative technological solutions. Even if we complete our design process in a manner satisfactory to our customer, the customer may decide to delay or terminate its product development efforts. The occurrence of any of these events could cause sales to not materialize, to be deferred, or to be cancelled, which would adversely affect our operating results.

We will not have long-term purchase commitments from our customers, and their ability to cancel, reduce, or delay orders could reduce our revenue and increase our costs.

Customers for our portable power source products will not provide us with firm, long-term volume purchase commitments, but instead will issue purchase orders to buy a specified number of units. As a result, customers may be able to cancel purchase orders or reduce or delay orders at any time. The cancellation, delay, or reduction of customer purchase orders could result in reduced revenue, excess inventory, and unabsorbed

overhead. We currently have no presence in the electronic device markets. Our success in the electronic device markets will require us to establish the value added proposition of our products to OEMs that have traditionally used other portable power solutions. All of the markets we plan to serve are subject to severe competitive pressures, rapid technological change and product obsolescence, which may increase our inventory and overhead risks, resulting in increased costs.

Variability of customer requirements resulting in cancellations, reductions, or delays may adversely affect our operating results.

We will be required to provide rapid product turnaround and respond to short lead times. A variety of conditions, both specific to individual customers and generally affecting the demand for OEMs products, may cause customers to cancel, reduce, or delay orders. Cancellations, reductions, or delays by a significant customer or by a group of customers could adversely affect our operating results. Customers may require rapid increases in production, which could strain our resources and reduce our margins.

If we are unable to adequately protect our intellectual property, our competitors and other third parties could produce products based on our intellectual property, which would substantially impair our ability to compete.

Our success and ability to compete depends in part upon our ability to maintain the proprietary nature of our technologies. We rely on a combination of patent, trade secret, copyright, and trademark law and license agreements, as well as nondisclosure agreements, to protect our intellectual property. These legal means, however, afford only limited protection and may not be adequate to protect our intellectual property rights. We cannot be certain that we were the first creator of inventions covered by pending patent applications or the first to file patent applications on these inventions. In addition, we cannot be sure that any of our pending patent applications will issue. The United States Patent and Trademark Office, or other foreign patent and trademark offices may deny or significantly narrow claims made under our patent applications and, even if issued, these patents may be successfully challenged, designed around, or may otherwise not provide us with any commercial protection.

We may in the future need to assert claims of infringement against third parties to protect our intellectual property. Regardless of the final outcome, any litigation to enforce our intellectual property rights in patents, copyrights, or trademarks could be highly unpredictable and result in substantial costs and diversion of resources, which could have a material and adverse effect on our business and financial condition. In the event of an adverse judgment, a court could hold that some or all of our asserted intellectual property rights are not infringed, or are invalid or unenforceable, and could award attorneys fees to the other party.

We may become subject to claims of infringement or misappropriation of the intellectual property rights of others, which could prohibit us from selling our products, require us to obtain licenses from third parties or to develop non-infringing alternatives, and subject us to substantial monetary damages and injunctive relief.

We may receive notices from third parties that the manufacture, use, or sale of any products we develop infringes upon one or more claims of their patents. Moreover, because patent applications can take many years to issue, there may be currently pending applications, unknown to us, which may later result in issued patents that materially and adversely affect our business. Third parties could also assert infringement or misappropriation claims against us with respect to our future product offerings, if any. Whether or not such claims are valid, we cannot be certain that we have not infringed the intellectual property rights of such third parties. Any infringement or misappropriation claim could result in significant costs, substantial damages, and our inability to manufacture, market, or sell any of our product offerings that are found to infringe. Even if we were to prevail in any such action, the litigation could result in substantial cost and diversion of resources that could materially and adversely affect our business. If a court determined, or if we independently discovered, that our product offerings violated third-party proprietary rights, there can be no assurance that we would be able to re-engineer our product offerings to avoid those rights or obtain a license under those rights on commercially reasonable terms, if at all. As a result, we could be prohibited from selling products that are found to infringe upon the rights of others. Even if obtaining a license were feasible, it may be costly and time-consuming. A court could also enter orders that temporarily, preliminarily, or permanently enjoin us from making, using, selling, offering to sell, or importing our portable power source products, or could enter orders mandating that we undertake certain

remedial activities. Further, a court could order us to pay compensatory damages for such infringement, plus prejudgment interest, and could in addition treble the compensatory damages and award attorneys fees. These damages could materially and adversely affect our business and financial condition.

Confidentiality agreements with employees and others may not adequately prevent disclosure of our trade secrets and other proprietary information, which could limit our ability to compete.

We rely on trade secrets to protect our proprietary technology and processes. Trade secrets are difficult to protect. We enter into confidentiality and intellectual property assignment agreements with our employees, consultants, and other advisors. These agreements generally require that the other party keep confidential and not disclose to third parties confidential information developed by the party or made known to the party by us during the course of the party s relationship with us. However, these agreements may not be honored and enforcing a claim that a party illegally obtained and is using our trade secrets is difficult, expensive and time-consuming, and the outcome is unpredictable. The failure to obtain and maintain trade secret protection could adversely affect our competitive position.

Our efforts to develop new technologies may not result in commercial success, which could cause a decline in our revenue and could harm our business.

Our research and development efforts with respect to our technologies may not result in customer or market acceptance. Some or all of those technologies may not successfully make the transition from the research and development lab to cost-effective production as a result of technology problems, competitive cost issues, yield problems, and other factors. Even when we successfully complete a research and development effort with respect to a particular technology, our customers may decide not to introduce or may terminate products utilizing the technology for a variety of reasons, including the following:

- difficulties with other suppliers of components for the products;
- superior technologies developed by our competitors and unfavorable comparisons of our solutions with these technologies;
- price considerations; and
- lack of anticipated or actual market demand for the products.

The nature of our business will require us to make continuing investments for new technologies. Significant expenses relating to one or more new technologies that ultimately prove to be unsuccessful for any reason could have a material adverse effect on us. In addition, any investments or acquisitions made to enhance our technologies may prove to be unsuccessful. If our efforts are unsuccessful, our business could be harmed.

We may not be able to enhance our product solutions and develop new product solutions in a timely manner.

Our future operating results will depend to a significant extent on our ability to provide new portable power source products that compare favorably with alternative solutions on the basis of time to introduction, cost, performance, and end-user preferences. Our success in attracting customers and developing business will depend on various factors, including the following:

- innovative development of new portable power source products for customer products;
- utilization of advances in technology;
- maintenance of quality standards;
- efficient and cost-effective solutions; and
- timely completion of the design and introduction of new portable power source products.

Our inability to commercialize our proposed portable power source solutions and develop new product solutions on a timely basis could harm our operating results and impede our growth.

If we do not keep pace with technological innovations, our products may not be competitive and our revenue and operating results may suffer.

Technological advances, the introduction of new products, and new design techniques could adversely affect our business prospects unless we are able to adapt to the changing conditions. Technological advances could render our proposed portable power source products obsolete, and we may not be able to respond effectively to the technological requirements of evolving markets. As a result, we will be required to expend substantial funds for and commit significant resources to

- continue research and development activities on portable power source products;
- hire additional engineering and other technical personnel; and
- purchase advanced design tools and test equipment.

Our business could be harmed if we are unable to develop and utilize new technologies that address the needs of our customers, or our competitors do so more effectively than we do.

New technology solutions that achieve significant market share could harm our business.

New portable power source solutions could be developed. Existing electronic devices also could be modified to allow for a different power source solution. Our business could be harmed if our products become noncompetitive as a result of a technological breakthrough that allows a new power source solution to displace our solution and achieve significant market acceptance.

Our inability to respond to changing technologies will harm our business.

The electronics industry is subject to constant technological change. Our future success will depend on our ability to respond appropriately to changing technologies and changes in product function and quality. If we rely on products and technologies that are not attractive to consumers, we may not be successful in capturing or retaining any significant market share. In addition, any new technologies utilized in our portable power source products may not perform as expected or as desired, in which event our adoption of such products or technologies may harm our business.

International sales and manufacturing risks could adversely affect our operating results.

We anticipate that the manufacturing and assembly operations for our portable power source products will be conducted primarily in Asia by manufacturing subcontractors. We also believe that many of our OEM customers will be located and much of our sales and distribution operations will be conducted in Asia. These international operations will expose us to various economic, political, and other risks that could adversely affect our operations and operating results, including the following:

- difficulties and costs of staffing and managing a multi-national organization;
- unexpected changes in regulatory requirements;
- differing labor regulations;
- potentially adverse tax consequences;
- tariffs and duties and other trade barrier restrictions;
- possible employee turnover or labor unrest;

- greater difficulty in collecting accounts receivable;
- the burdens and costs of compliance with a variety of foreign laws;
- potentially reduced protection for intellectual property rights; and
- political or economic instability in certain parts of the world.

The risks associated with international operations could negatively affect our operating results.

Our business may suffer if international trade is hindered, disrupted, or economically disadvantaged.

Political and economic conditions abroad may adversely affect the foreign production and sale of our portable power source products. Protectionist trade legislation in either the United States or foreign countries, such as a change in the current tariff structures, export or import compliance laws, or other trade policies, could adversely affect our ability to sell our portable power source products in foreign markets and to obtain materials or equipment from foreign suppliers.

Changes in policies by the U.S. or foreign governments resulting in, among other things, higher taxation, currency conversion limitations, restrictions on the transfer of funds, or the expropriation of private enterprises also could have a material adverse effect on us. Any actions by countries in which we conduct business to reverse policies that encourage foreign investment or foreign trade also could adversely affect our operating results. In addition, U.S. trade policies, such as "most favored nation" status and trade preferences for certain Asian nations, could affect the attractiveness of our products to our U.S. customers and adversely impact our operating results.

Our operating results could be adversely affected by fluctuations in the value of the U.S. dollar against foreign currencies.

We transact our business predominantly in U.S. dollars and bill and collect our sales in U.S. dollars. In 2008, approximately 44% of our revenue was from customers outside of the United States. A weakening of the dollar could cause our overseas vendors to require renegotiation of either the prices or currency we pay for their goods and services. Similarly, a strengthening of the dollar could cause our products to be more expensive for our international customers, which could cause the demand for our products and our revenue to decline.

In the future, customers may negotiate pricing and make payments in non-U.S. currencies. If our overseas vendors or customers require us to transact business in non-U.S. currencies, fluctuations in foreign currency exchange rates could affect our cost of goods, operating expenses, and operating margins and could result in exchange losses. In addition, currency devaluation can result in a loss to us if we hold deposits of that currency. Hedging foreign currencies can be difficult, especially if the currency is not freely traded. We cannot predict the impact of future exchange rate fluctuations on our operating results.

We expect that a majority of our manufacturing subcontractors will be located in Asia, increasing the risk that a natural disaster, labor strike, war, or political unrest in those countries would disrupt our operations.

We expect that a majority of our manufacturing subcontractors will be located in Asia. Events out of our control, such as earthquakes, fires, floods, or other natural disasters, or political unrest, war, labor strikes, or work stoppages in Asia could disrupt their operations, which would impact our business. In addition, there is political tension between Taiwan and China that could lead to hostilities. If any of these events occur, we may not be able to obtain alternative manufacturing capacity. Failure to secure alternative manufacturing capacity could cause a delay in the shipment of our products, which would cause our revenue to fluctuate or decline.

The electronics industry is cyclical and may result in fluctuations in our operating results.

The electronics industry has experienced significant economic downturns at various times. These downturns are characterized by diminished product demand, accelerated erosion of average selling prices, and production overcapacity. In addition, the electronics industry is cyclical in nature. We will seek to reduce our exposure to

industry downturns and cyclicality by providing design and production services for leading companies in rapidly expanding industry segments. We may, however, experience substantial period-to-period fluctuations in future operating results because of general industry conditions or events occurring in the general economy.

Our strategic alliances may not achieve their objectives, and their failure to do so could impede our growth.

Our prospects depend to a significant extent on our strategic alliances with Samsung and Duracell. In addition, we plan to explore additional strategic alliances designed to enhance or complement our technology or to work in conjunction with our technology; to provide necessary know-how, components, or supplies; and to develop, introduce, and distribute products utilizing our technology. Any strategic alliances may not achieve their intended objectives, may be cancelled by either party, and parties to our strategic alliances may not perform as contemplated. The failure of our current alliances or our inability to form additional alliances may impede our ability to introduce new products and enter new markets.

Product liability claims against us could result in adverse publicity and potentially significant monetary damages.

As a seller of consumer products using a flammable material such as methanol, we will face an inherent risk of exposure to product liability claims in the event that injuries result from product usage by customers. It is possible that our products could result in injury, whether by product malfunctions, defects, improper installation, or other causes. If such injuries or claims of injuries were to occur, we could incur monetary damages and our business could be adversely affected by any resulting negative publicity. The successful assertion of product liability claims against us could result in potentially significant monetary damages and, if our insurance protection is inadequate to cover these claims, could require us to make significant payments from our own resources.

We expect to face intense competition that could result in failing to gain market share and suffering reduced revenue from our portable power source products.

We plan to serve intensely competitive markets that are characterized by price erosion, rapid technological change, and competition from major domestic and international companies. This intense competition could result in pricing pressures, lower sales, reduced margins, and lower market share. Most of our competitors have greater market recognition, larger customer bases, and substantially greater financial, technical, marketing, distribution, and other resources than we possess and that afford them competitive advantages. As a result, they may be able to devote greater resources to the promotion and sale of products, to negotiate lower prices for raw materials and components, to deliver competitive products at lower prices, and to introduce new product solutions and respond to customer requirements more quickly than we can. Our competitive position could suffer if one or more of our customers determine not to utilize our portable power source products and instead decide to contract with our competitors or to use alternative technologies.

Our ability to compete successfully will depend on a number of factors, both within and outside our control. These factors include the following:

- our success in designing and introducing new portable power source products;
- our ability to predict the evolving needs of our customers and to assist them in incorporating our technologies into their new products;
- our ability to meet our customer□s requirements for small size, low weight, peak power, longpower duration, ease of use, reliability, durability, and small form factor;
- the quality of our customer services;
- the rate at which customers incorporate our products into their own products;

- product or technology introductions by our competitors; and
- foreign currency fluctuations, which may cause a foreign competitor's products to be priced significantly lower than our products.

We depend on key personnel who would be difficult to replace, and our business will likely be harmed if we lose their services or cannot hire additional qualified personnel.

Our success will depend substantially on the efforts and abilities of our senior management and key personnel. The competition for qualified management and key personnel, especially engineers, is intense. Although we maintain non-competition and non-disclosure covenants with most of our key personnel, we do not have employment agreements with most of them. The loss of services of one or more of our key employees or the inability to hire, train, and retain key personnel, especially engineers and technical support personnel, and capable sales and customer-support employees outside the United States, could delay the development and sale of our products, disrupt our business, and interfere with our ability to execute our business plan.

Our operating results may experience significant fluctuations.

In addition to the variability resulting from the short-term nature of our customers' commitments, other factors will contribute to significant periodic and seasonal quarterly fluctuations in our results of operations. These factors include the following:

- the cyclicality of the markets we serve;
- the timing and size of orders;
- the volume of orders relative to our capacity;
- product introductions and market acceptance of new products or new generations of products;
- evolution in the life cycles of our customers' products;
- timing of expenses in anticipation of future orders;
- changes in product mix;
- availability of manufacturing and assembly services;
- changes in cost and availability of labor and components;
- timely delivery of product solutions to customers;
- pricing and availability of competitive products;
- introduction of new technologies into the markets we serve;
- pressures on reducing selling prices;
- our success in serving new markets; and
- changes in economic conditions.

Accordingly, you should not rely on period-to-period comparisons as an indicator of our future performance. Negative or unanticipated fluctuations in our operating results may result in a decline in the price of our stock.

Item 2: Properties

We lease office, manufacturing and research and development space in the following locations:

Location	Segment	Primary Use	Approximate Number of Square Feet	Lease Expiration
Albany, NY	Test and Measurement Instrumentation	Manufacturing, office and sales	20,700	2009
Albany, NY	New Energy	Corporate headquarters, office and research and development	23,500	2009
Shanghai, China	New Energy	Representative office	160	2009

We believe our facilities are generally well maintained and adequate for our current needs and for expansion, if required. We further believe that a lease renewal on reasonable terms for these properties may be achieved.

Item 3: Legal Proceedings

At any point in time, we may be involved in various lawsuits or other legal proceedings. Such lawsuits could arise from the sale of products or services or from other matters relating to its regular business activities, compliance with various governmental regulations and requirements, or other transactions or circumstances. We do not believe there are any such proceedings presently pending which could have a material adverse effect on our financial condition.

Item 4: Submission of Matters to a Vote of Security Holders

There were no matters submitted to a vote of our security holders during the fourth quarter of fiscal 2008.

PART II

Item 5: Market for Registrant□s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Price Range of Common Stock

Our common stock is traded on The Nasdaq Capital Market under the symbol □MKTY□. The following table sets forth the high and low sale prices of our common stock as reported by Nasdaq for the periods indicated (for periods prior to May 16, 2008, such prices have been derived by multiplying the actual prices by eight to reflect the reverse split of our common stock that was approved by our stockholders at a meeting held on May 15, 2008, pursuant to which every eight shares of our common stock were combined into one share of our common stock):

	High	Low
Fiscal Year Ended December 31, 2007		
First Quarter	$ 15.44	$ 10.56
Second Quarter	14.40	9.60
Third Quarter	11.28	7.20
Fourth Quarter		