LITHIUM TECHNOLOGY CORP
Form 10-K
April 08, 2010

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

ANNUAL REPORT UNDER SECTION 13 OR 15(D) OF THE SECURITIES EXCHANGE ACT OF 1934

FOR THE FISCAL YEAR ENDED DECEMBER 31, 2009

Commission File Number 1-10446

LITHIUM TECHNOLOGY CORPORATION
(Name of Registrant as Specified in Its Charter)

DELAWARE	13-3411148
(State or Other Jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification No.)

5115 CAMPUS DRIVE, PLYMOUTH MEETING, PENNSYLVANIA 19462
(Address of Principal Executive Offices) (Zip Code)

(610) 940-6090
(Registrant's Telephone Number, Including Area Code)

Securities registered under Section 12(b) of the Exchange Act: NONE.

Securities registered under Section 12(g) of the Exchange Act: COMMON STOCK, PAR VALUE, $0.01

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

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

Indicate by checkmark 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. x Yes o No

Indicate by checkmark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in part III of this Form 10-K or any amendment to this Form 10-K. x Yes o No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a small reporting company. See definition of "large accelerated filer", "accelerated filer", and "smaller reporting

company" in Rule 12B-2 of the Exchange Act.

Larger Accelerated Filer o	Accelerated Filer o
Non-Accelerated Filer o	Small Reporting Company x

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

The aggregate market value of the voting common stock held by non-affiliates on June 30, 2009 (the last business day of our most recently completed second fiscal quarter) was $13,909,659 using the closing price of $ 0.03 on June 30, 2009.

As of March 31, 2010, the registrant had issued and outstanding 1,803,839,699 shares of common stock.

Documents Incorporated by Reference: None.

TABLE OF CONTENTS

CURRENCY AND EXCHANGE RATES

All monetary amounts contained in this Report are, unless otherwise indicated, expressed in U.S. Dollars. On December 31, 2009, the noon buying rate for Euros as reported by the Federal Reserve Bank of New York was €0.697 to $1.00 U.S.

PART I

ITEM 1. BUSINESS

BUSINESS OVERVIEW

Lithium Technology Corporation ("LTC" or the "Company") is a global manufacturer and provider of rechargeable energy storage solutions for diverse applications. The Company designs and builds a limited amount of large format, cylindrical lithium-ion (Li-ion) rechargeable cells and engineers and builds lithium-ion (Li-ion) rechargeable batteries complete with battery management systems for use in transportation, military/national security and stationary power markets. LTC also manufactures its own unique large format, cylindrical cells. The Company believes that it builds the largest high power cells and batteries in the world. Our cells have a higher wattage rating per weight or volume than any other producer of large cells and batteries. The Company's leading technology capabilities, manufacturing infrastructure and management strengths enable it to provide a unique breadth of solutions in battery design, manufacturing, marketing, and delivery. Industrial, retail and government customers include Porsche, Eaton, DesignLine International, Arvin Meritor, Volkswagen, Frazer Nash, Duracar, RUF/Siemens, US Hybrid, Enersys, ArvinMeritor, ZF, NASA, Lockheed Martin, ThyssenKrupp, scientific research facilities and the national defense agencies of the United States, United Kingdom and Germany, among others.

The transportation, military, and stationary power markets continue to demonstrate that lithium-ion is the technology of choice for advanced battery applications placing us at the threshold of a period of significant growth.

The Company's rechargeable lithium battery technology basis dates back to 1983. Since 1983, LTC has evaluated a wide range of lithium battery technologies. These evaluations have involved coating a wide variety of electrode materials, including those for Li-ion liquid, lithium metal and lithium polymer chemistries, onto a variety of substrates, including solid foils, expanded metal grids and fiber webs. The Company has engaged in high-yield pilot line operations since 1996. Over the last eight years, various manufacturing steps were adapted to our pilot line to accommodate new techniques. These factors have allowed us the flexibility to match the battery design to the application. In 1997, we began focusing on unique large footprint cells and large battery assemblies comprised of large number of cells and control circuitry. LTC's manufacturing practices and know how combined with advanced in-house R&D efforts and collaborative relationship with material developers (i.e.: Süd-Chemie/Phostech, BASF, ConocoPhillips, etc.) and research institutions have positioned the Company ahead of its competitors. LTC is not dependent on one type of chemistry, but can adapt to new developments in any of its target markets. As an example, when management of the Company identified the movement of the transportation industry toward the cathode materials of iron-phosphate toward the end of 2006, the Company geared efforts to manufacture large format high power cells (18AH, 36AH), which are the biggest of its kind today in the market. In February of 2008 the Company launched its product line of High Energy iron-phosphate, which completes the Company's product offering with regards to iron-phosphate chemistry. In 2008 the Company sold the assets used in production in its pilot flat cell production facility in Plymouth Meeting and reduced its cylindrical cell portfolio, which are manufactured at the Company's manufacturing plant in Nordhausen Germany. Batteries which are designed and assembled to customer requirements are assembled at the customer's premises for the US market or in Nordhausen for the European market. We are working to introduce other chemistries that will add benefit to the end customers, but all within the Li-ion field. In recent years, we have extended our expertise to the assembly of fully engineered batteries complete with

battery management systems.

GAIA Akkumulatorenwerke GmbH ("GAIA"), our wholly owned subsidiary, began as a venture business to commercialize proprietary, novel manufacturing technology in 1996. GAIA had developed technology to continuously extrude Li-ion polymer electrodes and a separator containing the final electrolyte solution. This simplifies the manufacturing process by eliminating process steps such as drying coatings, extraction of plasticizer, and cell activation with electrolyte solution. The result is a liquid-free process that operates at lower cost and with minimal emission of caustic organic solvents. GAIA's plant is a modern facility with state-of-the-art automated equipment for extrusion/coating, lamination, winding, packaging and formation/testing.

In 2000, after four years of development, the GAIA team of experienced industrial managers, battery development engineers and production engineers succeeded in advancing GAIA's lithium polymer technology to the pilot production stage.

LTC merged with GAIA in 2002, where the surviving entity is LTC, and GAIA is the wholly owned subsidiary. By the end of 2003, LTC and GAIA cooperation resulted in the development of several new cylindrical cell designs for use in HEV batteries and in national security applications. Additionally, LTC continued to manufacture flat cells of the same chemistry for unique applications.

We have two principal centers of operation – in Plymouth Meeting, Pennsylvania and in Nordhausen, Germany. The Plymouth Meeting office is also our corporate headquarters. Sales into the U. S. and European markets are managed out of each of the offices. Our strategic business plan incorporates a unified approach by our two locations to overall business strategy, procurement, production, market and competitive analysis, customer contact plans, marketing, public relations/investor relations, sales, distribution, securing future joint venture relationships for manufacturing and distribution, future resource needs, and financial matters. We have spent nearly $135 million advancing our technologies, and we are now in a position to manufacture and sell highly reliable, cost-effective advanced lithium-ion rechargeable batteries to our target market segments, to further develop our technology, and to license our technology to other parties. All technology, research and development and all cell product development is concentrated in Nordhausen, Germany, where we manufacture our cells.

We have financed our operations since inception primarily through equity and debt financings, loans from shareholders, including loans from Arch Hill Capital N.V. and related parties, loans from silent partners and bank borrowings secured by assets. The Company's operating plan seeks to minimize its capital requirements, but the expansion of its production capacity to meet increasing sales and refinement of its manufacturing process and equipment will require additional capital. The Company expects that operating and production expenses will increase significantly to meet increasing sales. For this reason the Company restructured its business starting in the third quarter of 2008, by abandoning its flat cell production activity and streamlining its cylindrical cell production in Nordhausen Germany. Going forward the US operation will assemble batteries to customer needs for the US market. Batteries for the EU market will be assembled in Nordhausen Germany. The Company has recently entered into a number of financing transactions and raised approximately $9.5 million in net proceeds in convertible debt financing transactions from January to December 2009 (see Notes 4 and 7). The Company is continuing to seek other financing initiatives and needs to raise additional capital to meet its working capital needs, for the repayment of debt and for capital expenditures. Such capital is expected to come from the sale of securities. The Company believes that if it raises approximately $7 million in debt and equity financings it would have sufficient funds to meet its needs for working capital, repayment of debt and for capital expenditures over the next twelve months and to meet expansion plans. See "Management's Discussion and Analysis of Financial Condition and Results of Operations."

No assurance can be given that we will be successful in completing these or any other financings at the minimum level necessary to fund our working capital or to complete our product commercialization or at all. If we are unsuccessful in completing these financings, we will not be able to fund our working capital requirements, product commercialization or execute our business plan. These conditions raise substantial doubt about our ability to continue as a going concern.

CORPORATE INFORMATION

We combined the operations of LTC with GAIA, a private lithium polymer battery company headquartered in Nordhausen, Germany, in a share exchange in 2002. In the share exchange Lithium Technology Corporation acquired a 100% interest in GAIA through the acquisition of 100% of the outstanding shares of GAIA Holding B.V., a Netherlands holding company. Subsequent to the share exchange, Arch Hill Capital, NV controls us. Lithium Technology Corporation, GAIA Akkumulatorenwerke GmbH, GAIA Holding B.V. and all of the subsidiaries of Lithium Technology Corporation, GAIA Akkumulatorenwerke GmbH, and GAIA Holding B.V are collectively referred to herein as the "Company", "we" or "us".

Arch Hill Capital N.V., a private company limited by shares incorporated under the laws of the Netherlands, controls Arch Hill Ventures. In November 2004, Arch Hill Capital and Arch Hill Ventures transferred all LTC securities owned by such entities to Stichting Gemeenschappelijk Bezit GAIA ("Stichting GAIA") and Stichting Gemeenschappelijk Bezit LTC ("Stichting LTC"). Stichting LTC is controlled by Arch Hill Capital.

LTC is a Delaware corporation that was incorporated on December 28, 1995. LTC's predecessor - Lithium Technology Corporation (a Nevada corporation previously named Hope Technologies, Inc.) - merged with and into LTC in a reincorporation merger that became effective on February 8, 1996. The executive office of LTC is located at 5115 Campus Drive, Plymouth Meeting, Pennsylvania 19462, telephone number: (610) 940-6090.

LTC holds 100% of the outstanding shares of GAIA Holding B.V., a Netherlands holding company. GAIA Holding is a private limited liability company incorporated under the laws of the Netherlands on February 2, 1990, with a statutory seat at The Hague (the Netherlands) and office address at Parkweg 2, 2585 JJ, The Hague, the Netherlands. GAIA Holding is the legal and beneficial

owner of all of the issued and outstanding shares of Lithiontech B.V., a Netherlands company limited by shares that was formed on February 8, 1999. Lithiontech has the legal and beneficial ownership of all the issued and outstanding shares of DILO Trading AG, a Switzerland company limited by shares that was formed on September 11, 1975 and Lithiontech Licensing B.V., a Netherlands company limited by shares that was formed on February 8, 1999. Lithiontech Licensing BV was an inactive company, so in 2009 the company filed to close Lithointech Licensing BV and approval was granted. DILO Trading holds patents for which the intellectual property was developed by DILO Trading in collaboration with GAIA. Until 2008 GAIA held a worldwide, exclusive license for all these patents. In the future, we anticipate GAIA will pay a royalty to license intellectual property owned by DILO Trading which is used by GAIA. License fee structure will depend on the exclusivity level and regional coverage that GAIA wants to obtain from DILO Trading. For those patents that GAIA will not retain global exclusivity, and DILO Trading will look for other license partners.

GAIA Holding is the beneficial owner of all of the issued and outstanding shares of GAIA Akkumulatorenwerke GmbH ("GAIA"). Legal ownership of the outstanding shares of GAIA are held pursuant to certain Dutch and German trust agreements by two Netherlands entities ("Nominal Stockholder") for the risk and account of GAIA Holding. Based on the Dutch and the German trust agreements, the Nominal Stockholders are obliged to transfer the legal ownership of the shares in GAIA without any further payments to GAIA Holding to a third party designated by GAIA Holding on the demand of GAIA Holding. Pursuant to the trust agreements, GAIA Holding has the right to vote the shares of GAIA held by the Nominal Stockholders.

LTC and GAIA Holding, Arch Hill Ventures and the Nominal Stockholders are parties to an agreement which provides that without LTC's prior written consent, GAIA Holding may not directly or indirectly transfer or instruct any party to transfer the legal ownership of the shares of GAIA held by the Nominal Stockholders to any party other than to GAIA Holding and that upon LTC's written direction, GAIA Holding will instruct the Nominal Stockholders to transfer the legal ownership of the shares of GAIA held by the Nominal Stockholders to GAIA Holding for no payment. The agreement further provides that at such time as the parties determine that there would no longer be any possible adverse tax effect as a result of the transfer of the GAIA shares to GAIA Holding, then the legal ownership of the GAIA shares held by the Nominal Stockholders shall be transferred to GAIA Holding without any payment.

GAIA is a private limited liability company organized under German law on April 4, 1996. GAIA is located at Montaniastrasse 17, D-99734 Nordhausen/Thuringia, Germany, telephone number: 011 49 3631 616 70.

For consolidation of the financial reports, LTC has only one direct subsidiary in Europe, which is GAIA Holding B.V.

LTC holds 100% of the outstanding shares of Lithion Corporation, a Pennsylvania corporation that was incorporated on June 3, 1988.

Since the Company was not current in its SEC filings, the Company's shares ceased trading on the OTCBB on May 31, 2006. The Company's common stock is traded in the over-the-counter market, and "bid" and "asked" prices in the common stock are quoted on the OTC Pink Sheets under the symbol "LTHU". In 2009 the Company filed all of its past due filings, and on November 16, 2009 the Company filed its Form 10Q report for the third quarter of 2009.

Information contained on the LTC web site or GAIA web site (www.lithiumtech.com and www.gaia-akku.com) does not constitute part of this Report.

DEVELOPMENT AND COMMERCIALIZATION PLAN

General

We are engaged in continuing development contract and low volume production of large format lithium-ion rechargeable batteries used as power sources in advanced applications in the national security, transportation and stationary power markets. We have moved from a development and pilot-line production company to a small production business with our lithium-ion rechargeable batteries. Lithium-ion battery acceptance and usage continues to grow in emerging advanced applications in our target markets. With the continuing interest in higher energy density, lighter weight, smaller volume, longer operational life and greater cost effectiveness, lithium batteries are the technology of choice with emerging applications in these markets.

Our mission is to become a leading manufacturer of large format rechargeable lithium power solutions for advanced national security, transportation and stationary power applications. Our business model also includes the licensing of our technology and other collaborative efforts with third parties.

We believe that our large format cylindrical cell designs provide a special advantage for transportation, military/national security and stationary power applications. The target markets continue to confirm that lithium-ion is the technology of choice for advanced battery applications placing us at the threshold of a period of significant growth.

Over the past years, we have successfully focused on producing larger, more consistent runs of standardized cylindrical cells. In the last two years, we have been successful in increasing production, improving quality and yields and reducing production costs. As part of the continuing improvements of our operational performance in 2008 we discontinued the production of flat cells and limited the number of different sizes of cylindrical cells to be produced going forward. We have established several standardized modular battery assembly designs which facilitate the construction of custom batteries. We have expanded our custom battery design activities and we continue to receive favorable feedback from field use and testing by our customers. During 2007 the Company started producing standard batteries for wind generators and robots. In 2008 the Company did offer standard batteries for large transportation applications. In 2009 the Company focused on growing the manufacturing volume of cells and of batteries to improve gross margin and yields. The biggest challenge for the Company going forward will remain its ability to find sufficient (working) capital to increase its manufacturing volume.

In the transportation market, sales of hybrid-electric vehicles (known as HEVs) continue to increase. While sales to U.S. automakers have been slow, we have sold several HEV prototype batteries and modules for evaluation in Europe. GAIA is working with several European automakers and integrators to evaluate lithium technology for hybrid electrical vehicles. In addition, we have been negotiating with small electric vehicle (EV)/HEV manufacturers in England, Israel, the Netherlands and Switzerland for supplying them with large volumes. For some of them we delivered prototype batteries. In 2009, we began delivering starter batteries for Porsche. These batteries, which use our Lithium Iron Phosphate chemistry, will be available as an upgrade to the standard lead acid starter batteries offered in the GT-3 and Boxster models.

The Company has been awarded several contracts in the space of Hybrid Electric Vehicles, Plug-in Hybrid Electric Vehicles and Full Electric Vehicles. In the North American market the Company participated in several successful prototype projects for heavy duty truck, utility and delivery vehicles and municipal buses. These projects vary from the delivery of prototype batteries, to small volume delivery of the same battery to a regular delivery of batteries as part of a fixed delivery schedule to end customers. The Company’s focus for 2010 is to increase the programs in which the Company delivers batteries on a regular basis. The list of customers includes Design Line International, Frazer Nash Research, Eaton, Volkswagen, Duracar/Quicc, US Hybrid, ArvinMeritor, ZF, RUF/Siemens and others.

As a result of our involvement with the military market over the last five years, we have received orders for various prototype batteries and small production runs of both customized cells and batteries from customers. As a result of our continuing involvement with the military market, we have interacted with customers that are actively pursuing new battery technologies. We have been able to apply our battery technology for use with new high tech systems including robots, advanced weapons, launch vehicles and unmanned underwater vehicles (known as UUVs). We have been working with some clients since 2004 for these military applications. In 2009 the Company signed a Distributorship Agreement with Enersys, in which Enersys would become the exclusive global distributor of the Company’s product for the military/national security market. For stationary applications Enersys received a non-exclusive distributorship. Through our partnership with Enersys in 2009 we have delivered cells which are used on the Ruscosmos Proton rockets.

We continue our collaborative relationships for the development of the next generation cathode materials with Süd-Chemie/Phostech. We are a subcontractor to a builder of unmanned underwater vehicles on a contract for Advanced Pressure Tolerant Batteries. We plan to continue to bid on new development contracts and commercial contracts going forward.

Outside the U.S., in 2005 we entered into a development contract for large submarine batteries from Thyssen-Krupp, the world's largest builder of diesel-electric submarines. In 2007 we announced jointly with ThyssenKrupp the successful development of a 500Ah cell and a 40kWh battery module in a technical journal. During 2007, within our operation in Germany, we delivered several large batteries to be used in military applications, and secured additional orders. In the third fiscal quarter of 2009 we began to build a 1.2MWh battery using our 485 Ah cells for the PlanetSolar solar powered circumnavigation. The battery is capable of propelling the boat through the ocean at speeds of approximately 8 knots.

In the stationary power market we supplied prototype batteries for backup control systems for wind generators in Europe.

Products

We manufacture and sell the GAIA product line of large, high power hermetically sealed rechargeable lithium-ion cells and batteries. Our product portfolio includes large format, high power cells ranging from 7.5 to 45 Ah, with very high discharge

capabilities designed for HEV and military applications, and high energy cells from 10 to 500 Amp-hours for various applications. Our products include large batteries up to 600Vand capacity of more than 1.2MWh.

We produce high power cells designed for HEVs and military applications that can discharge hundreds of amps in times as short as a few minutes, and high capacity cells for applications such as back-up power and remote standby installations. Cells are manufactured in cylindrical form and employ proprietary extrusion, design and assembly technologies. We manufacture a variety of standard cells that are assembled into custom large batteries complete with electronics (battery management systems) and electronics to communicate with other components of the system for performance monitoring.

We specialize in working with the customer to engineer solutions using standardized cells in customized configurations. Over the past two years, production volumes have increased in Nordhausen, and we have succeeded in producing long, consistent runs of standardized cells. We have also established a number of standardized modular battery assembly designs which facilitate the customized construction of batteries.

Lithium-ion Battery Market

The lithium-ion battery market is rapidly expanding and maturing. Large format lithium-ion batteries are becoming widely known and accepted, resulting in accelerating market growth. We are benefiting from this expansion of new product applications by being able to be involved in the initial design of these applications. This market expansion is also driving material suppliers to develop higher energy, lower cost and safer raw materials. Increasing volumes of production are being shifted to China and this continues to put downward pressure on pricing. Some of our Asian competitors have introduced high power cells and large formats which emphasizes our need to ramp up quickly and provide custom solutions to capture market share. The Company believes that Lithium-ion is the chemistry of choice for the growing demand for portable devices. The market for other technologies, like nickel-cadmium, is shrinking. Nickel-cadmium still holds a major share for power tools, two-way radios and medical devices. This chemistry is preferred over nickel-metal-hydride for its high durability and reliable service but some countries will ban its use for environmental reasons. Without a major breakthrough, the fuel cell will play an insignificant role in providing power for future applications. Cost, size and performance are the main obstacles. Although continuous in operation by replacing fuel capsules, the fuel cell, as we know it today, still needs a backup battery to satisfy the power requirements of modern portable equipment. It is believed that the electro-chemical battery will keep its present position for some time to come as it has for the last century.

Our Target Markets

We are leveraging our expertise in high power and large battery assemblies to commercialize advanced lithium batteries as a new power source in the transportation, military/national security systems and stationary power markets with a particular focus on the U.S. and European geographic market segments where the customers prefer a domestic supplier. Our sales and marketing efforts are focused on markets where we can obtain a premium by being a western hemisphere, domestic supplier, providing a better product and better service and co-developing custom solutions for new emerging high tech products. Our business plan does not incorporate mass commercial markets in the immediate future from our existing facilities. Entry into these large volume markets is projected though the licensing of our technology and collaborative efforts with third parties.

Transportation Market. Transportation applications require rapid charge/discharge rates and long life in safe, durable high power storage for HEV and fuel cell powered vehicles. Military and heavy duty vehicle original equipment manufacturers have been early adopters of new technology and have taken the lead in the use of large-format lithium-ion batteries. We also see certain European cities moving towards banning gasoline powered vehicles in the city centers as prototype dual mode hybrid vehicles appear.

National Security Market. National Security/Military applications require flexibility in design as the applications encompass a wide range of power output, broad operating temperatures, lower weight and thousands of recharge cycles. Performance is more important than price in this market. We have found our lithium-ion batteries displacing silver-zinc batteries. Over the past years, as we have provided the market with high power batteries, we have also seen new applications emerge in areas such as pulsed defensive weapons. In 2009 the Company signed an Exclusive Distributorship Agreement with Enersys in which they will become the exclusive global distributor of our large format, cylindrical cells for the national security/military market. This Agreement supersedes a Memorandum of Understanding signed with Enersys in 2008.

Stationary Power Market. Stationary Power applications require high-reliability power for telecommunications, computers and other mission critical applications. We believe this presents a very large potential market. Growing

dependence on electrical power worldwide drives the demand for high quality and readily available back-up power. We have also found niches developing in the alternative energy markets.

Strategy for Growth

We envision a four phase evolution to achieving our mission of being a leader in rechargeable lithium-ion battery solutions for high power applications:

PHASE I (begun in 2005), Standard cells and Custom Engineered Batteries: Innovators and early adopters; customers with applications where performance is more important than cost. Such customers are willing to pay a premium for advanced high power and high energy Li-ion rechargeable batteries, and generally require relatively small quantities. Sales increase through funded development contracts and through sales to military/national security and to select automotive and stationary power/alternative energy.

PHASE II (begun in 2007), Standard cells and High-Tech Specialty Batteries: Early followers; users requiring modest to high volumes with low to moderate price sensitivity. Expansion of business via strategic partnerships to deepen presence in existing markets and to gain entry into new markets.

PHASE III (begun in 2008), Initial Commodity Products: OEM beta testing and engineering development in partnership with major industry players in need for qualifying new battery technology for large scale commercial applications; penetrate additional markets through joint-ventures per market segment.

PHASE IV (starting in 2010), Mass market production: The Company anticipates that the cost of large format Li-ion batteries after 2010 will decrease such that volume scale-up to address large volume, price-sensitive mass market applications will be viable. For these applications, the Company anticipates to increase its production capacity further through several joint-ventures in several countries with industry-specific local partners and to enter into technology licensing relationships with one or several major battery manufacturers.

COMPETITION

Competition in the battery industry is, and is expected to remain, intense. The lithium-ion battery market is rapidly expanding and maturing. Large format Lithium-ion batteries are becoming more widely known and accepted resulting in accelerating market growth. We are benefiting from this expansion of new product applications by being involved in the initial design of these applications rather than competing directly with low cost mass-market 18650 cells from Asia. This market expansion is also driving material suppliers to develop higher energy, lower cost and safer products. Increasing volumes of production are being shifted to China and this continues to increase downward pressure on pricing. Some of our Asian competitors have introduced high power cells and large formats which emphasizes our need to ramp up quickly and provide custom solutions to capture market share. Our sales and marketing efforts are focused on markets where we can obtain a premium by providing superior, robust and reliable products and being viewed as a domestic supplier. Additionally, we strive to provide better service and co-develop custom solutions for new emerging high tech products with our clients to establish a good reputation in the market place. Our business plan does not incorporate mass commercial markets in the immediate future from our existing facilities. Entry into these large volume markets is projected though building additional manufacturing facilities and collaborative efforts with third parties.

In our target markets of transportation and stationary power systems, the principal competitive technologies are currently lead acid and nickel-metal hydride. We believe that lithium-ion batteries can enter specific niches of this segment of the rechargeable battery market, which is important for wide acceptance of our products. We believe that lithium-ion batteries will be the dominant chemistry in the HEV market, which requires constant fast cycle charge and

discharge, high rate regenerative braking and operations over a wide range of temperatures. We also believe that there will be certain limited niches in the stationary power market where new products will be able to compete based upon superior performance and better energy density, hence, less weight.

The rechargeable battery industry consists of major domestic and international companies, many of which have financial, technical, marketing, sales, manufacturing, distribution and other resources substantially greater than ours. We compete against companies producing lithium batteries as well as other primary and rechargeable battery technologies. Our primary competitors in the national security market are: Saft, Eagle-Pitcher, The Yardney Technical Products, Inc. and Ultralife Batteries, Inc. Our primary competitors in the Transportation Market are: Johnson Controls, Inc./Saft, Panasonic, EV Energy Co. (Majority owned by Toyota), The Sanyo Group of Companies, Delphi Automotive Systems, A123 Systems, and Ener1 Group. Our primary partner in the military/national security and stationary power market is Enersys.

INTELLECTUAL PROPERTY

As of December 31, 2009, LTC and its subsidiaries hold 29 issued patents in Europe and 15 in the United States and have 48 pending patent applications, 33 in Europe and 15 in the United States. Additionally, the Company holds 12 “utility Models” in Europe (essentially a limited patent) and 11 Trademarks. DILO Trading holds patents for which the intellectual property was developed by DILO Trading in collaboration with GAIA. DILO Trading has granted GAIA the right to use these patents exclusively. This exclusivity will be reconsidered in 2010. Although we believe that the pending patent applications will be granted, no assurance to this effect can be given.

We also have proprietary knowledge that is in the patent disclosure stage or that we protect as trade secrets. Our early patents relate to materials and construction for lightweight solid-state rechargeable batteries. Our later patents and applications relate to improvements to the technology contained in the first patents or to other key aspects of rechargeable lithium battery technology. There is no current or, to our knowledge, threatened litigation regarding our patents.

We also rely on unpatented proprietary information to maintain and develop our commercial position. Although we seek to protect our proprietary information, there can be no assurance that others will not either develop independently the same or similar information or obtain access to our proprietary information. In addition, there can be no assurance that we would prevail if we were to challenge intellectual property rights claimed by third parties that we believed infringed upon our rights or that third parties will not successfully assert infringement claims against us in the future.

Our employees are required to enter into agreements providing for confidentiality and assignment of rights to inventions made by them while employed by us. There can be no assurance that these agreements will be enforceable by us.

RAW MATERIALS

We purchase various raw materials for use in our batteries. Certain materials used in our products are available only from a limited number of sources. The industry currently has sufficient capacity to meet our needs. There is no assurance, however, that our sources will remain available or the currently adequate supply of raw materials will continue.

RESEARCH AND DEVELOPMENT

We devote substantial resources to technology development activities related to the development of our cells. Our research has focused upon bringing existing available technology to viable commercial production for specific applications. The majority of our effort is directed toward product quality, process yield improvement, identifying alternative raw materials and supplies for use in our batteries, and cost reduction. We seek evolutionary improvements for cell and battery design, including controls. We evaluate new materials, which are not direct substitutes, for use in our batteries, but offer advantages such as cost, safety or performance. Lithium Iron Phosphate is one such material which results in cells that are intrinsically safe from overcharge or short circuit. Such a development is critical to the development of the automotive and consumer markets.

EMPLOYEES

As of December 31, 2009, we employed a total of 9 full-time employees at LTC, and 69 full-time employees at GAIA. None of our employees at LTC or GAIA are represented by a labor union. We consider our employee relations to be good.

GOVERNMENT REGULATION, SAFETY, ENVIRONMENTAL COMPLIANCE

We are subject to the requirements of U.S. federal, state, local and non-U.S. environmental and occupational safety and health laws and regulations. These include laws regulating air emissions, water discharge and waste management. Although it is our intent to comply with all such requirements and regulations, there can be no assurance that we are at all times in compliance. Environmental requirements are complex, change frequently and have tended to become more stringent over time. Accordingly, there can be no assurance that these requirements will not change or become more stringent in the future.

As with any battery, our lithium-ion batteries can short circuit when not handled properly. Due to the high energy and power density of lithium-ion batteries, a short circuit can cause rapid heat buildup. Under extreme circumstances, this could conceivably cause a fire. This is most likely to occur during the formation and/or testing phase of our process. We incorporate safety procedures in our battery testing lab to minimize safety risks, although there can be no assurance that an accident in any part of our facilities where charged batteries are handled will not occur. Any such accident could require an internal investigation by our

technical staff, causing delays in further development and manufacturing of our products, which could adversely affect our operations and financial condition. Likewise any battery that is abused by a customer, could, under extreme circumstances, conceivably cause a fire. We employ all appropriate design and electronic protections. We also carry product liability insurance.

Our manufacturing process incorporates pulverized solids, which can be toxic to employees when allowed to become airborne in high concentrations. We have incorporated safety controls and procedures into our manufacturing processes designed to maximize the safety of our employees and the area surrounding our production facilities. Any related incident, including fire or personnel exposure to toxic substances, could result in significant production delays or claims for damages resulting from injuries, which could adversely affect our operations and financial condition.

The U.S. Department of Transportation and the International Air Transport Association regulate the shipment of lithium-ion batteries. A permit is required to transport both our lithium cells and custom engineered batteries from our manufacturing facilities. No assurance can be given that we will not encounter any difficulties in complying with future or amended U.S. Department of Transportation or International Air Transport Association regulations or regulations developed by other agencies such as the International Civil Aviation Organization or International Maritime Dangerous Goods.

ITEM 1A. RISK FACTORS

Not applicable because we are a smaller reporting company.

ITEM 2. PROPERTIES

LTC was leasing a 12,400 square foot facility at 5115 Campus Drive in Plymouth Meeting, Pennsylvania pursuant to a Lease Agreement with PMP Whitemarsh Associates dated July 22, 1994, as amended. The facility was being leased under a one-year lease extension that commenced on April 1, 2008 and ended on March 31, 2009. The base annual rent under this lease agreement was $160,000. LTC did not extend the lease after March 31, 2009. In August 2008 the Company signed an Asset Purchase Agreement with Porous Power Technologies and a Sublease Agreement with Porous Power Technologies. Under the Asset Purchase Agreement, we sold some of the assets in Plymouth Meeting to Porous Power Technologies. Other assets which could be of use to the Company at its manufacturing facility in Nordhausen, Germany were shipped from Plymouth Meeting to Nordhausen, Germany. Porous Power Technologies was a sub-tenant to the Company at the Company’s facility from August 2008 to March 31, 2009. Porous Power Technologies signed a lease agreement for the Plymouth Meeting facility on April 1, 2009. The Company signed a six month sub-lease agreement with Porous Power Technologies for total rent of $42,000 ($7,000 per month), with the possibility to extend the sub-lease for 3 month periods. The Company has extended its sublease and anticipates continuing to remain as a sub-tenant in the Plymouth Meeting location for the foreseeable future. This facility has sufficient space to meet our near-term needs in the United States. Our corporate headquarters are located at the Plymouth Meeting, Pennsylvania facility.

GAIA owns an approximately 150,000 square foot renovated facility in the city of Nordhausen, Thuringia Germany. This facility has sufficient space to meet our near-term needs in Europe and can be upgraded to increase production capacity significantly. The facility also includes a laboratory, quality control spaces and offices for the European sales and management teams. At this facility we have sufficient equipment to be able to produce up to 40,000 cells per annum. By investing limited amounts the Company will be able to increase the production capacity. The facility has sufficient space to meet our near-term needs in Europe.

ITEM 3. LEGAL PROCEEDINGS

Andrew J. Manning, a former employee of the Company, filed a complaint in October 2008, in the Superior Court of New Jersey, Morris County, Law Division, against the Company and other parties, alleging breach of contract, breach of covenant of good faith and fair dealing, negligent misrepresentation, tortious interference with Mr. Manning's economic gain, retaliation, unjust enrichment, and intentional infliction of emotional distress. The Company and management believe that the allegations in the Complaint have no merit and the Company intends to vigorously defend the suit. This matter has not been resolved as of the date hereof.

From time to time, the Company is a defendant or plaintiff in various legal actions which arise in the normal course of business. As such the Company is required to assess the likelihood of any adverse outcomes to these matters as well as potential ranges of probable losses. A determination of the amount of the provision required for these commitments and contingencies, if any, which would be charged to earnings, is made after careful analysis of each matter. The provision may change in the future due to new developments or changes in circumstances. Changes in the provision could increase or decrease the Company's earnings in the period the changes are made.

ITEM 4. (REMOVED AND RESERVED)

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

MARKET INFORMATION

The Company's common stock is traded in the over-the-counter market, and "bid" and "asked" prices in the common stock are quoted on the OTC Pink Sheets under the symbol "LTHU". The following table sets forth certain information with respect to the high and low bid prices for our common stock as of the close of each of the four calendar quarters of 2009 and 2008. Such quotations reflect inter-dealer prices, without retail mark-ups, mark-downs or commissions, and may not represent actual transactions.

	Bid Prices for Common Stock	
	High	Low
2009		
Fourth Quarter	0.060	0.040
Third Quarter	0.070	0.020
Second Quarter	0.040	0.020
First Quarter	0.060	0.030
2008		
Fourth Quarter	0.110	0.050
Third Quarter	0.100	0.060
Second Quarter	0.090	0.050
First Quarter		