LITHIUM TECHNOLOGY CORP
Form 10KSB
April 14, 2004
Table of Contents

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 10-KSB

(Mark One)

x ANNUAL REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.

For the fiscal year ended December 31, 2003

OR

¨ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.**

For the transition period from _____ to _____

Commission File Number 1-10446

LITHIUM TECHNOLOGY CORPORATION

(Name of Small Business Issuer 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

(Issuer 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

Check whether the issuer: (1) filed all reports required to be filed by Section 13 or 15(d) of the Exchange Act during the past 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 ¨

Check if there is no disclosure of delinquent filers in response to Item 405 of Regulation S-B contained in this form, and no disclosure will be contained, to the best of registrant s knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-KSB or any amendment to this Form 10-KSB. x

State issuer s revenues for its most recent fiscal year. $229,000.

State the aggregate market value of the voting and non-voting common equity held by non-affiliates computed by reference to the price at which the common equity was sold, or the average bid and asked prices of such common equity, as of a specified date within the past 60 days. Approximately $6,615,781 as of April 8, 2004. The aggregate market value was based upon the mean between the closing bid and asked price for the common stock as quoted by the NASD OTC Electronic Bulletin Board $2.035.

(ISSUERS INVOLVED IN BANKRUPTCY PROCEEDINGS DURING THE PAST FIVE YEARS)

Check whether the issuer has filed all documents and reports required to be filed by Section 12, 13 or 15(d) of the Exchange Act after the distribution of securities under a plan confirmed by a court. Yes ¨ No ¨

(APPLICABLE ONLY TO CORPORATE REGISTRANTS)

State the number of shares outstanding of each of the issuer s classes of common equity, as of the latest practicable date: As of April 8, 2004, 11,989,130 shares of common stock.

DOCUMENTS INCORPORATED BY REFERENCE

If the following documents are incorporated by reference, briefly describe them and identify the part of the Form 10-KSB (e.g., Part I, Part II, etc.) into which the document is incorporated: (1) any annual report to security-holders; (2) any proxy or information statement; and (3) any prospectus filed pursuant to Rule 424(b) or (c) of the Securities Act of 1933 (Securities Act). The listed documents should be clearly described for identification purposes (e.g., annual report to security holders for fiscal year ended December 24, 1990). None.

Transitional Small Business Disclosure Format (check one): Yes ¨ No x

Table of Contents

TABLE OF CONTENTS

CURRENCY AND EXCHANGE RATES

All monetary amounts contained in this Report are, unless otherwise indicated, expressed in U.S. Dollars. On April 9, 2004, the noon buying rate for Euros as reported by the Federal Reserve Bank of New York was 1.2102 to $1.00 U.S.

Table of Contents

PART I

ITEM 1. DESCRIPTION OF BUSINESS

OVERVIEW AND RECENT DEVELOPMENTS

We are engaged in the development and pilot-line production of large format lithium-ion rechargeable batteries to be used as a new power source in emerging applications in the national security, transportation and stationary power markets. With higher energy density, lighter weight, smaller volume, longer operational life and greater cost effectiveness, we believe that lithium batteries are especially compatible with rapidly emerging developments in these markets. We further believe that our unique large format flat and cylindrical battery designs provide a special advantage for national security, transportation and stationary power applications.

We combined the operations of Lithium Technology Corporation (LTC) with GAIA Akkumulatorenwerke GmbH (GAIA), a private lithium polymer battery company headquartered in Nordhausen, Germany, in a share exchange in 2002 (the Share Exchange). The LTC-GAIA combination has resulted in a merger of our lithium-ion and lithium polymer technologies, product development, manufacturing processes, know-how, market positioning and sales efforts.

In the Share Exchange we acquired a 100% interest in GAIA through our acquisition of 100% of the outstanding shares of GAIA Holding B.V., a Netherlands holding company (GAIA Holding) from Arch Hill Ventures N.V., a private company limited by shares incorporated under the laws of the Netherlands (Arch Hill Ventures) in exchange for our issuance to Arch Hill Ventures of shares of LTC Series A Preferred Stock which were converted into 5,567,027 shares of LTC common stock on February 25, 2004.

Arch Hill Capital N.V., a private company limited by shares incorporated under the laws of the Netherlands (Arch Hill Capital), controls Arch Hill Ventures. Subsequent to the Share Exchange, Arch Hill Capital controls LTC. As a result, the Share Exchange acquisition is accounted for as a reverse acquisition, whereby for financial reporting purposes, GAIA Holding is considered the acquiring company. Hence, the historical financial statements of GAIA Holding became the historical financial statements of the Company and include the results of operations of LTC only from the acquisition date. LTC, GAIA, GAIA Holding and all of the subsidiaries of LTC and GAIA Holding are collectively referred to herein as the Company , we or us .

Our corporate headquarters are located at Plymouth Meeting, Pennsylvania. We have two operating locations GAIA USA in Plymouth Meeting, Pennsylvania and GAIA Europe in Nordhausen, Germany. Our strategic business plan provides for a unified approach by our two locations to overall business strategy; technology research and development; product development; 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.

Table of Contents

We believe that we have the capability to design, develop, build and sell large format lithium-based rechargeable batteries for a variety of advanced applications. The GAIA USA unit has a range of potential customer contacts in U.S. commercial and government circles, while the GAIA Europe unit has the ability to attract and capture German and other European customers. We have a small revenue stream from certain government research and development contracts and prototype sales. We have expended a combined total of more than $50 million in advancing our battery technologies. To date, we have delivered a limited number of prototypes.

We believe that the advantages of our battery technology over other batteries include:

- Higher power and/or energy density
- Rapid recharging
- Longer cycle life
- Lower cost manufacturing process
- More flexible battery designs
- Broader range of operating temperatures, including very low temperatures

In the past, we have worked closely with selected portable electronics Original Equipment Manufacturers (OEMs) exploring various notebook computer, personal digital assistant and wireless handset applications. Over the past four years, we have refocused our unique extrusion-based manufacturing process, cell technology, large battery assembly expertise, and market activities to concentrate on large-format, high rate battery applications. Our commercialization efforts are focused on applying our lithium-ion rechargeable batteries in the national security, transportation and stationary power markets.

Our accompanying consolidated financial statements have been prepared on a going concern basis, which contemplates the continuation of operations, realization of assets and liquidation of liabilities in the ordinary course of business. Since inception, we have incurred substantial operating losses and we expect to incur additional operating losses over the next several years. As of December 31, 2003, we had an accumulated deficit of approximately $37,600,000.

Our operations have been financed primarily through the use of proceeds from equity financings, loans, including loans from Arch Hill Capital, Arch Hill Ventures and other related parties, loans from silent partners and bank borrowings secured by assets.

On January 22, 2004, we sold $2,000,000 of our 10% Convertible Debentures Due 2006 with attached warrants to purchase up to 1,000,000 shares of our common stock in a private placement to an investment group. Continuation of our operations in 2004 is dependent upon obtaining further financing. These conditions raise 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.

Table of Contents

On April 13, 2004, pursuant to a Debt Exchange Agreement between LTC, GAIA Holding, GAIA, Arch Hill Capital and Arch Hill Ventures, we exchanged certain debt owed to Arch Hill Capital and Arch Hill Ventures for our equity securities. $1,587,375 of bridge notes held by Arch Hill Capital and issued in 2002 were exchanged for $1,587,375 of our 10% Convertible Debentures Due 2006 and warrants to purchase up to 793,688 shares of our common stock exercisable at $2.00 per share. $1,412,625 of bridge notes held by Arch Hill Capital and issued in 2003 were exchanged for $1,412,625 of our 10% Convertible Debentures Due 2006 and warrants to purchase up to 706,312 shares of our common stock exercisable at $2.00 per share. $5,459,502 of bridge notes issued in 2003 and $918,159 of bridge notes issued from January 1, 2004 through April 13, 2004 and $323,284 of interest on the bridge notes issued in 2003 and 2004 were exchanged for 6,069,697 shares of our common stock and warrants to purchase up to 10,500,000 shares of our common stock exercisable at $2.40 per share. $23,185,604 of debt owed to Arch Hill Ventures was exchanged for 21,001,453 shares of our common stock.

Our operating plan seeks to minimize our capital requirements, but commercialization of our battery technology will require additional capital. We expect that technology development and operating and production expenses will increase significantly as we continue to advance our battery technology and develop products for commercial applications.

We are currently seeking sources of additional financing, in the form of equity financing, to provide the additional capital in order to fund our current operations, scale-up our production capabilities to take advantage of near-term market opportunities, expand our scope of operations and pursue our business strategy. We believe that if we raise approximately $10,000,000 to $12,000,000 in a debt or equity financing, we would have sufficient funds to meet our needs for at least twelve months. However, no assurance can be given that we will be successful in completing any financing. If we are unsuccessful in completing any financing, we will not be able to fund our current expenses or pursue our business strategy.

CORPORATE INFORMATION

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, 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). 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 (DILO Trading) and Lithiontech Licensing B.V., a Netherlands company limited by shares that was formed on February 8, 1999 (Lithiontech Licensing). DILO Trading holds patents for which the intellectual property was developed by DILO Trading in collaboration with GAIA. GAIA holds a license for all these patents.

Table of Contents

GAIA Holding is the beneficial owner of all of the issued and outstanding shares of GAIA. Legal ownership of the outstanding shares of GAIA are held pursuant to certain Dutch and German trust agreements by two Netherlands entities (the Nominal Stockholders) 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 (the Share Transfer 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 Share Transfer 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 616 670.

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

We effected a reverse stock split on a one-for-twenty share basis on July 28, 2003. All share amounts and prices stated herein give retroactive effect to such reverse stock split.

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

The combination of the LTC and GAIA operations in 2002 created a unique advanced battery company. We believe that the combination of LTC s novel and proprietary electro-chemistry and GAIA s patented lower cost extrusion-based manufacturing process gives us a competitive edge in technology and products.

Table of Contents

With our large-format rechargeable lithium-ion and lithium polymer batteries, we are addressing the national security, transportation, and stationary power markets. We believe that our battery technology and products are superior to other battery technologies and products and that we have only limited competition in North America and Europe for large-format rechargeable lithium batteries. Thus, we believe we are well-positioned to capitalize upon business opportunities in these target markets. We are scaling up a number of products under the GAIA brand name aimed at specific market requirements, and there has been a growing demand for our batteries.

Compared to other battery technologies and products, rechargeable lithium batteries are one-third of the weight and one-half the volume of lead acid batteries and one-half the weight and two-thirds the volume of nickel metal hydride batteries. Moreover, we believe that our technology offers a wide range of product and process advantages when compared to the technology of other rechargeable lithium-ion battery manufacturers.

On the product side, our proprietary large-format GAIA batteries are easily customizable both in cylindrical or flat form factors to suit various size, shape and performance demands. The modularity of common building block cells allows for maximum design flexibility in building batteries to meet OEM customer requirements. Superior product performance is achieved through high power density electro-chemistries that enable high rate discharging and fast charging (15-30 minutes), as well as a very broad range of operating temperatures (-40^0C to $+55^0$C).

On the production side, equipment at the GAIA Europe plant at Nordhausen embodies our patented low-cost, environmentally friendly extrusion process. This simplified and highly effective extrusion technique provides a significant improvement in volume manufacturing operations when compared to the processes used by other lithium-ion battery manufacturers around the world.

Our near-term strategy is to focus on the military market to ramp up sales rapidly. The military market is very large, generally less price sensitive than other markets and has an immediate demand for our technology and products. We have established business contacts with appropriate government and military organizations as well as government contractors executing military contracts requiring advanced power sources.

We believe that the military market will provide the bulk of our near term revenues, however, over the longer term, we expect that transportation applications (Hybrid Electric Vehicles (HEV) and other custom batteries for autos, trucks, buses, etc.) and stationary or back-up power applications (telephone companies, corporate data centers, cell sites, etc.) will provide market opportunities for our technology and products going forward. For these market opportunities, we will seek to enter into joint venture arrangements with established major battery companies to capitalize on our technology and products for these target market segments.

TARGET MARKETS

We plan to leverage our expertise in large format cells and large battery assemblies to commercialize advanced lithium batteries as a new power source in the national security systems, transportation and stationary power markets with a particular focus on the U.S. and European geographic market segments.

Table of Contents

National Security applications demand high power output, broad operating temperatures, low weight, small size, rapid charging and thousands of recharge cycles. Performance is more important than price in the National Security market and the market need is growing quickly. There are immediate retrofit opportunities for military field batteries currently using rechargeable D and CC-cells.

Transportation applications reflect a growing need for long-life, durable high power storage for HEV and 42-volt systems and fuel cells. While this is a small market today, we believe it has mass market potential for the future. Military and heavy duty vehicle OEMs have been early adopters of new technology and are among the first customers for large-format lithium-ion batteries.

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.

NATIONAL SECURITY MARKET

The US and its allies are changing the military landscape. The trend is from infantry divisions to many small, rapidly deployed units using extensive power-intensive electronics. There are numerous requirements for advanced power sources in a variety of applications:

Land Warrior (night goggles, communications equipment, Global Positioning Satellites (GPS), computers, handheld spotlights, etc.)

Silent Watch (stealth operations)

Manned combat support vehicles land-based and underwater

Unmanned reconnaissance and combat support systems airborne, ground, underwater

Satellite surveillance and communications systems

Remotely controlled surveillance, detection and demolition robots

Table of Contents

We believe that:

- Large-format Lithium-ion batteries offer key advantages over competing technologies for various military applications

There are a variety existing applications for our battery products, particularly retrofitting into existing cavities/packs:

- US Military and NATO Allies seek to replace primary batteries with rechargeable batteries US Army Communications & Electronics Command (CECOM) initiative
- US Military seeks rapid recharge capability for field batteries (CECOM initiative)
- US Military seeks lighter weight automotive batteries for military vehicles to reduce air transport weight

There are developing applications and trends which demonstrate a growing need for advanced batteries in a number of areas:

- US Department of Defense Future Combat Systems Program is defining numerous unmanned vehicle applications that will require advanced rechargeable batteries
- US Army Tank & Armaments Command (TACOM) is developing HEV platforms to reduce fuel consumption (supply line problem)
- TACOM is developing electric vehicle (EV) platforms to reduce emissions on military bases
- Unmanned Aerial Vehicles (UAVs) need advanced batteries for surveillance and ordinance delivery
- Military Robotics need advanced batteries for surveillance
- Navy submarines and All Electric Ship Applications need advanced batteries

TRANSPORTATION MARKET

A fundamental shift is underway to add increasing quantities of electronics to conventional vehicles. The 12-volt standard system lacks the necessary power, and automakers are examining various higher voltage alternatives. There is no clear industry trend at this time, but we believe we are well positioned to address the developing market for higher voltage systems. Recent developments are as follows:

- A 42-volt lead acid system was introduced in Japan in 2002

We delivered 42-volt prototypes to OEMs in the US and Europe

Table of Contents

Hybrid Electric Vehicles are gaining increasing market acceptance. Existing nickel-metal hydride batteries are heavy, expensive, and intolerant of temperature variations. Present niche OEM markets include heavy-duty vehicles, buses, trucks and military vehicles as early adopters of new technology. We believe our GAIA batteries can meet the required specifications.

The market today for All-Electric Vehicles (EV s) is limited to small special purpose vehicles. We believe that our GAIA batteries are well-suited for these applications.

We believe that:

Large-format lithium-ion batteries offer key advantages over competing technologies for various transportation applications

There are existing niche market applications for our products, including:

Opportunities for 12-V Starting-Lighting-Ignition (SLI) and Auxiliary Batteries

HEV and EV experimental trucks and buses

Racing cars and motorcycles

Marine applications

Developing applications and trends will increase the demand for advanced battery systems for the following in the future:

New higher voltage power net systems in automobiles

Heavy duty HEVs for buses, taxis and truck fleets (shorter development time and ideal proving platform for batteries)

Mid-size pickup trucks, electric bikes (for military or law enforcement usage), highway capable Evs

HEVs for automotive OEMs

Table of Contents

Over the longer term, lithium-ion batteries will work in tandem with super capacitors and fuel cells

Our GAIA batteries are well-suited for the developing transportation market applications

STATIONARY POWER MARKET

A growing dependence on digital devices for mission critical applications drives the demand for back-up power and uninterrupted high quality power. This is a very cost-sensitive market and the life cycle value of lithium ion batteries over lead acid batteries is a key market advantage.

Uninterruptible Power Systems (UPS) are public utility back-up systems that do not operate continuously or feed back into the power grid. They generally consist of batteries or banks of batteries that provide power while the grid supply is inoperative and until it is restored. The demand for commercial and industrial UPS applications has tracked the increasing dependence of business on computerized systems. UPS users are seeking more reliable, robust, longer-life and lower maintenance batteries. Communications and data processing infrastructure systems are a specific subset of UPS that need uninterruptible quality power for assured continuity of operations. Applications include telephone landline Points and Presence (POPs), cell sites, CATV, Internet service sites, data centers, and remote locations.

Distributed power systems generally consist of small, continuously operating, self-contained power generating units. These systems often employ high power batteries or capacitors for power control and conditioning functions, and a low power battery for energy storage. These units are privately owned by companies other than public utility companies such as TelCos, industrial firms, hospitals, universities, broadcast networks and data centers and government installations. These power users have determined that they cannot always rely on the power grid to meet their power reliability and quality needs. The energy storage component of distributed power systems currently consists of older battery technology, and there is a demand for advanced, low maintenance, long-life high performance batteries.

In the stationary power market we believe that GAIA products offer higher power and longer life at a lower life cycle cost than current solutions, particularly lead acid batteries. Specifically, we believe that GAIA products offer broader operating temperatures, increased flexibility and lower maintenance and operating costs to telecommunications, cellular, cable television, Internet, and remote users.

We believe that:

Large-format lithium-ion batteries offer key advantages over competing technologies

Table of Contents

There are existing applications where advanced batteries are needed:

Telecom: lower cost of cooling/heating the facilities; less maintenance; remote monitoring.

Solar: less maintenance, longer battery life.

UPS: space/weight savings, higher reliability, less maintenance, longer life and lower life cycle cost.

The developing applications and trends reflect increasing market opportunities for advanced batteries in the future:

New wireless network installations with lower cost infrastructure

Heightened awareness of need for backup systems following 2003 blackout in Northeastern US

Wind and solar power

PATHS TO MARKETS

Our intended paths to the various markets are to:

Obtain funded development contracts

Sell directly to military and niche customers in transportation and stationary power markets

Sell to OEMs in the national security, transportation and stationary power markets

Design to customer specifications

Prototype and advanced product development (customer funds development and pilot production)

Produce small-volume requirements in-house

Establish relationships with major battery manufacturers for large-scale production to meet mass market requirements, including technology licensing, joint ventures and partnerships

Sell products manufactured by joint ventures, partnerships and technology licensees

10

Table of Contents

MILESTONES

In 2002, we delivered a 42-volt automotive battery prototype to BMW under the auspices of the Astor Consortium of seven European auto manufacturers, and in January 2004 delivered a Hybrid Electric Vehicle (HEV) module to the Astor Program. Over the past twelve months, we have shipped our large-format GAIA batteries and cells to a variety of customers under firm purchase orders, including:

A defense systems integrator for a classified UK military application;

An electric bike OEM for a classified military application;

A defense contractor for an Unmanned Aerial Vehicle (UAV) application;

A nuclear power industry OEM for a portable radiation detector;

A phase II feasibility study from a leading submarine builder for a NATO Navy submarine application;

High-end European car manufacturers, including one of the world s leading sports car manufacturers;

A heavy-duty vehicle OEM;

The US Advanced Battery Consortium (The U.S. Big 3 Automakers + Department of Energy); and

Penn State University for an HEV application in a future truck competition entry.

TECHNOLOGY OVERVIEW

Our rechargeable lithium battery technology base dates back to 1983. Since 1983, LTC has evaluated a wide array of lithium-ion cell designs covering a broad spectrum of applications. These evaluations have involved coating a wide variety of electrode materials, including those for lithium-ion liquid, lithium metal and lithium polymer chemistries, onto a variety of substrates, including solid foils, expanded metal grids and fiber webs. We have engaged in high-yield pilot line operations since 1996. Over the last seven years, certain manufacturing steps were adapted to our pilot line to accommodate these new techniques. These factors have allowed us the flexibility to match the battery design to the application. In recent years, we have extended our experience to the assembly of full batteries complete with battery management systems. In 1997, we began focusing on unique large footprint flat cells and large battery assemblies comprised of stacked cells and control circuitry.

GAIA began as a venture business based upon proprietary, novel manufacturing technology in 1996. GAIA has developed technology to continuously extrude lithium-ion polymer electrodes and the separator that contains the final electrolyte solution. This simplifies the manufacturing process by eliminating process steps such as drying coatings, extraction of plasticizer, and cell

11

Table of Contents

activation with electrolyte solution. The result is a liquid-free process that operates at lower cost and with minimal emission of organic solvents. GAIA Europe unit 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 our GAIA Europe unit s lithium polymer technology to the pilot production stage. By the end of 2001, the GAIA Europe unit had developed two new types of cylindrical cells which will be used in HEV batteries and in national security applications.

Our lithium-ion and lithium polymer batteries encompass both thin, flat prismatic cells and large wound cylindrical and prismatic cells. Our proprietary technology includes critical composition, processing, and packaging aspects of the battery. We also have experience in cell and battery manufacturing processes. Our coating, lamination and extrusion know-how enables us to achieve uniformity and consistency through a range of application techniques. We have the ability to handle large footprint cells and assemble cells into large battery stacks. In addition, we are familiar with many coating, lamination, extrusion, assembly, packaging, and formation equipment suites which can be scaled up for large volume operations.

Currently our electrodes are extruded and laminated on to foil current collectors. Work is ongoing to streamline the operation to an extrusion coating directly on to foil, while the separator will remain extruded. The resulting components are then wound and/or laminated together into thin, lightweight, flexible form factor polymer cells and packaged in either flat or cylindrical cell geometries. Batteries for the consumer, transportation, and industrial markets require different electro-chemical systems that we believe can be easily accommodated by our extrusion process. We also believe that our extrusion process can be applied to producing supercapacitators and electrodes for fuel cells.

The technological advantages of lithium-ion over other chemistries are as follows:

Versus lead acid:

Lithium-ion is 1/3 the weight and 1/2 the volume

Better suited to pulse power generated by regenerative braking (HEVs and EVs)

Wider range of temperature tolerance

No deterioration of capacity when kept at a low state of charge

Versus nickel-metal hydride:

Lithium-ion is 1/2 the weight and 2/3 the volume

Wider range of temperature tolerance

Better suited to pulse power generated by regenerative braking (HEVs and EVs)

Table of Contents

- Less heat generation
- Less complex batteries and therefore less prone to failure (lithium-ion operates at 3.6V versus 1.2V for NiMH and therefore requires one-third the number of cells in order to attain the same voltage)

We believe that our GAIA cells and batteries have the following differentiators:

- Large and modular cells for design flexibility
  - Common building blocks (cylindrical, prismatic cells and flexible flat cells) allow for various sizes, shapes and performance demands
- Very low and high operating temperatures from -40ºC to +55ºC
- Proprietary chemistry and technical design for superior performance, safety and long operating life
  - Low internal resistance allows for high power output and rapid charging with limited heat generation
  - Chemistry and design meets stringent safety demands
  - Many thousands of charge/discharge cycles (between 30 and 80 % depth of discharge)
- Proprietary manufacturing process
  - Low cost extrusion and assembly allows scalability and opportunity for high gross margins
  - Environmentally friendly (no solvents)

Our GAIA Europe plant employs a proprietary extrusion-based process (versus solvent-based processes used by competitors) in the manufacturing of our rechargeable large-format lithium-ion batteries. This environmentally-friendly proprietary process reduces the costs of raw materials, labor, energy and capital in comparison to solvent-based production processes.

COMPETITION

Competition in the battery industry is, and is expected to remain, intense. 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 and lithium polymer batteries will enter this segment of the rechargeable battery market in the near future. We believe that lithium-ion and lithium polymer batteries will compete in this market based on superior performance and life cycle, particularly in the HEV market which requires constant deep cycle

charge and discharge, high rate regenerative braking and operation over a wide range of temperatures.

Table of Contents

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., Exide Technologies, Saft, Panasonic EV Energy Co., Ltd., The Sanyo Group of Companies, Delphi Automotive Systems, and Trojan Battery Company. Our primary competitors in the stationary power market are EnerSys, Inc., C&D Technologies, Inc. and Avestor.

DEVELOPMENT CONTRACTS AND RESEARCH GRANTS

We had revenue from development contracts and prototype sales of $229,000 and $121,000 for the years ended December 31, 2003 and 2002, respectively. In addition, we received a total of $885,000 and $1,112,000 from foreign government subsidies (research grants) for the years ended December 31, 2003 and 2002, respectively. As of April 13, 2004, the GAIA Europe unit had two technology research grants with European and German government entities. The end-dates for these grants range from March 2004 to May 2004 (with a possible extension), and the total amount due under these grants in the 2004 fiscal year is expected to be approximately $430,000.

INTELLECTUAL PROPERTY

PATENTS AND PROPRIETARY INFORMATION

As of April 13, 2004, 26 patents have been issued to LTC and LTC has four patent applications pending in the U.S. LTC also pursues foreign patent protection in countries of interest. LTC has been granted three foreign patents and has seven patent applications pending in foreign countries. 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. As of April 13, 2004, five patents have been issued to DILO Trading and DILO Trading has 30 patent applications pending in Europe. 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. The earliest any of our patents expires is 2005. 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.

Table of Contents

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.

LICENSING RELATIONSHIPS AND RELATED MATTERS

We have entered into a cross-license with Valence Technology Corporation with respect to rights relating to U.S. Patent No. 4,997,732 held by Valence (Battery in a Vacuum Sealed Enveloping Material and Process for Making the Same) and rights relating to U.S. Patent No. 5,057,385 held by us (Battery Packaging Construction) and granted certain license/distributorship option rights pursuant to a Japanese consortium technology development agreement entered into in 1996.

In connection with terminating LTC s previously proposed merger with Ilion Technology Corporation (Ilion), we entered into cross licensing agreements with Ilion effective January 8, 2002, whereby worldwide, non-exclusive, royalty free, perpetual licenses were granted by each to the other with respect to certain specified technology. The license from us to Ilion covers all product designs, processing techniques and knowledge known to those skilled in the art whether or not patented or patentable which we owned or possessed on December 31, 2001 and have communicated to Ilion or was developed by us pursuant to the LTC-Ilion merger agreement, solely as the foregoing relates to the materials, design and architecture of lithium-ion/lithium-ion polymer batteries and excluding any of the foregoing as it relates to lithium metal polymer batteries and excluding any improvements to the technology after December 31, 2001. The license from Ilion to us covers all product designs, processing techniques and knowledge known to those skilled in the art whether or not patented or patentable which Ilion owned or possessed on December 31, 2001 and has communicated to us or was developed by us pursuant to the LTC-Ilion merger agreement, solely as the foregoing relates to the materials, design and architecture of lithium-ion/lithium-ion polymer batteries and excluding any improvements to the technology after December 31, 2001.

As part of the licensing arrangement with Ilion, we agreed not to duplicate Ilion s High Power Device product or design or any other aspect of the high power device system that can be protected by patent or may not be determined by outside analysis and agreed to not enter the power conditioning reliability market until the earlier of two years after Proteus Power LLC (or its successor) enters commercial production and December 31, 2004. We do not believe that Ilion-Proteus has yet entered into commercial production of this product. Subject to the foregoing, we have the right to use known conventional construction designs which exist in the commercial marketplace outside of Ilion-Proteus.

In connection with the Share Exchange, LTC and GAIA entered into a Strategic Alliance Agreement (the Strategic Alliance Agreement). The Strategic Alliance Agreement covers technology sharing and licensing, among other matters. The Strategic Alliance Agreement provides that as determined in accordance with the rules of inventorship, LTC will have sole ownership of all inventions, patents, know-how, trade secrets, technical information, data, manufacturing processes, designs, ideas, and the like (Technology) invented, discovered or developed solely by our GAIA USA unit or its employees or agents prior to and during the term of the Strategic Alliance Agreement (LTC Technology) and GAIA will have sole ownership of

Table of Contents

all Technology invented, discovered or developed solely by our GAIA Europe unit, or its employees or agents prior to and during the term of the Strategic Alliance Agreement (GAIA Technology). LTC and GAIA will each own jointly and equally with the other all Technology invented, discovered or developed jointly by the two units, their employees or agents during the term of the Strategic Alliance Agreement (Strategic Alliance Technology).

Pursuant to the Strategic Alliance Agreement, LTC granted to GAIA a worldwide, non-sublicensable, royalty-free license of all LTC Technology and GAIA granted to LTC a worldwide, non-sublicensable, royalty-free license of all GAIA Technology. Neither party may sell, transfer, divest or license to any third party, any Strategic Alliance Technology or any interest in the Technology that is the subject of the foregoing licenses without the written consent of the other party.

Pursuant to the Strategic Alliance Agreement, each party will have full responsibility for the application, prosecution, and maintenance of patents and/or patent applications worldwide for those inventions which are solely owned by such party. Unless the parties determine otherwise, all patent applications relating to LTC Technology, GAIA Technology and Strategic Alliance Technology will be filed in the U.S. and Germany. LTC will be the owner of any resulting patents, approvals or licenses issued by any governmental entity relating to any LTC Technology. GAIA will be the owner of any resulting patents, approvals or licenses issued by any governmental entity relating to any GAIA Technology. LTC and GAIA will be co-owners on an equal basis, of any resulting patents, approvals or licenses issued by any governmental entity relating to any Strategic Alliance Technology. LTC and GAIA have the right to bring and maintain any appropriate suit or action for infringement of any patent or other right with respect to Technology owned by such party.

In addition to technology sharing and licensing matters, the Strategic Alliance Agreement covers joint production, marketing, sales and distribution activities and similar matters. Pursuant to the Strategic Alliance Agreement, LTC and GAIA have agreed to enter into mutually acceptable manufacturing, supply, and other agreements. Each party must adhere to specified accounting and internal financial controls and furnish to the other party specified financial information.

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 battery products. Our research has focused upon bringing existing available technology to viable commercial production for specific applications. The majority of our effort is directed towards 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

Table of Contents

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 and performance. We also investigate and develop patentable ideas in product design or processing that can offer added protection or licensing potential. During the fiscal years ended December 31, 2003 and 2002, we spent approximately $4,383,000 and $2,683,000, respectively, on research and development activities. We expect that product development expenses will increase significantly as we continue to advance our battery technology and develop products for commercial applications.

EMPLOYEES

As of April 13, 2004, we employed a total of 11 full-time and 1 part-time employees at GAIA USA, and 31 full-time and 2 part-time employees at GAIA Europe. In addition to being employees of LTC, Franz Kruger and Ralf Tolksdorf, are compensated through separate consulting agreements with GAIA (see Item 10 Executive Compensation Employment Agreements and Certain Employee Matters). None of our employees at the GAIA USA unit or the GAIA Europe unit 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 when not handled properly. Due to the high energy and power density of lithium-ion batteries, a short 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.

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 pilot line manufacturing processes designed to maximize the safety of our employees and neighbors. 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.

Prior to commercial production of our batteries, we will seek to obtain approval of our products by one or more of the organizations engaged in product safety, such as Underwriters Laboratories. Such approvals could require significant time and resources from our technical staff and, if redesign were necessary, result in a delay in the commercialization of our products.

Table of Contents

The U.S. Department of Trans