Zacks Equity Research

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Neah Power Systems, Inc. (NPWZ-OTC)

Initiating at outperform, $1.75 price target (1 yr). Highly speculative potential growth story. Silicon-based fuel-cell technology improves on existing designs and appears unique.

Current Recommendation	**Outperform**
Prior Recommendation	N/A
Date of Last Change	03/10/10
Current Price (03/09/10)	$0.38
12-Month Target Price	**$1.75**

OUTLOOK

Neah Power Systems (accumulated deficit $51 million) is a development-stage (pre-revenue) company with silicon-based direct-methanol fuel cell intellectual property, design know-how, and manufacturing capability that has been demonstrated in the course of multiple contract engagements, with initial bookings of sales employing the new technology through Neah's solar air conditioning subsidiary now pending delivery. Unique competitive strengths include a porous, silicon-wafer design and the ability to operate in anaerobic environments. We rate it as a highly speculative, potential growth story.

SUMMARY DATA

52-Week High	**$5.23**
52-Week Low	**$0.12**
One-Year Return (%)	**185.00**
Beta	**2.74**
Average Daily Volume (sh)	**234,052**
Shares Outstanding (mil)	**37**
Market Capitalization ($mil)	**$14**
Short Interest Ratio (days)	**N/A**
Institutional Ownership (%)	**0**
Insider Ownership (%)	**4**
Annual Cash Dividend	**$0.00**
Dividend Yield (%)	**0.00**
5-Yr. Historical Growth Rates	
Sales (%)	**N/A**
Earnings Per Share (%)	**N/A**
Dividend (%)	**N/A**
P/E using TTM EPS	**NM***
P/E using 2010 Estimate	**NM***
P/E using 2011 Estimate	**N/A**
Zacks Rank	**N/A**

* NM = Not meaningful.

Risk Level	**Speculative**
Type of Stock	**Small-Growth**
Industry	**Other Alt Energy**
Zacks Rank in Industry	**N/A**

ZACKS ESTIMATES

Revenue*
(In millions of US dollars)

	Q1 (Dec)	**Q2** (Mar)	**Q3** (Jun)	**Q4** (Sep)	**Year** (Dec)
2008	0.22 A	0.49 A	0.46 A	0.22 A	1.40 A
2009	0.51 A	0.44 A	0.16 A	0.00 A	1.11 A
2010	0.00 A	0.20 E	0.20 E	0.62 E	1.02 E
2011	0.97 E	1.12 E	1.86 E	2.14 E	6.09 E
2012					29.15 E

Earnings per Share*
(EPS is operating earnings before non-recurring items)

	Q1 (Mar)	**Q2** (Jun)	**Q3** (Sep)	**Q4** (Dec)	**Year** (Dec)
2008	-$0.51 A	-$0.61 A	-$0.31 A	-$0.17 A	-$1.39 A
2009	-$0.13 A	-$0.06 A	-$0.07 A	-$0.30 A	-$0.45 A
2010	-$0.08 A	-$0.01 E	-$0.02 E	-$0.03 E	-$0.12 E
2011	-$0.02 E	-$0.02 E	-$0.01 E	$0.00 E	-$0.06 E
2012					$0.14 E

***Totals may not add due to rounding and use of weighted averages.**

KEY POINTS

- **Initiating coverage with outperform rating and 12-month price target of $1.75.** The price target is derived from discounted cash-flow (DCF) estimates of the intrinsic value of the company's unique, silicon-based fuel-cell designs with anaerobic capabilities. Cash flow estimates assume that the firm's intellectual property is successfully commercialized. **This is a highly speculative, potential growth-stock story.**

- **Unique porous silicon electrodes.** The Neah design, which appears to be unique, relies on well-established techniques for etching relief into silicon wafers. At the micrometer level, these designs maximize surface area, which boosts the cell's efficiency.

- **Silicon-based design eliminates failure-prone membrane.** The silicon-electrode innovation eliminates the vulnerabilities to contaminants such as sulfides and oxidants that have slowed development of conventional fuel cells. Neah's technology dispenses with the proton-exchange membrane between electrodes that has been a source of cell degradation.

- **Unique anaerobic (closed loop) capability.** Neah has demonstrated a design that can power portable and other moderate loads for extended periods in the absence of air. This puts the company in a market where customers are often willing to pay a premium. Examples of potential uses include unmanned undersea vehicles. Potential customers include oil exploration companies and military (naval) procurement.

- **Solar air-conditioning acquisition** provides near-term revenue opportunities and opens up a worldwide distribution channel with access to the rapidly growing $500-million remote area power-supply market.

KEY RISKS

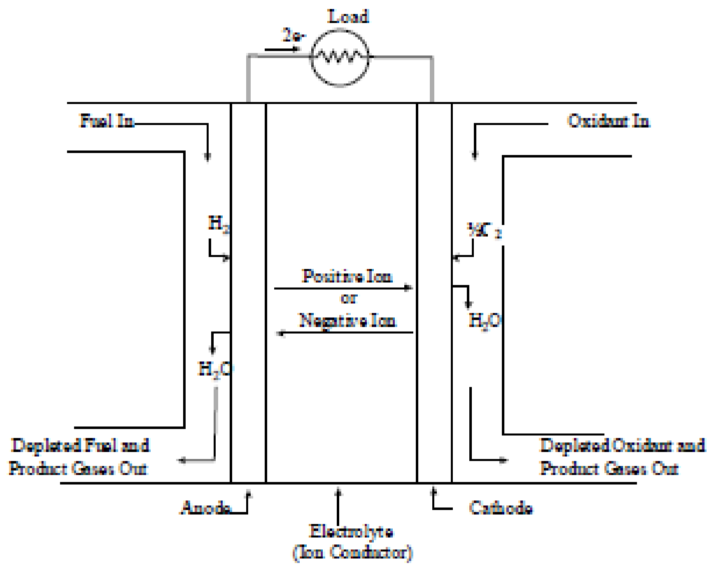
- **Development-stage (pre-revenue) company.** The firm has yet to book its first commercial revenues. Commercialization is highly uncertain. The company's ability to manufacture in volume and coordinate outsourcing is untested. Market acceptance is uncertain.

- **External financing requirements in the medium term.** A 2010 capital raise should cover the company's short-term needs, including research and development. If commercialization of at least one product line is not accomplished during the 2010 – 2011 period, then substantial additional capital will be required. **It is highly uncertain whether the company can arrange any further capital contributions.**

- **Uncertain industry context.** The fuel-cell industry has shown great promise beginning with the 1980 energy crisis, but the promise has never been realized on a sustainable, commercial scale. The company's designs, though unique, do not achieve breakthrough levels of energy density and conversion efficiency. Legacy technologies (batteries) will continue to competitive with fuel cells in the near term.

- **Valuation estimates are highly sensitive to commercialization outcomes.** Failure to commercialize in the near term would likely mean cessation of operations. **All estimates should be regarded as highly speculative.**

Fig. 1. Schematic of an Individual Fuel Cell



Source: US Dept of Energy Fuel Cell Handbook (EG&G Technical Services, Inc.)

OVERVIEW

(Note that underlined words indicate that there is a definition of the term in the glossary at the conclusion of the report.)

Neah Power Systems (accumulated deficit $51 million) is a development-stage (pre-revenue) company with silicon-based direct-methanol fuel cell (DMFC) intellectual property, design know-how, and manufacturing capability that has been demonstrated in multiple (temporary) contract engagements, with initial bookings of sales employing the new technology through Neah's solar air conditioning subsidiary now pending delivery. The company is based in Bothell, Washington, outside Seattle.

The indented paragraphs that follow are intended to fill in the details on each of the claims made in the introductory paragraph, above.

Solvency (Accumulated Deficit)
September 30, 2009 fiscal year-end filings included an audit opinion from independent CPAs qualified as to going-concern considerations, with the company at that time down to approximately $20,000 in cash (declining to approximately $9,000 as of December 31, 2009) and facing default judgments issued by California courts of approximately $144,000 in total; however, January, 2010 filings disclosed new financing arrangements of $10 million, of which approximately $500,000 has been funded as of the date of this report. The balance of the January financing is expected to be funded by the end of April, 2010. Funds received are to be applied to the judgment amounts.

Development-Stage (Pre-Revenue) Firm
Neah has, in fact, booked revenues in prior accounting periods ($1.1 million in its 2009 fiscal year ended 9/30/09); however, the company has yet to report regular commercial sales. Historical revenues have primarily pertained to limited-duration contract undertakings with heavy reliance on government research and development programs.

Silicon-Based DMFC Technology
Methanol-based fuel cells have been developed by several companies dating back more than a decade, including some designs that have seen limited commercialization. Neah's design, however, is unique for its adoption of silicon-chip nanotechnology. The company has demonstrated that established methods for chip design and manufacture can be adapted to achieve higher power density, thereby boosting FC efficiency. Neah's design features micrometer-level surface modeling to multiply the available reactive surface

area. The silicon electrode also serves as a substitute for the membrane (proton-exchange membrane, or PEM) present in nearly all other FC designs between cathode and anode within the cell. The substitution eliminates a point of contamination (of sulfur and/or carbon oxides accumulating on the membrane) that has effectively limited the life (and cost-efficiency) of PEM-FCs.

Intellectual Property
Neah has sole ownership of seven issued patents with another four filings pending, which underlines the distinctiveness of the company's silicon-based fuel-cell technology and sets it apart from competitors offering a variety of PEM-based designs that draw upon public-sector (or shared) intellectual property (IP). Conversely, the absence of shared IP should keep Neah's products from becoming involved in patent litigation. Key elements of the Neah patents pertain to claims to "the use of porous substrates coated with catalyst as… electrode structures, cell bonding techniques, and cartridges. The company states that its design is "…not in conflict with the U.S. patents covering PEM-based DMFCs."

Design and Manufacturing Capability
The core element of the company's product offering is the silicon electrode, a component over which the company exercises complete control from design through manufacturing. On the one hand, the basic material for Neah's design, the silicon chip, is readily available from multiple sources, and, on the other hand, manufacture and assembly of the full package of components for a portable application (*e.g.,* a laptop computer power source that mirrors the footprint of OEM battery bays) is easily outsourced to firms with large-scale operations that deliver conventional configurations of the same components. In between, Neah has positioned itself to deliver the key step of silicon-based fuel-cell design, tailored specifically for each final-consumer application, thereby occupying the essential ground, the necessary part of a process of technological advance.

Demonstrated Feasibility in Multiple Development Contracts
With the Office of Naval Research and other contracting parties, Neah has successfully demonstrated the feasibility and functioning of its technology, in one contract achieving 2,000 hours of design-specification performance.

Initial Sales Bookings
In its solar air-conditioning systems subsidiary, Neah now has booked at least $350,000 of sales for delivery by April of 2010.

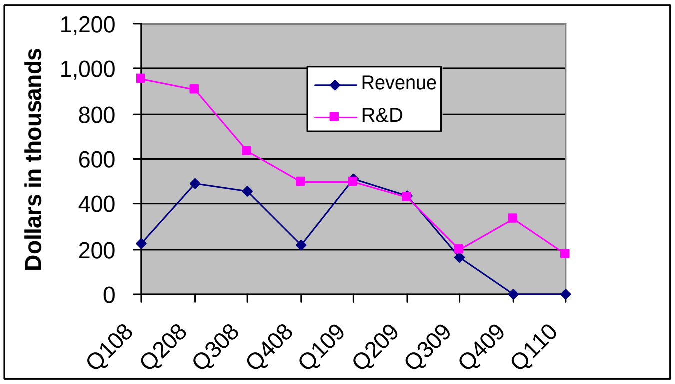
Financial Condition – Discussion

The company's financial condition and its recent financing activities merit further discussion and clarification.

A review of quarter-by-quarter filings of the two most recent complete fiscal years (beginning Oct. 1, 2007 and ending Sept. 30, 2009) reveals a pattern of decreasing revenues (all revenues to date have come from research and development contract reimbursements) and corresponding decreases in expenditures for (1) research and development (R&D) and (2) general and administrative (G&A) purposes.

In the most recent quarter ended 12/31/10 (first quarter of fiscal 2010), no contract revenues were recognized. The first quarter was the firm's second quarter in succession without revenue. The recent inability to bring in contract revenue comes after a string of seven quarters in fiscal years 2008 and 2009 with contract revenues recognized in each quarter. During fiscal 2009, payments from the US Navy's Office of Naval Research (ONR) of $1,147,000 slightly exceeded the $1,106,976 total revenues recognized by the company for the year. The ONR contracts were concluded during September, 2009 with the successful demonstration of a closed-loop, anaerobic system. Based on the absence of fourth-quarter revenue, it would appear that ONR was the only billable contract.

Fig. 2. Neah Revenues and R&D Spending



Source: Neah financial filings

In the company's defense, subsequent to the end of the 2009 fiscal year, it announced $350,000 (wholesale) in orders placed with its solar air conditioning affiliate (the final acquisition of which is still pending). Deliveries should be complete by April, 2010.

The 2008 fiscal year saw a change of management at the company, with the chief executive's departure occurring in the second first half of the year. In fiscal 2008, the company went through approximately $3.5 million in cash; this was reduced to an outflow of $1.5 million in the most recent fiscal year.*

R&D expenditures decreased 51% between fiscal 2008 and 2009. Screening out non-cash compensation, G&A expense decreased 44%, but, as might be expected in the development stage of a company with technologically sophisticated intellectual property, cash G&A expense has been dwarfed by R&D expense, the latter being more than four times cash G&A in the aggregate over the last two years.

The big picture that emerges from these developments is one of retrenchment. Revenues, if not conclusively drying up, have certainly not expanded. The change of management is an indicator that the board of directors opted for a change of course. The pullback in R&D, for a company that is seeking to introduce a unique fuel-cell design, is in the opposite direction from the desired path.

It is in this light that the developments of late 2009 – disclosed in the company's annual filing and referenced in the introductory statements of this report – take on special significance.

The going-concern qualification of the company's auditors, the razor-thin cash resource ($20,223 as of September 30, 2009, and $9,226 as of December 31, 2009) and the default judgments ($144,390) give the appearance – together with the lack of growth of contract revenues, the change of CEO, and the R&D pullback – of a startup firm undergoing stress.

And yet, when it comes to development-stage, pre-revenue firms, nothing is certain except uncertainty, so that a pattern of adverse developments can be just as shaky a foundation upon which to form an investment judgment as can the more familiar pattern of a succession of new-contract announcements and research breakthroughs.

In the case of Neah, events subsequent to the end of the company's most recent fiscal year, particularly the January announcement of new financing arrangements that amount to a substantial new source of corporate backing (and a substantial vote of confidence) have changed the game, erasing the cash squeeze and the default judgments. In fact, the case can be made that, were there to be an interim audit by independent CPAs, the resulting opinion would no longer include a going-concern qualification.

More on the January financing announcement: as put forward by the company, private investors agreed "to purchase from the company up to $10 million of Neah Power's common stock between January 26, 2010 and January 25, 2011, with a firm commitment of a minimum of $500,000 at a $1.00 per share (restricted stock) by January 26, 2010. The company also reported that it has received a total of $200,000 from the investors, at a valuation of $1.00 per share in restricted stock." The company expects the full $10 million financing to be funded by the end of April, 2010.

Conclusively, Neah has succeeded in extending its development-stage corporate life, attracting approximately 20% more capital (compared to the $51 million already sunk into the company).

For investors, Neah's success in attracting another round of private financing is strong evidence that an outside entity, in an informed inspection of the company, its research programs and development contracts, with all books and records subject to due diligence, ended up arriving at the conclusion that the technology still has potential value.

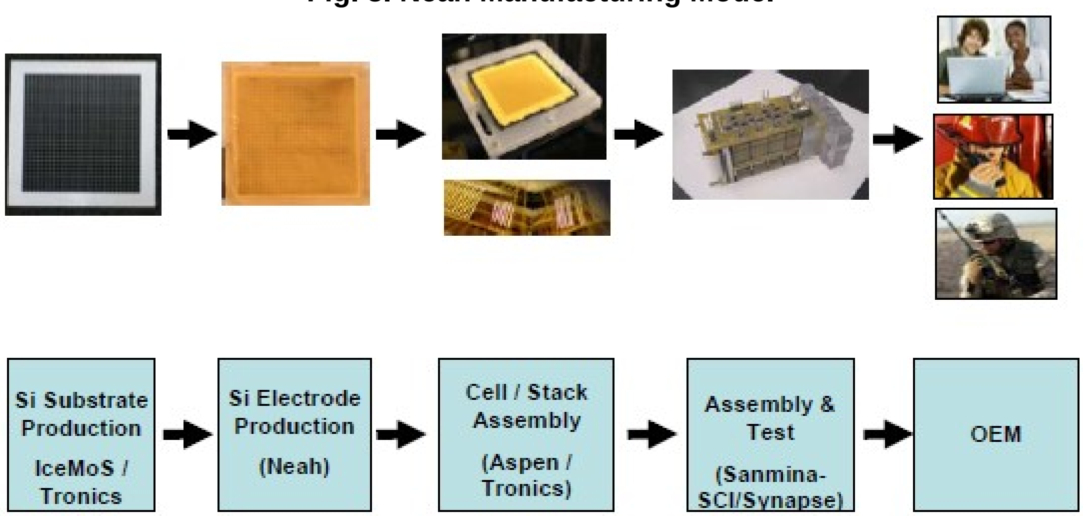
Now that the recapitalization has put to rest immediate concerns as to sufficiency of working capital, management's challenge is to get caught up on its R&D programs. For example, in its annual report, the company describes a fuel-cell development agreement, dating from 2004, with an unidentified OEM serving the defense sector that commenced with a proof-of-concept prototype phase (which has been completed and awaits acceptance). The contract also provided for a concluding product-development phase, but the latter has yet to be funded. While it may be true that the status of this particular project is controlled by the customer, it is nevertheless evidence of research (or development) work that has yet to be performed.

As a second example, management, in its annual report filing, singled out the fuel-cartridge portion of its modular, self-contained system as a design (as opposed to production) goal for the 2010 fiscal year. Judging by the pronounced decrease in Neah's R&D spending between 2008 and 2009, development work probably remains to be done with respect to not only the cartridge but several other components of the company's fuel-cell designs.

For this reason, in forecasts and projections made for this report's earnings and cash-flow model, it has been assumed that, as revenues are realized during 2010 (for example, for the solar air conditioning units that were recently booked) and, to an extent, in future years (for example, for fuel-cell cartridge sales or for fuel cells themselves) a sizable allocation of receipts will be plowed back into R&D expenditures rather than flowed through to earnings.

** Cash-flow figures in this report, unless otherwise noted, refer to discretionary cash flow, which does not include the effects of changes in receivables, payables and other working capital accounts.*

Fig. 3. Neah Manufacturing Model

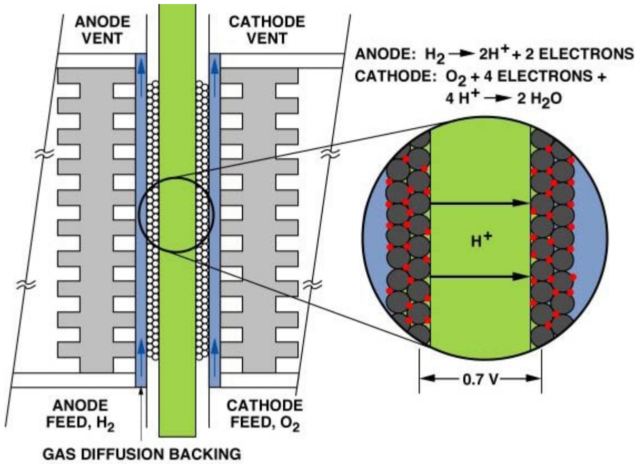


Source: Neah corporate presentation

THE TECHNOLOGY

Fuel cells produce power by exposing the fuel (hydrogen or a hydrogen compound such as methanol) to a catalyst – usually a precious metal such as gold or platinum – which draws hydrogen ions (protons) through a conductive electrolyte (the membrane, in PEM-FCs) while allowing hydrogen electrons to flow out of the cell and through an electrical circuit.

Fig. 4. Schematic of a Typical PEM-FC
(The membrane is shown in green.)



Source: US DOE Fuel Cell Handbook (EG&G)

The idea of a fuel cell as an electrochemical means of producing power was first proposed in 1838 with a laboratory demonstration the following year. A considerable variety of fuel-cell designs have since been proposed and subjected to experimentation.

Fuel cells first found their way into applied science in the US moon effort of the 1960s, when early versions – at the time relying on relatively costly materials – became the primary power source for space-based life support (including, through electrolysis – the reverse operation of the cell – a source of air and water). Today's spacecraft continue to rely on the technology, the efficiency of which has been improved in increments over the years.

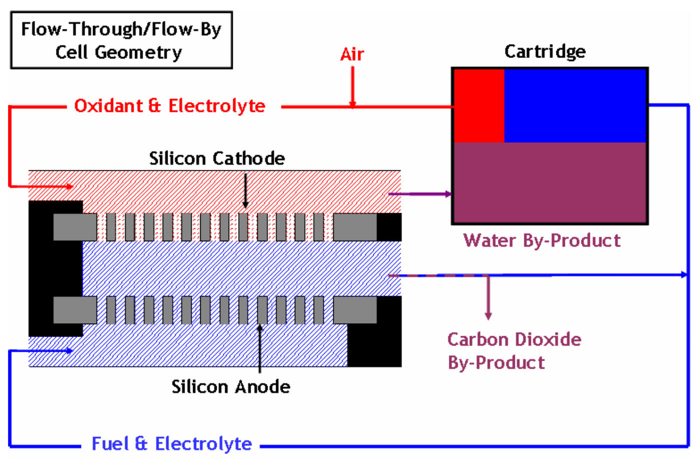
During and directly after the 1980 energy crisis, fuel cells received renewed attention as a potential means of reducing reliance on fossil fuels. Since 2000, concerns about atmospheric carbon-dioxide levels have stimulated additional interest in fuel cells as a partially renewable and relatively clean energy source with very low emissions (although the ultimate source of fuel, whether hydrogen or methanol, is most frequently natural gas). Unfortunately, progress has been slow in coming and without significant breakthroughs.

Fuel-cell R&D has attracted consistent but modest funding levels in recent years, in part stimulated by surging oil prices and in part by government energy policy. The US Department of Energy's ongoing initiatives were augmented in 2009, when DOE's $35-billion piece of the American Recovery and Reinvestment Act (ARRA) resulted in a $42-million allotment for grants to research in "fuel cell markets" *(DOE link: http://apps1.eere.energy.gov/news/daily.cfm/hp_news_id=161).* The ARRA funding has been allocated in chunks of $1 million to $10 million to a variety of projects, including materials-handling equipment (forklifts), mobile devices (laptop-computer battery substitutes), and backup/remote power generation.

Unfortunately, hydrogen, fuel cells' primary fuel, has some distinct drawbacks as an energy source. First, it is relatively expensive to produce, with most production going to the chemicals industry for use in high-value processes, such as ammonia-based fertilizers. Second, it presents great difficulties in terms of storage and transportation from point of production (usually from reformate, most frequently natural gas) to the point of power generation (which, in the case of a fuel cell, may be a mobile device or a means of transport, such as a motor vehicle).

Neah's alternative design does not completely overcome the challenges of hydrogen catalysis; however, it represents a unique adaptation of multiple technological solutions to the special power needs of mobile devices and remote power supply, and it confers several advantages.

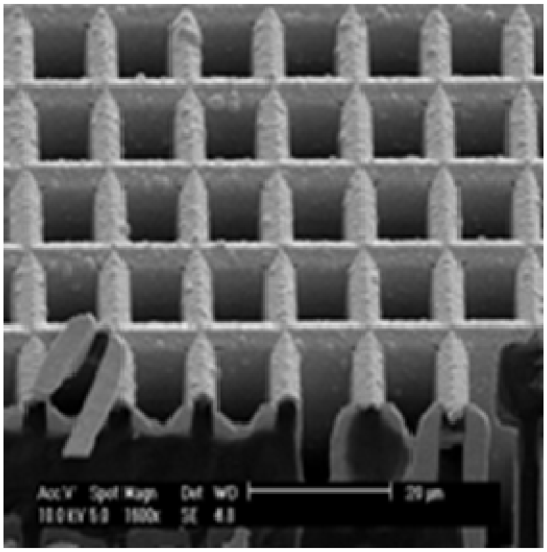
Fig. 5. Schematic of Chemical Flows in Neah's Silicon-Based DMFC



Source: Neah technology white paper

In Neah's chip-based design, silicon wafers, etched with microscopic pores, are coated with a conductive layer, then coated with either an anode (oxidation) or cathode (reduction) catalyst (which may be gold or a platinum-ruthenium composite). The switch to silicon leverages existing chip manufacturing capacity and know-how. Neah has demonstrated that silicon-chip nanotechnology, used to maximize surface relief at the micrometer level, increases the power density of a cell. This is an important achievement, because conventional DMFC designs have generally lagged behind the power density of hydrogen-fueled PEM designs.

Fig. 6. Photomicrograph of porous silicon substrate



Source: Neah technology white paper

The chip-based electrodes eliminate the need for the PEM (membrane) design feature, where the PEM functions as an electrolyte. Eliminating the PEM confers multiple advantages, foremost of which is that cell degradation and failure as a result of membrane and/or cathode contamination is not a threat to Neah's technology. Hydrogen fuels, being produced from reformates of natural gas, though of high purity, still contain trace impurities, especially sulfur but also carbon oxides either of which are sufficient to start the process of membrane or cathode deterioration. Contamination can also be an issue in the case of DMFCs (PEM-based fuel cells that use methanol as fuel), which can degrade from carbonization of the cathode from "methanol crossover".

In an additional development that appears to have potent implications for the company's marketing prospects, Neah has demonstrated an anaerobic configuration of its silicon-based design. This is achieved by means of a sealed, self-contained assembly including both fuel and oxidant. (An oxidant with higher oxygen density than air, currently nitric acid, is used to improve the cell's kinetic properties (the speed of the reaction).

The ability to operate in environments where there is no air supply (underwater, underground, space-based) appears to be unique among fuel-cell designs and opens up the possibility of substituting fuel cells for conventional, battery-powered arrangements in such equipment as unmanned underwater vehicles (UUVs), sensors, relays and other equipment used under water or in space.

Fig. 7. Fuel Cell Powered UUV

Source: Neah technology white paper

On the other hand, there are at least three identifiable respects in which Neah's technology faces some design challenges. The first is that the anaerobic design solutions pioneered by Neah call for acids at high concentrations, presenting corrosion (and safety) challenges in the choice of materials for the cell and cartridge casings and other components. It appears that there is good reason to believe that these challenges can be overcome, particularly in non-consumer designs such as for military purposes.

The second challenge is that in all methanol-fueled (DMFC) designs so far, precious-metal catalyst coatings at the electrodes have been relatively expensive. The required platinum loadings are almost ten times higher (around 3 to 5 mg/cm^2) than needed in high-performance direct hydrogen PEFC designs *(source: DOE Fuel Cell Manual).* The recent escalation of gold prices and, to a lesser extent, platinum, makes it a high priority to reduce coating thickness. To achieve this, the company will eventually have to follow other designers and shift from coating by electroplating to the newer method of nanometer-level atomic-layer deposition.

The company's design also has some regulatory hurdles that are still ahead of it. Although DMFC companies have won US Department of Transportation approval for 200-milliliter methanol cartridges on board commercial flights (expended cartridges are swapped for new in the refueling step, which takes place by "hot-swapping" – no interruption to the operation of the host device) yet other levels of approval remain, such as the consumer electric products certifications issued by Underwriters Laboratories.

Power Density / Efficiency

The fuel-cell literature is full of references to the relative efficiency of the competing designs. Often, these are no more than product claims trumpeted by the management of one company or another, but there is also an extensive literature of studies done for scientific and engineering purposes. Unfortunately, the studies are inconclusive. DOE notes "…a dearth of accurate and detailed data of sufficient quality and quantity to allow thorough validation…" *(Source: US DOE Fuel Cell Handbook by EG&G Technical Services, Inc.)*

The specific technology patented by Neah has not been subjected to third-party studies. It appears that, to evaluate the power density of Neah's silicon-based cell relative to competing designs, most of the comparisons are going to be qualitative, not quantitative. This leads to a series of conclusions, as follows.

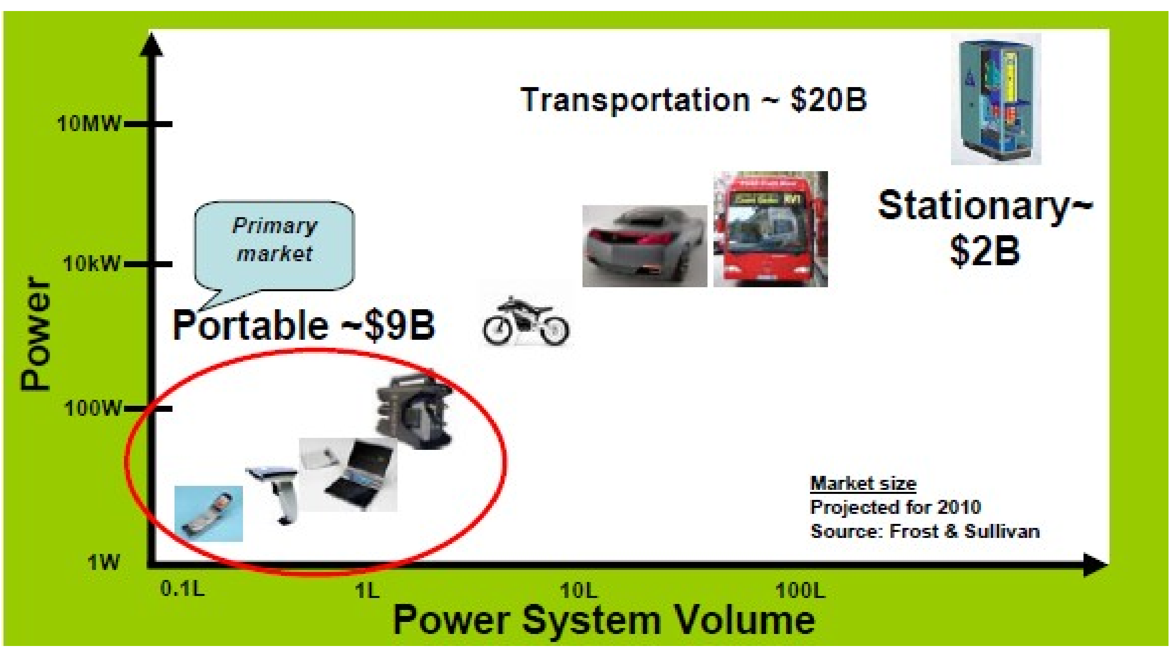
First of all, all PEM designs appear to offer lower energy density than SOFC designs. The tradeoff to this is that SOFC designs come with the necessity of operating at very high temperatures (800°C–1,000°C / 1,500°F–1,800°F).

Second, among PEM designs, those that are hydrogen-fueled achieve higher power densities; however, they come with the expense and difficulty of using hydrogen vis-à-vis methanol.

DMFC designs overcome the challenge of high operating temperatures of SOFC designs and also get around the challenges of using hydrogen as a fuel, but at an efficiency tradeoff.

Neah's silicon-based DMFC design boosts power density, offering the potential of a higher-density, more efficient cell than conventional, PEM-based DMFC designs. The company's formula also avoids the high operating temperatures of SOFCs. (Neah's cells operate between 60°C and 80°C (140°F–170°F). Finally, the company's designs dispense with the membrane (PEM) of conventional DMFCs, thereby reducing contamination risks.

Fig. 8. Potential Fuel-Cell Markets Ranked by Power and Volume



Source: Neah corporate presentation (with projections by Frost & Sullivan Market Consultants)

THE MARKET

Fuel cells have yet to be confirmed as a viable, commercial product beyond the realm of the space-based applications for which NASA and its clients have been the primary customers since the 1960s. (And the budget for NASA, like other national space programs, comes from government allocations, not from customers paying for fuel cells on their own.)

This has not prevented the identification of a range of target, or potential markets. A listing, not necessarily comprehensive, follows:

- Automobiles, of course, have the highest profile, but for a variety of reasons, they are well down the list in terms of where fuel cells are likely to become commercially viable.
- Other transportation or vehicle uses, such as airport utility vehicles, small watercraft, motorbikes, golf carts, and service vehicles for industry use have been commercialized in a limited way. Forklifts, especially, have been a priority area, with warehouse operators already putting fuel cells into service, at least on a demonstration basis.
- Electric-power generation is a sector where there are several interrelated applications, including remote-area power supply (RAPS), back-up power, power storage, uninterruptible power supply (UPS) and distributed power generation (small-scale and off-grid, or selling back to the grid). Some commercial sales have taken place of power-supply fuel cells.
- Mobile electronic and communications devices, such as laptop computers and mobile phones, are perceived to be a major, multi-billion dollar market for power devices to replace or supplement today's lithium-ion batteries.
- Other devices, such as night-vision equipment, satellite communications, remote sensors, and unmanned vehicles (aerial and undersea) are regarded as a high-value niche, with many of these items in demand by the military, and with the potential to justify sales based on national-defense priorities.

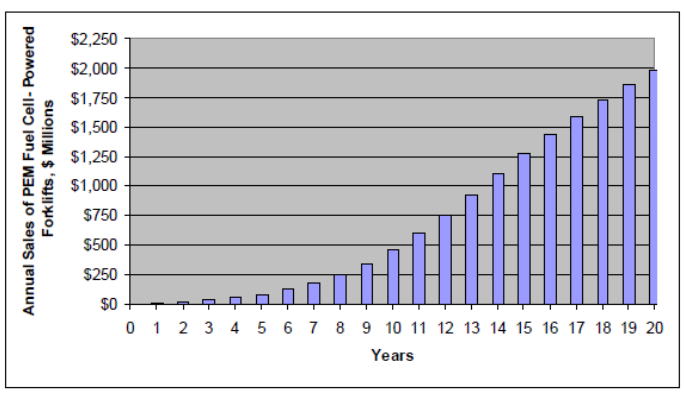
One area where Neah and its PEMFC competitors are certainly not aiming to compete is with the lowest-cost power sources, such as central-station electricity producers using conventional technologies, especially coal-fired plants.

Nor, for the most part, are they targeting the car market. As per a 2007 Battelle Marketing Research study, "The pathway to fuel cell vehicles will likely include the introduction of direct hydrogen PEM fuel cells in near-term markets with fewer technical challenges than the automobile market." *(Source: "Identification and Characterization of Near-Term Direct Hydrogen Proton Exchange Membrane Fuel Cell Markets," Battelle, April 2007. US DOE link: http://www1.eere.energy.gov/hydrogenandfuelcells/pdfs/pemfc_econ_2006_report_final_0407.pdf)*

Rather, fuel-cell designs are targeted at niche markets, where power sources are in demand for high value-added special situations. The use of fuel cells in manned space programs represents the original high-value, high-priority situation. High-value applications are frequently related to military needs. Examples relevant to portable-scale fuel-cell designs include range finders and GPS equipment (and, as mentioned earlier, night-vision equipment).

In commercial markets, forklifts have become a focus for potential value-added by substitution of fuel cells for batteries in certain situations. The Battelle study quantified an approximate 50% present-value cash flow savings for PEM-powered forklift pallet trucks, a US market with $1 billion to $2 billion in annual sales. Results were more mixed for larger sit-down forklifts, but Battelle modeled only pure hydrogen fuels, whereas substantial savings have been demonstrated in test programs by DMFC developers.

Fig. 9. Sample Projection: Forklift Sales



Source: Battelle, April 2007

Particularly high-value situations, for fuel cells, are those that call for power in the absence of air. Fuel cells breathe the oxygen in air, and if it is not available (as in space-based installations, but also underwater activities), or if air intake is not to be relied upon (air contamination, or simply impure air, as in a desert sandstorm) then a power source that comes with its own oxidant, sealed against the outside elements, is desirable and could be worth paying a premium in comparison to power sources that offer higher energy densities. As the Battelle study observes, “Hybrid diesel systems are associated with one major tactical disadvantage: the need for air, which requires them to resurface and recharge.”

Neah’s apparently unique design advantage of being able to operate in anaerobic environments gives the company a particular advantage in competing for future contracts for underwater, (underground) power needs, which at present rely heavily on lithium-ion batteries for power that is limited by recharge downtime. Unmanned undersea and/or aerial vehicles have a very broad range in terms of power requirements. Neah may be able to succeed by targeting a niche such as lightweight UUVs of hull diameters between 3 and 9 inches and approximately 100 pounds displacement, which require lithium-ion batteries of 75Wh per pound capacity. *(Source: the Battelle study)* Neah has already documented 1,600 hours at 65 – 70Wh per pound.

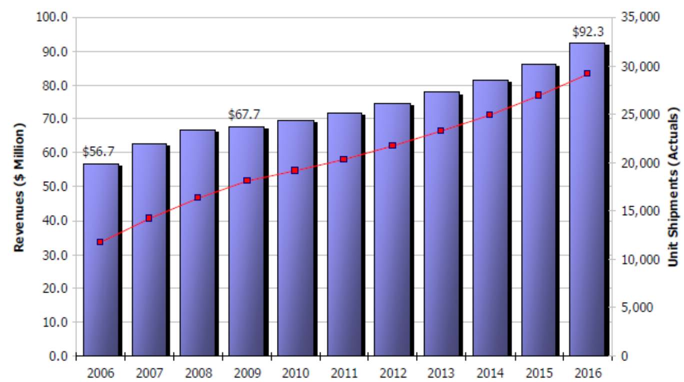
There is reason to believe that high-value niche markets can become quite sizable. Frost & Sullivan Market Consultants concluded, in a February 2010, Neah-sponsored report, “The portable power industry offers over a billion dollar market potential opportunity by 2015 for alternative power sources such as fuel cells.“ The report defines the portable-power market as limited to systems under 20 pounds and up to 500 watts.

(NOTE: Watts quantify power capacity, whereas Wh, or watt-hours, quantify energy, and, in conjunction with a weight or volume measure, energy density. See the report glossary for definitions and a key to abbreviations.)

Neah’s technology is well matched to the demands of a variety of portable power devices. The company has demonstrated fuel-cell stacks in a 30-millimeter form factor for 13-watt, ultra-light units and has scaled up the form factor and assembly of stacks in series to achieve designs for use in larger devices, demonstrating output capacities of 1000 watts or more.

Neah also believes that, through its pending acquisition of solar air-conditioning provider Solcool, it can open up the RAPS market. Management has recently been active in partnering with its Bangkok-based funding sources to access power-supply development opportunities in Thailand and China. The size of the global RAPS market has been estimated at $500 million in 2009. Projected market size in 2016 is $2.5 billion. *(Source: estimates and projections prepared by Frost & Sullivan Market Consultants, 2010.)* An illustration of the forecasted sales trend, in North America only, is included below.

Fig. 10. RAPS Market: Revenue and Unit Shipment Forecast (North America), 2006-2016



Source: Neah corporate presentation (with projections by Frost & Sullivan Market Consultants)

Summing up, while it is true that fuel cells have largely failed to penetrate commercial markets since their first scientific applications in space, they appear to be competitive with conventional power sources in certain high-value niche markets. For Neah, there may be a match between the company’s anaerobic designs and certain key niche markets, especially ones that address military needs, and especially when those needs are for power sources that can deliver for extended periods in undersea environments. Neah also appears to be able to capitalize on its solar air-conditioning acquisition to enter the RAPS market.

THE COMPETITION

Strictly speaking, Neah has no competition so long as no competitor is matching the company's unique product features: silicon-wafer electrodes in place of a membrane and self-contained fuel and oxidant without external air supply, enabling anaerobic operation.

However, from a practical standpoint, orders for fuel cells are going to be placed on the basis of trade-offs between the extant technological solutions and the priorities of potential buyers in each of the niche markets. For example, some solid-oxide FCs can operate with relatively inexpensive zirconium catalysts (see the discussion of Bloom Energy, below), which confers a cost advantage in favor of the SOFC. Another example: the US Navy has tested UUVs with cathodes fed from on-board oxygen. *(Source: DOE web page, link: http://fossil.energy.gov/programs/powersystems/fuelcells/fuelcells_seca.html)*

There is also a type of competition present in the legacy technology – lithium-ion batteries in the case of anaerobic operating environments. Neah's advantage in this respect is the necessity of taking, for example, an undersea craft out of service after a few hours to recharge (for a recharge duration that approaches the batteries' operating time per charge).

In this report, only a fraction of the competitor universe is catalogued. Indeed, considering that at present there are rumored to be approximately 100 "green technology" startups based in California's Silicon Valley, much of the competition is essentially undiscoverable.

Table 1. Publicly-Traded Competitors

		Sales $mm	Price 02/26/10	FC Type
Ballard Power Systems	(NASD: BLDP)	60	2.24	PEM
Ceramic Fuel Cells, Ltd.	(AIM: CFU)	3	9.27	SOFC
Ceres Power Holdings plc	(AIM: CWR)	1.4	135.50	SOFC
FuelCell Energy	(NASD: FCEL)	88	2.81	MCFC
Hydrogenics	(NASD: HYGS)	39	0.23	PEM, AFC
Morphic Technologies	(OMX: MORP B)	43	0.52	PEM
Plug Power	(NASD: PLUG)	18	0.54	PEM
Protonex	(AIM: PTXU)	7	29.00	DMFC, SOFC

Sources are listed in Table 2, below.

Table 2. Privately-Held Competitors

	FC Type	Comment
Altergy	PEM	Backup (telecom). 1-30 kW
Antig Technology Co	DMFC	Taiwan-based; printed-circuit board (PCB) design
Bloom Energy	SOFC	$750,000 for 100kW
ClearEdge Power	PEM	$50,000 for 5kW
Lilliputian Systems	SOFC	Ceramic, w/butane fuel, 700°C; targeting cellphones
MTI Micro	DMFC	84 mW/cm^2, 1.4 Wh/cc, neat CH_3OH, ARRA $2.4mm grant
Oorja Protonics	DMFC	Forklift "trickle" chargers
Reli-ON	PEM	ARRA $8.6mm grant
UltraCell	RMFC-PEM	Reformed methanol fuel; Lawrence Livermore NL

Sources: Zacks (stock data), SEC and other public filings, US DOE, Energy Business Review (www.energy-business-review.com), Fuel Cell Today (fuelcelltoday.com), Green Tech Media (greentechmedia.com), and the EDGE Consortium (of General Dynamics Corp. - NYSE: GD)

The selected companies are roughly equally divided between publicly-traded concerns and privately-held firms.

In addition, three companies that ceased operations during the last year have been identified: PolyFuel, Inc., Medis, Inc., and Millenium Cell.

None of the companies' intellectual property parallels Neah's key design elements (silicon-wafer electrodes and anaerobic operation). Nearly every company has some technology overlap with its competitors. Also competing are the fuel-cell R&D affiliates of multinationals such as United Technologies Corp. (NYSE: UTX), Hess Corp. (NYSE: HES), GE (NYSE: GE), Samsung, Toshiba and several others). There appears to be no instance of overlap with Neah's key features.

Of the three recently-defunct companies, the news preceding disclosure of each firm's demise has been striking from the standpoint of its suddenness. The shift was rapid, taking only a few months, or even weeks, from a posture of laying claim to distinct technological advantages to a situation of emerging evidence that the firm in question was, even if still incorporated, no longer pursuing development efforts.

Such evidence has come to light in various forms, such as the withdrawal of one firm's common stock from public trading (Medis – shares were formerly available in pink-sheet trading, symbol MDTL), the resignation of the CEO and board of directors (Medis disclosure in SEC filings – see *sec.gov*), and news coverage that management had decided to close down development efforts (PolyFuel and Millenium). *(Sources: GreenTechMedia.com and FuelCellToday.com)*

It should also be emphasized that even a firm that has reached this stage can come back to life, and that in certain cases the withdrawal may be a strategic one intended to safeguard a new discovery or preserve a recently acquired technological edge.

But the overriding impression from these companies remains the sudden nature of their demise. In one case (PolyFuel), the abandonment of development efforts followed only two months after the announcement of ARRA funding.
(Source: DOE web page, link: *http://www1.eere.energy.gov/hydrogenandfuelcells/2009_financial_awards.html)*

In contrast to the apparent casualties in the race to develop fuel cells, the story of privately-held Bloom Energy captured public attention when the company was featured in a February 21, 2010 CBS *60 Minutes* television broadcast ("*The Bloom Box*"). Unlike most other entrants, Bloom is openly targeting the mainstream public-utility market for electric power with an SOFC design that purports to use much-cheaper zirconium instead platinum as a catalyst.

Reportedly *(Source: GreenTechMedia.com)* Bloom has already brought in cumulative revenues of approximately $2 billion from 20 high-profile customers (Google, eBay, Fedex, Wal-Mart and more). However, all of its installations are test sites and pricing is not competitive by any commercial yardstick. As per CEO K.R. Sridhar, speaking to CBS News, the firm's customers have been paying $700,000 - $800,000 per 100-kW unit, or $7,000 - $8,000 per kW. (State and federal subsidies may compensate purchasers for as much as half of the cost.)

Sridhar's targeted unit price for sales to single-family residences (in 5 to 10 years) is $3,000 – low enough to ignite a huge new market in distributed power generation. However, there is reason to doubt the feasibility of a future price that low, even if only for a residential sale. Assuming a typical single-family residential load potential of 30 kW *(Source: Eaton Corporation, web page link: https://www.ch.cutler-hammer.com/generatorCalc/wattshow.jsp)* Bloom is, by implication, claiming to be able to cut costs per kW on the order of 99% (compared to the test-site pricing that its customers to date have been paying).

John Donahoe, eBay's CEO, in the CBS News interview, claimed savings of $100,000 in nine months from the firm's 2009 purchase of five units – but those five units cost eBay up to $4 million. For a five-year payback, eBay would have to be saving $800,000 per year ($600,000 in nine months).

Aside from Bloom, two other private companies are worth comparing to Neah based on a combination of unique IP and choice of target market:

- Lilliputian Systems: targeting cell/smartphones with demonstration-stage, miniaturized SOFC technology running on butane (higher energy density than methanol or ethanol) at 700°C/1,300°F insulated by a vacuum maintained inside glass casing. *(Source: Forbes Magazine, "Pip-squeak Power Plant," June 18, 2007)*. The company's goal was to have its matchbook-sized charger on store shelves for the 2009 holiday season, but this did not occur. *(Source: Newsweek, October 13, 2008, "It Takes Power to Cut the Cord")*

  Lilliputian's failed market debut extends a long history of similar projections by other fuel-cell developers, including, on several occasions, Toshiba *(Source: Wall Street Journal, "The Search for a Better Battery Seems Everlasting," October 28, 2008).* Despite this, Lilliputian possesses, like Neah, a unique technological solution (the only miniaturized SOFC) and associated IP.
  Web address: lilliputiansystemsinc.com.

- MTI Micro Fuel Cells: MTI, which has a DMFC design for portable devices that runs neat (pure) methanol (as opposed to diluting it with water) is one of the few to actually document performance, claiming energy densities of 84 mW/cm^2 and 1.4 Wh/cc (1,400 Wh/l).

  (The comparable figures for Neah: 200 mW/cm^2 and 416 Wh/l. Neah's innovative anaerobic system energy density measures 121 Wh/l.)

Like so many others, MTI did not meet its own 2009 market-debut target date. The company received ARRA funding but may be foundering, as its stock has been delisted. *(Sources: Wall Street Journal, "The Search for a Better Battery Seems Everlasting," October 28, 2008, and FuelCellToday.com)*
Web address: mtimicrofuelcells.com

Summing up the mostly qualitative evidence, perhaps the most that can be said based upon an examination of Neah's competitors is that fuel-cell firms operate in an environment of pronounced uncertainty. The revenues (and, in some cases, market cap) of the public companies have been provided, but not the earnings, as all of them are still burning through their capital raises. The defunct companies are probably best regarded as having run out of sources of new capital despite the apparent promise of their IP. There is no evidence that any company turns a profit. (Suppliers of fuel cells used by the space program may be an exception, but NASA procurement has been dominated by large conglomerates in which fuel-cell operations are too small for a separate breakout.)

The bottom line for Neah, taking into account the uniqueness of the firm's technology and IP, is that, at least in the near term, the threat posed by competitors is far less of a challenge than is the difficulty, yet to be definitively surmounted by any except the space-program suppliers, of bringing a set of technological advances to the point of commercialization.

In the ensuing financial analysis, the objective is to characterize the sensitivity of the company's future cash flow over a range of outcomes in terms of Neah's success (or lack of it) in commercializing its technology (including, as a worst-case scenario, the complete failure to commercialize it).

Table 3. Summary Cash-Flow Forecast

Fiscal Years Ending Sept 30	Q1(A)	Q2(E)	Q3(E)	Q4(E)	2010E
EPS	(0.08)	(0.01)	(0.02)	(0.03)	(0.12)
EBITDA	(2,494)	(237)	(597)	(1,295)	(4,622)
Discretionary cash flow	(538)	(487)	(847)	(962)	(2,833)
Capital expenditures	0	100	250	250	600
Cash flow per share	(0.01)	(0.01)	(0.02)	(0.02)	(0.06)

Fiscal Years Ending Sept 30	2010E	2011E	2012E	2013E	2014E	2015E
EPS	**(0.12)**	**(0.06)**	**0.14**	**0.46**	**0.61**	**0.58**
EBITDA	(4,622)	(2,764)	7,243	26,395	38,778	44,148
Discretionary cash flow	(2,833)	(2,181)	7,826	24,393	35,583	37,715
Capital expenditures	600	1,260	1,512	1,800	1,800	1,800
Cash flow per share	(0.06)	(0.04)	0.15	0.48	0.70	0.74

Source: analyst estimates based on data from the company, DOE, Frost & Sullivan Market Consultants and other sources.

FINANCIAL ANALYSIS

Summary information from the earnings and cash-flow forecast is shown in Table 3, above, and the full earnings and cash-flow model is appended at the conclusion of this report.

The forecast assumes that Neah will be focused on the niche markets identified previously in this report (primarily, solar air conditioning, remote-area power supply, and value-added anaerobic systems). The base-case scenario attempts to model the growth of solar air-conditioning or RAPS products like those offered by Solcool, the company's pending solar air-conditioning acquisition.

Unit Volume

The company's first orders have been forecasted, again in the base case, for the third fiscal quarter of 2010 (quarter ending June 30, 2010) and first sales (revenues) in the fourth quarter.

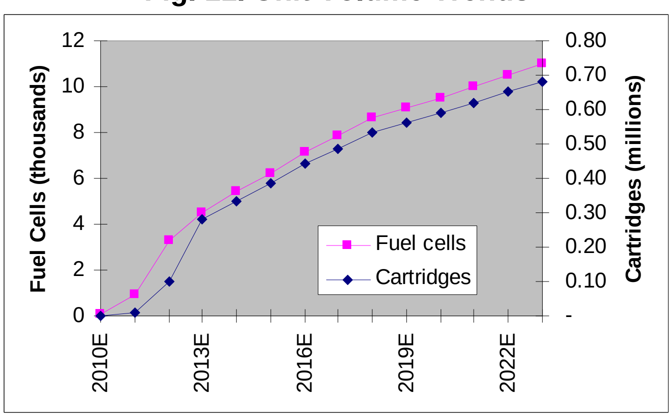
Order volume, at least for fuel cells, does not amount to much at first; rather, the cartridge component, which refuels the cell, is the key quantity. As the company commercializes its fuel-cell systems, even in small quantities, its follow-on sales of cartridges mount geometrically.

This has been the experience in other industries as they went through their development phases. Examples are printers and copiers, where follow-on sales of ink ("toner") became the true profit center.

The growth rate of unit volume skyrockets upon first commercialization during the 2010 to 2011 period, reaching almost 1,200% for fuel cells and 4,000% for cartridges. As the years progress the growth rate normalizes, dropping to 20% in 2014 and 5% after 2019.

Note that the model is strictly conservative in terms of its assumptions for product commercialization. In the base case, it is assumed that only *one* market – RAPS – is successfully commercialized. Therefore, anaerobic-capable devices, and all of the other potential markets, if successfully commercialized, would be incremental to this forecast. (The market for portable consumer devices by itself could generate volumes more on the order of millions of fuel-cell units, as opposed to forecasted quantities in the thousands of units as seen in the graph, below.)

Fig. 11. Unit Volume Trends



Source: analyst estimates based on data from the company, DOE, Frost & Sullivan Market Consultants and other sources.

Pricing

Pricing has been set, in the base case, on the best information available, which is not much more than a guess. A price of $4,000, equivalent, approximately, to $1,000 / kW, reflects what, at wholesale, the company believes solar air conditioning units produced by SolCool One, its proposed acquisition, will be booked at pursuant to the $350,000 order announced December 22, 2009. (It is assumed that similar per-kilowatt pricing will apply to initial RAPS sales.)

Clearly, pricing is subject to just as much, if not more, uncertainty as are the estimates of sales volume. The earnings and cash-flow model has been put through a series of sensitivity (what if?) scenarios to address the uncertainties.

Pricing for cartridges: indications for cartridge prices for portable power are in the range of $30 to $50 per unit. RAPS installations would use larger cartridges; based on a weekly maintenance and servicing schedule (and therefore weekly refueling) a $180 initial average price has been applied.

Prices have been maintained constant over the 14-year duration of the cash-flow forecast, a choice that reflects a balance of multiple considerations. First, inflation might be expected to drive up prices; however, broad-based consumer price inflation has been excluded from expense estimates and all other line items and so, for consistency, has not been factored into cartridge (or fuel cell) prices.

Second, and bearing in mind the geometric rate of growth of cartridge sales as the core fuel-cell market expands (but at a relative slow pace, so as to assure that the earnings and cash-flow model's estimates err on the conservative side) the model includes cartridge sales-growth retardation factors reflecting (1) the inroads made by makers of generic replacement cartridges beginning (to be conservative and despite Neah's solid IP protection) in Year 5 of the model, and (2) attrition, also beginning in Year 5 of the model and, again conservatively, anticipating fuel cell wear-and-tear and obsolescence.

Third, the model's sensitivity scenarios, which test the effect of other-than-anticipated fuel-cell sales volume, have a disproportionate impact on cartridge sales volume, which acts as an automatic correction, dramatically reigning in growth of revenues from cartridge-replacement sales.

Other Revenues

Receipts from contracts for new-product development (new fuel-cell applications, such as for portable power for the military, airborne or space-based applications, underground anaerobic devices for the extractive industries, etc) are assumed, in the base case, to grow substantially during the first few forecast years before tailing off in a subsequent phase of product maturity.

Gross Margin

The base case targets a 45% to 55% gross margin, which is the outcome of pricing fuel cells attractively (smaller 45% gross margin) and making up the difference from cartridge sales priced at a relatively fat gross margin (55%).

This is the key variable of the model, having the most cash-flow impact in the sensitivity tests. The key to interpreting the impact of variations in gross margin is that they are a message about the consequences of engineering shortfalls or other operational complications that inhibit a fully successful commercialization process. (This is in contrast to gross-margin variation stemming from a decreasing price trend, which is usually associated with a new product that has been successfully commercialized.)

For fuel cells, successful commercialization is a question of attracting customers away from legacy technologies, such as batteries. To do this, fuel-cell manufacturers have to match the pricing of batteries. The test then becomes whether the fuel-cell firm can earn sufficient gross margin at the market-clearing price for batteries. The subsidy provided by follow-on cartridge sales plays an important role in reaching gross-margin objectives.

Operating Expenses

Selling, general and administrative expenses (SG&A) have been assumed to grow with the business, but not at a geometric rate. Non-cash (stock) compensation is a significant portion of SG&A.

Amortization expense (DD&A) is negligible because Neah will be outsourcing most manufacturing operations.

R&D has been modeled as an ordinary numeric input, approximately $1 million higher than management's anticipated expenditures (on an annual basis).

Income Taxes

R&D credits and tax-loss carry-forwards enable the company to go several cycles after achieving profitability before its tax rate rises toward the 35% corporate rate.

Corporate Finance

In the base case, the only financing activity after the $10 million equity infusion of 2010 is to pay off $2 million of debt in 2011; however, in almost any scenario that substantially impacts (decreases) cash flow, a working capital deficit appears in 2011. *In the case of a complete failure to commercialize in the company's leading niche markets (military, anaerobic, solar air conditioning, mobile devices), the implication is that no further additional financing is likely to be forthcoming and the company ceases operations.*

Sensitivity Tests

The base case paints a picture of substantial cash-flow growth after 2011, fueled mainly by sales of replacement cartridges.

Sensitivities run on gross margin show that the firm's ability to design, outsource manufacturing, and then deliver product into niche markets on a commercial scale and with adequate cost control is the single most influential factor in cash-flow variability.

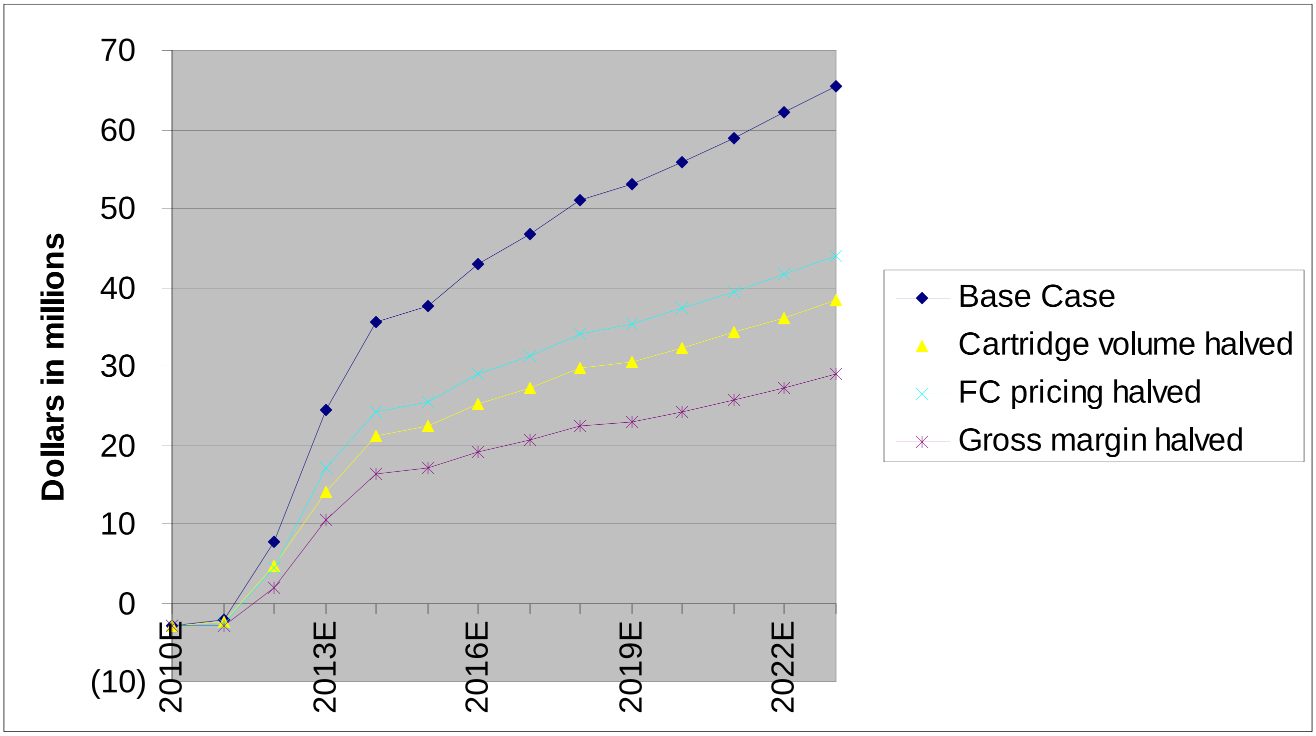
Pricing and volume assumptions do not have nearly the impact of gross margin. Even a radical change to unit volume, cutting cartridge shipments in half (but not fuel-cell shipments, which do not rise to mass-market volume levels even in the base case), does not equal the impact of the not-so-radical assumption that gross margins fall short by half. Cutting fuel-cell prices by half (but cartridge prices by only 25%, because a container with fuel and water should not be highly variable in value) has a relatively modest effect on cash flow.

And finally, failure to commercialize at this stage for Neah would in all likelihood result in cessation of operations. In a test of this, a one-year delay in commercialization was assumed (together with a delay in receipts from government and other contract arrangements). The result: even with full funding from the $10-million equity financing of January 2010 (and rollover of $2 million of short-term debt), negative working capital ballooned to approximately $5 million by the end of the next fiscal year (2011) and was approaching $10 million the year after that.

Summing up: Neah's financial prospects look attractive, at least in the base-case scenario, but that scenario is highly uncertain. There must first be a successful commercialization in at least one market (which is assumed to be the RAPS market). Then, the company must be able to come close to its gross-margin targets by controlling manufacturing costs. Additional uncertainties arise because pricing and volume of shipments cannot be foretold with accuracy.

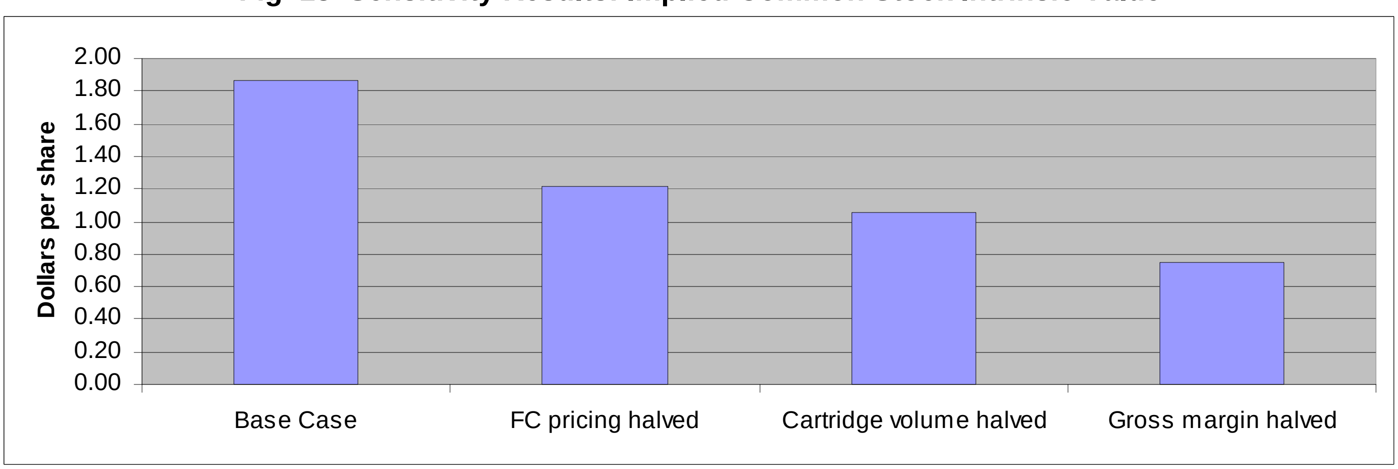
To address these uncertainties, a higher-than-normal discount rate has been applied to cash flows. The valuation section, which follows, will employ a 25% discount rate.

Fig. 12. Sensitivity Results: Discretionary Cash Flow (DCF)



Source: analyst estimates based on data from the company, DOE, Frost & Sullivan Market Consultants and other sources.

Fig. 13. Sensitivity Results: Implied Common Stock Intrinsic Value



Source: Zacks estimates

VALUATION

This section contains the overall report conclusions and the stock recommendation. It also establishes a 12-month price target based on the intrinsic value of Neah common shares, estimated by means of a discounted cash-flow (DCF) formulation.

DCF values simply discount the estimated discretionary cash-flow figures for the company from the earnings and cash-flow model (Table 5, below). *Because of the highly speculative nature of Neah as a pre-revenue, development-stage enterprise, the discount rate has been hiked to an unusually high 25%.*

For each of the sensitivity tests described in the foregoing section (Financial Analysis) a corresponding valuation is provided in Figure 13, above, and in Table 4, below. In the base case, Neah common stock is valued at $1.87 per share.

Note that in the case of a one-year commercialization delay, our cash-flow estimates indicate a working capital deficit exceeding $5 million. It is not probable that the company would be able to accomplish another capital raise of such a magnitude in the near term. **We therefore believe that Neah would be forced to cease operations if commercialization is delayed.** For this reason, Figure 13 omits the intrinsic stock price implied by the delayed-commercialization case.

Price Target (12-Month)

Our $1.75 12-month price target reflects a conservative take on the base-case value result.

Recommendation

Our **outperform** recommendation reflects the merits of the company's unique, silicon-based fuel-cell designs with anaerobic capabilities; however, we emphasize that **valuation estimates are highly sensitive to commercialization outcomes and that failure to commercialize in the near term would likely mean cessation of operations. In general, all estimates should be regarded as highly speculative.** We will be closely monitoring the company and will provide immediate coverage of corporate developments.

Table 4. DCF Sensitivity Tests (Showing Intrinsic Value per Share)

BASE CASE	2010E	2011E	2012E	2013E	2014E	2015E	2016E	Sum	Residual	Total
Discretionary cash flow	(2,833)	(2,181)	7,826	24,393	35,583	37,715	42,934	(to 2016)	(2017-23)	**(NPV)**
Discount rate	**25%**									
PV of discretionary cash flow	(2,833)	(1,744)	5,009	12,489	14,575	12,358	11,255	51,109	44,424	95,532
Shares (2012 estimate)	51,028					Residual as percentage of NPV			47%	
Implied Price	**$ 1.87**									

FUEL CELL PRICES HALVED	2010E	2011E	2012E	2013E	2014E	2015E	2016E	Sum	Residual	Total
Discretionary cash flow	(2,852)	(2,553)	4,522	16,989	24,224	25,559	28,955	(to 2016)	(2017-23)	**(NPV)**
Discount rate	**25%**									
PV of discretionary cash flow	(2,852)	(2,043)	2,894	8,699	9,922	8,375	7,590	32,586	29,693	62,279
Shares (2012 estimate)	51,028					Residual as percentage of NPV			48%	
Implied Price	**$ 1.22**									

CARTRIDGE VOLUME HALVED	2010E	2011E	2012E	2013E	2014E	2015E	2016E	Sum	Residual	Total
Discretionary cash flow	(2,833)	(2,455)	4,708	13,983	21,224	22,349	25,263	(to 2016)	(2017-23)	**(NPV)**
Discount rate	**25%**									
PV of discretionary cash flow	(2,833)	(1,964)	3,013	7,159	8,693	7,323	6,623	28,015	25,803	53,819
Shares (2012 estimate)	51,028					Residual as percentage of NPV			48%	
Implied Price	**$ 1.05**									

GROSS MARGIN HALVED	2010E	2011E	2012E	2013E	2014E	2015E	2016E	Sum	Residual	Total
Discretionary cash flow	(2,860)	(2,822)	1,979	10,485	16,308	17,088	19,214	(to 2016)	(2017-23)	**(NPV)**
Discount rate	**25%**									
PV of discretionary cash flow	(2,860)	(2,257)	1,267	5,368	6,680	5,600	5,037	18,834	19,429	38,263
Shares (2012 estimate)	51,028					Residual as percentage of NPV			51%	
Implied Price	**$ 0.75**									

(Table 4 continued on next page)

COMMERCIALIZATION DELAY	**2010E**	**2011E**	**2012E**	**2013E**	**2014E**	**2015E**	**2016E**	**Sum**	**Residual**	**Total**
Discretionary cash flow	(2,871)	(6,665)	(3,381)	7,929	14,966	15,526	17,292	(to 2016)	(2017-23)	**(NPV)**
Discount rate	**25%**									
PV of discretionary cash flow	(2,871)	(5,332)	(2,164)	4,060	6,130	5,088	4,533	9,444	16,696	26,140
Shares (2012 estimate)	51,028					Residual as percentage of NPV			64%	
Implied Price	**$ 0.51**									

Source: Zacks estimates

Table 5. Earnings and Cash-Flow Model (Base Case)

Earnings and Cash-Flow Model (Base Case)

Fiscal Years Ending Sept 30	Q1(A)	Q2(A)	Q3(A)	Q4(A)	2008A	Q1(A)	Q2(A)	Q3(A)	Q4(A)	2009A	Q1(A)	Q2(E)	Q3(E)	Q4(E)	2010E	2011E	2012E	2013E	2014E	2015E
UNITS BOOKED **Price Point**	**Cost**																			
Fuel cells $ 4,000	$ 2,200									-		-	30	45	75	960	3,300	4,500	5,400	6,210
Cartridges $ 180	$ 81									-			-	260	260	10,335	99,320	278,720	334,464	384,634
INCOME STATEMENT																				
Revenues	Q1(A)	Q2(A)	Q3(A)	Q4(A)	2008A	Q1(A)	Q2(A)	Q3(A)	Q4(A)	2009A	Q1(A)	Q2(E)	Q3(E)	Q4(E)	2010E	2011E	2012E	2013E	2014E	2015E
Fuel cells					0					0	0	0	0	118	118	1,588	11,760	16,464	21,168	24,343
Cartridges					0					0	0	0	0	0	0	1,001	11,385	42,235	58,999	67,849
Contracts / other	223	494	459	220	1,396	511	435	161	0	1,107	0	203	203	500	907	3,500	6,000	6,000	5,000	4,000
TOTAL	223	494	459	220	1,396	511	435	161	0	1,107	0	203	203	618	1,024	6,089	29,145	64,699	85,167	96,193
Other Revenues					0					0					0					
TOTAL	223	494	459	220	1,396	511	435	161	0	1,107	0	203	203	618	1,024	6,089	29,145	64,699	85,167	96,193
Operating Expenses																				
COGS					0					0	0	0	0	79	79	1,569	13,420	30,680	38,972	44,817
DD&A	74	63	22	(34)	125	7	7	7	6	28	6	23	23	23	73	102	120	132	145	160
SG&A	709	1,097	464	314	2,585	305	247	170	3,559	4,281	2,313	190	300	1,083	3,886	4,283	5,483	5,624	5,418	5,227
R&D and other	952	908	634	497	2,990	498	427	194	334	1,453	181	250	500	750	1,681	3,000	3,000	2,000	2,000	2,000
TOTAL	1,736	2,068	1,120	777	5,700	810	681	371	3,899	5,761	2,500	463	823	1,935	5,720	8,955	22,023	38,436	46,535	52,204
Operating income	(1,513)	(1,574)	(661)	(557)	(4,305)	(300)	(246)	(210)	(3,899)	(4,654)	(2,500)	(259)	(619)	(1,317)	(4,695)	(2,866)	7,123	26,263	38,633	43,989
Less: interest expense (net)	284	683	670	420	2,056	585	239	525	511	1,860	378	250	250	250	1,128	0	0	0	0	0
Other expenses / (income)				(206)	(206)					0					0					
Pretax income	(1,797)	(2,256)	(1,331)	(771)	(6,154)	(884)	(485)	(735)	(4,410)	(6,514)	(2,878)	(509)	(869)	(1,567)	(5,823)	(2,866)	7,123	26,263	38,633	43,989
Less: income-tax expense	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,626	7,727	14,296
Net income	(1,797)	(2,256)	(1,331)	(771)	(6,154)	(884)	(485)	(735)	(4,410)	(6,514)	(2,878)	(509)	(869)	(1,567)	(5,823)	(2,866)	7,123	23,637	30,906	29,692
Less: non-recurring items					0				0	0					0					
Adjusted net income	(1,797)	(2,256)	(1,331)	(771)	(6,154)	(884)	(485)	(735)	(4,410)	(6,514)	(2,878)	(509)	(869)	(1,567)	(5,823)	(2,866)	7,123	23,637	30,906	29,692
EPS	(0.51)	(0.61)	(0.31)	(0.17)	**(1.39)**	(0.13)	(0.06)	(0.07)	(0.30)	**(0.45)**	(0.08)	(0.01)	(0.02)	(0.03)	**(0.12)**	**(0.06)**	**0.14**	**0.46**	**0.61**	**0.58**
CASH-FLOW STATISTICS																				
EBITDA	(1,439)	(1,511)	(639)	(591)	(4,179)	(292)	(239)	(203)	(3,893)	(4,627)	(2,494)	(237)	(597)	(1,295)	(4,622)	(2,764)	7,243	26,395	38,778	44,148
Discretionary cash flow	(1,188)	(1,117)	(538)	(203)	(3,543)	(286)	(255)	(231)	(702)	(1,474)	(538)	(487)	(847)	(962)	(2,833)	(2,181)	7,826	24,393	35,583	37,715
Capital expenditures	14	0	0	(14)	0	16	0	0	0	16	0	100	250	250	600	1,260	1,512	1,800	1,800	1,800
Cash flow per share	(0.34)	(0.30)	(0.13)	(0.05)	(0.80)	(0.04)	(0.03)	(0.02)	(0.05)	(0.10)	(0.01)	(0.01)	(0.02)	(0.02)	(0.06)	(0.04)	0.15	0.48	0.70	0.74

Source: Company filings, analyst estimates.

ACCOUNTING ANALYSIS

The company's financial statements are prepared in accordance with US generally accepted accounting principles ("GAAP"). *In a Zacks report initiating coverage, a discussion of key accounting issues is generally included in order to establish a more complete context for the covered company's historical finances as well as the estimated future results presented in the earnings and cash-flow model.*

Going concern. In the company's audited financial statements for the fiscal year ended September 30, 2009, the company's auditor, Peterson Sullivan LLP, sounded a going-concern warning for Neah, based on a working capital deficit. *Management's January, 2010 announcement of $10 million in new funding will, if consummated, remedy the deficit as well as permit restoration of R&D spending to more adequate levels. At the estimated cash burn rate, the new funding should be enough to fund operations through the remainder of the 2010 fiscal year and a portion of 2011.*

Revenue Recognition. The company records revenues from grants and contracts when it has persuasive evidence of the arrangement, the services have been provided to the customer, the price for services is fixed and determinable, no significant unfulfilled obligations exist and collection is reasonably assured. Grant revenues are recognized as the related research is conducted. Contract revenues consist of amounts recorded from services provided to a single customer. Revenues earned under such arrangements have been recorded as the services have been provided. Upfront payments received under contractual arrangements are deferred and recognized as revenue over the service period.

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

Share-Based Compensation. The company uses the Black-Scholes option pricing model as its method of valuation for share-based awards. Share-based compensation expense is recorded over the requisite service period typically and based on the value of the portion of the share-based award that will be earned and vested during the period, adjusted for expected forfeitures. The estimation of share-based awards that will ultimately vest requires judgment, and to the extent actual or updated results differ from the company's current estimates, such amounts will be recorded in the period the estimates are revised. Although the fair value of stock-based awards is determined in accordance with authoritative accounting literature, the Black-Scholes option pricing model requires the input of highly subjective assumptions, and other reasonable assumptions could provide differing results. Neah's determination of the fair value of stock-based awards on the date of grant using an option pricing model is affected by the company's stock price as well as assumptions regarding a number of highly complex and subjective variables. These variables include, but are not limited to, the expected life of the award and expected stock price volatility over the term of the award. *Future stock-based compensation expenses have been factored into the earnings estimates in this report.*

INSIDER OWNERSHIP & GOVERNANCE

Insider Ownership

Name	Position	Years	Stock	% Owned	Options	Experience
G. C. D'Couto	Director, Pres, CEO	2007	2,470,002	7.1	2,070,000	Technology, Mgmt
S. M. Wilson	CFO	2008	350,754	1.0	194,068	Acctg, Mgmt
J. M. Garfield- I,F,1	Director	2008	172,500	0.5	172,500	Acctg, Executive
E. Cabrera- I,F	Director	2009	103,000	0.3	103,500	Financial Services
M. Selsman- I	Director	2009	69,000	0.2	69,000	Communications
P. Sidlo- I	Director	2009	86,250	0.2	86,250	Executive
S. Durongkadej- I	Director (Nominee)	2010	-0-	0.0	-0-	Executive

Officers and Directors as a Group	**3,251,506**	9.3%
Shares Outstanding as of September 30, 2009	34,833,598	

I Independent Director
F Financial Expert
1 Audit Committee

***Source**: Company filings.*

Corporate Governance

Governance Issue	Comments
Separate Board Chair and CEO	No
Board Independence	Five of six members are independent
Quality of Directors	Two have significant industry experience.
Confidential Voting	Yes
Votes Per Share	One per share
Related-Party Transactions	No
CEO/Executive Pay	Combination of salary, cash bonus and performance-based equity incentives
Stock-Based Compensation	Yes
Audit Committee	Only one member (independent)
Compensation Committee	None established
Nominating Committee	None established
Corporate Governance Committee	None established
Transparency of compensation	Adequately transparent
Governance Charter	No

***Source**: Company filings; adapted from New York Society of Security Analysts, "Corporate Governance Handbook"*

MANAGEMENT

Dr. Gerard C. (Chris) D'Couto has served as a member of the board of directors since January 28, 2008 and as the Chief Executive Officer and President since February 2008. Until such time, he served as the Chief Operating Officer and Executive Vice President since September 2007. Prior to joining us, Dr. D'Couto served as senior director of marketing at FormFactor Inc. from January 2006, where he headed the launch of NAND flash and DRAM sort probe cards. Prior to that, Dr. D'Couto had a nine-year tenure at Novellus Systems, Inc., with positions of increasing responsibility ranging from product management to technology development and sales. Prior to that, Dr. D'Couto worked at Varian Associates and as a consultant to Intel Corporation. Dr. D'Couto received a bachelor's degree in chemical engineering from the Coimbatore Institute of Technology in India and also received a master's and a doctoral degree in chemical engineering from Clarkson University in New York. Dr. D'Couto also earned an MBA from the Haas School of Business at the University of California, Berkeley.

Jon M. Garfield has served on the board of directors since May 2008. He has served as Chief Executive Officer of technology company Clearant, Inc. (OTCBB: CLRA) since January 2007 and as Chief Financial Officer at Clearant since September 2006. From September 2001 through 2006, Mr. Garfield served as an independent financial consultant, including advising as to SEC reporting obligations and Sarbanes-Oxley compliance. From 1998 until 2001, he served as Chief Financial Officer of a telecom service provider and a software developer. From 1996 to 1998, he served as Vice President of Acquisitions for Coach USA, Inc. From 1991 to 1996, Mr. Garfield served as Corporate Assistant Controller of Maxxim Medical, Inc. During 1986 to 1991, Mr. Garfield practiced public accounting with Arthur Andersen and PricewaterhouseCoopers. Mr. Garfield received a Bachelor of Business Administration in Accounting from University of Texas, Austin.

Eduardo Cabrera has served on the board of directors since June 2009. Mr. Cabrera has worked on Wall Street for over 20 years, including his current position as Head of Investment Banking at Jesup & Lamont Securities Corporation where he has been employed since July 2005, at J. Giordano Securities Group from March 2004 until July 2005 and with Merrill Lynch as Managing Director and Head of Latin America from May 1993 until December 2002. Since 2003, Mr. Cabrera has focused on providing advisory services and capital market access for emerging growth companies. Mr. Cabrera received his Bachelor of Science from the University of Florida in Engineering and Material Sciences where he graduated with honors and received his MBA in 1987 from Harvard Business School.

Michael Selsman has served on the board of directors since September 2009. Mr. Selsman writes and edits financial analyses, annual reports, stockbroker-investor overviews, corporate presentations, speeches, books and media communications for public and private companies. He has an extensive background in marketing, public relations, fund raising, media relations, strategic planning, corporate identity/image, public policy advocacy, employee communications and advertising. For the last 20 years, Mr. Selsman has been a principal of Public Communications Co., of Beverly Hills, CA and for the last five years has been President and CEO of Archer Entertainment Media Communications, Inc. (AEMC:PK).

Paul Sidlo has served on the board of directors since July 2009. Since 1987 Mr. Sidlo has been CEO and a director at Rez-N-8 Productions, Inc. ("REZN8"), a company that he founded that designs and creates high-end graphics, multi-media branding and graphical image systems that are employed to build and promote a brand. Rez-N-8 served as principal outside design consultant for Microsoft, responsible for graphical user interface development and production and development for Xbox and other products. Mr. Sidlo is also Chief Creative Officer and a director of EMN8, a company that he co-founded in 2002 that is involved in the development of real-time rich media to manage customer relationships in a variety of industries.

Stephen M. Wilson, CPA, CMA has served as the Chief Financial Officer since July 2008 and Corporate Secretary and Controller since June 2008. From May 2007 until February 2008, he served as Chief Financial Officer of Impart Media Group, Inc., a publicly-held digital signage technology company. From July 2006 until his promotion to Chief Financial Officer of Impart, he served as its Vice President of Finance/Corporate Controller. Impart Media Group, Inc. consented to bankruptcy relief on May 21, 2008 following a petition for involuntary bankruptcy filed on February 14, 2008 in the United States Bankruptcy

Court for the Southern District of New York. From 2004 to 2006, he served as Division Controller for Rabanco Companies, a division of Allied Waste. From 2000 to 2004, Mr. Wilson was owner and President of Strategic Finance & Accounting Services, Inc. He is a licensed Certified Public Accountant and is also a Certified Management Accountant and holds dual Bachelor of Arts degrees in Accounting and Business Administration from Western Washington University.

Somyos Durongkadej joined the board of directors in January, 2010. He is currently Managing Director of PS Factory Home Appliances, and the CEO of Solasia Inc., and Asian Energy Inc., based in Bangkok. Previously, he was Managing Director at Chemplus Group (agricultural chemicals). In 2003, Mr. Durongkadej joined B&W Autoparts of Japan as General Manager. Previously, the Thai government recruited him to consult, as head of the ITB Government Program, to the Textiles Group, Automotives Group and Electrical Group of Bangkok. He has also served as Managing Director of Thaiyang Kijpaisan Automotive Parts Co., Samutprakarn, Thailand, V-Metal Thai Co., Bangkok, Mazuma (Thailand) Co., Bangkok, and Multi-Merk Co., also in Bangkok. After obtaining an advanced degree, he was retained by Siam Cement Group, as the Head of Mainframe Computers. Mr. Durongkadej possesses a Master's Degree in Hybrid and Communications in Electrical Engineering from the University of Missouri.

Neal Kaufman joined Neah's advisory committee in February, 2010. Mr. Kaufman has provided leadership to organizations seeking to expand and grow new clean-technology efforts. Recently, he has been involved in investment banking, bringing capital to support new business efforts in clean technology. Prior to that, he was the Chief Executive Officer of a publicly traded company focused on using recycled composite materials to replace existing chemically treated wood products. From 2001 to 2005 he worked at 3Com Corporation, where he was responsible for stackable switches and SMB products. Prior to that, he worked for NBC Internet, opening and running international offices. He began his career at McKinsey & Co., working in the U.S., Europe and South America. He has a BA in economics from Harvard College, an MA from Stanford University and an MBA from Harvard Business School.

Source: Corporate filings.

GLOSSARY AND KEY TO ABBREVIATIONS

Aerobic	Chemical processes that require air, and, more specifically, oxygen.
Alcohols	A group of colorless organic compounds, each of which contains a hydroxyl (OH) group. The simplest alcohol is methanol (CH_30H).
Ampere (Amp) (A)	Measure of electric current (flow).
Anaerobic	Chemical processes that take place in the absence of oxygen.
Anode	Electrode at which oxidation takes place; the negative terminal of a of a galvanic device such as fuel cell or battery. (In an *electrolytic* device, polarity is reversed.)
AC	Alternating current: flowing from positive to negative and from negative to positive in the same conductor.
Btu, Btuh	British thermal unit: The quantity of heat required to raise the temperature of one pound of water 1 ºF. Also Btuh: British thermal units per hour.
Butane	Molecular formula C_4H_{10}. Hydrocarbon with substantially higher energy density than alcohols.
Catalyst	A substance that can speed or slow a chemical reaction be-tween substances, without itself being consumed by the reaction. Platinum is a typical catalyst.
Cathode	Electrode at which reduction takes place; the positive terminal of a galvanic device such as a fuel cell or battery. (In an *electrolytic* device, polarity is reversed.)
DC	Direct current: flowing through a circuit in one direction only.
DMFC	Direct-methanol fuel cell: direct oxidation of liquid methanol within the cell, as opposed to oxidation of hydrogen gas.
EBITDA	Earnings before interest, taxes, depreciation and amortization.
Electrode	A conductor through which electricity enters or leaves an electrolyte.
Electrolyte	An electrically conductive substance, usually a solution containing free ions.
Electrolysis	A process that uses electricity, passing through an electrolytic solution or other appropriate medium, to cause a reaction that breaks chemical bonds (e.g., electrolysis of water to produce hydrogen and oxygen).
Electron	A stable atomic particle that has a negative charge; the flow of electrons through a substance constitutes electricity.
Ethanol	Molecular formula CH_3CH_2OH. Also known as ethyl alcohol or grain alcohol. Consumed in alcoholic beverages.
EV	Enterprise value. The sum of market capitalization plus balance sheet debt, less balance sheet cash.
FC	Fuel cell
FY	Fiscal year
Fuel	A substance that releases energy when reacted chemically with oxygen.
Fuel Cell Stack	Individual fuel cells connected in a series. Fuel cells are stacked to increase voltage.
Hot-swapping	Refueling without interrupting the operation of the host device.
Hydrocarbon (HC)	An organic compound containing carbon and hydrogen, usually derived from fossil fuels, such as petroleum, natural gas, and coal.
Hydrogen peroxide	Molecular formula H_2O_2. As an oxidant component, reacts with nitrous acid to reform nitric acid.
Ion	Atom or molecule that carries a positive or negative charge because of the loss or gain of electrons.
IP	Intellectual property, including patents.
Joule (J)	Measure of energy, work, heat or torque. One watt of power drawn for 1 second. Equal to 3.4 Btuh.
Kilowatt (kW)	A unit of power equal to 1.34 horsepower or 1,000 watts.
Megawatt (MW)	A unit of power equal to one million watts or 1,000 kilowatts.
Milliwatt (mW)	A unit of power equal to one-thousandth of a watt.
MEMS	Microelectromechanical systems
Methane	Molecular formula CH_4. Hydrocarbon familiarly known as natural gas.
Methanol	Molecular formula CH_3OH. Also known as methyl alcohol, wood alcohol, or methyl hydrate. The simplest alcohol.
Micrometer (micron, um)	One millionth of a meter.
MMBtu	Million British thermal units
Nanometer (nm)	One billionth of a meter.
Nitric acid	Molecular formula HNO_3 . Highly corrosive oxidant for anaerobic systems.
Nitrous acid	Molecular formula HNO_2 . By-product in anaerobic systems.
NRI	Non-recurring items
OEM	Original-equipment manufacturer
ONR	Office of Naval Research, Department of the Navy
OTC	Over-the-counter bulletin board, a classification for common stocks that are not listed on a stock exchange.
Oxidant	An oxidizing agent (converts substances to oxides). An oxidant readily transfers oxygen atoms (for example, from the air, or, in gunpowder, from the much higher oxygen concentration in potassium nitrate, KNO_3). Air has been the oxidant of choice in fuel-cell designs, but other oxidants have also been used.
Oxidation	Loss of one or more electrons by an atom, molecule, or ion.

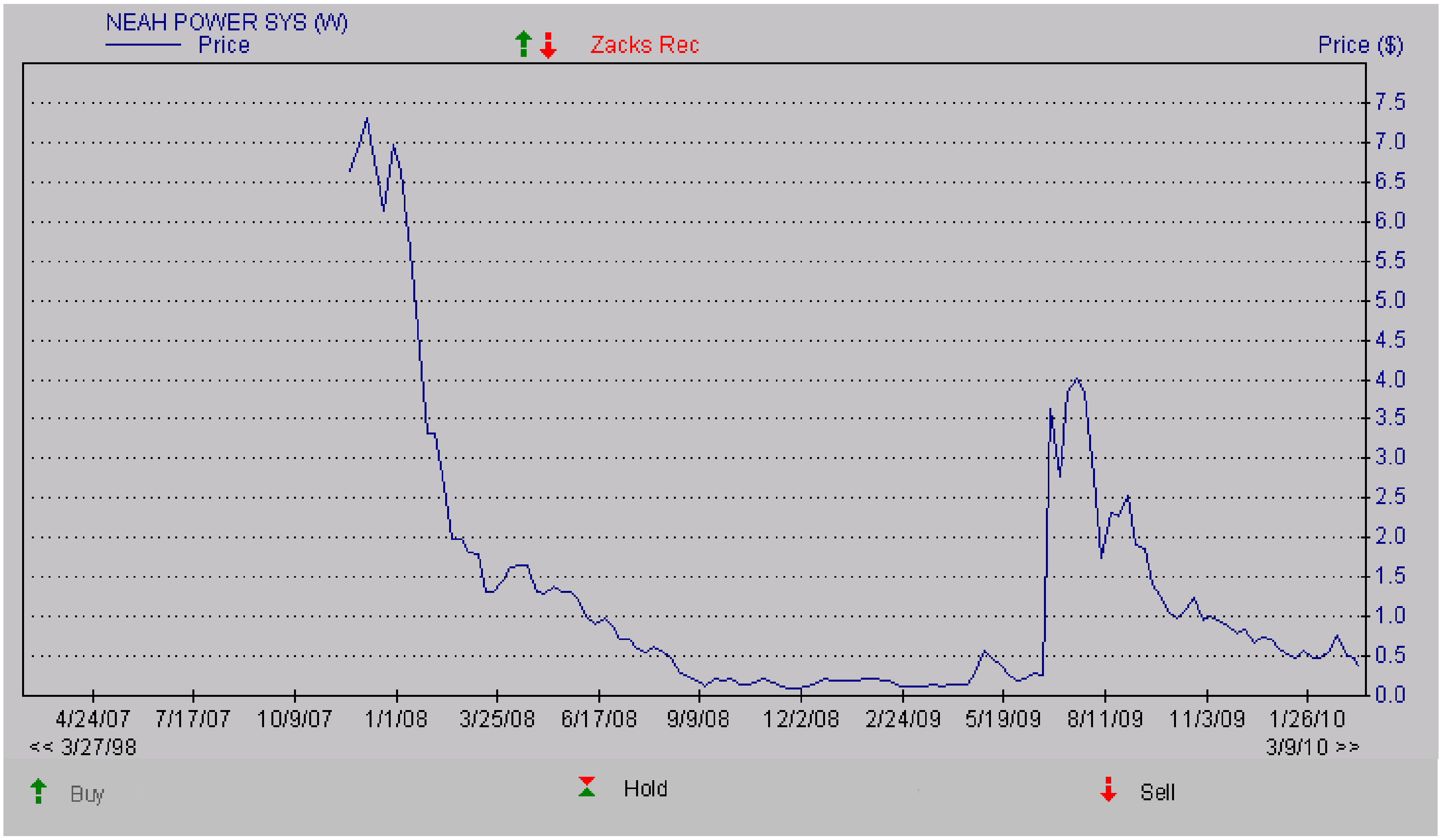
Sources: Zacks (financial terminology), US Dept of Energy.

GLOSSARY AND KEY TO ABBREVIATIONS
(Continued)

PEFC	Polymer-electrolyte fuel cell (also known as proton-exchange membrane fuel cells - PEM-FC).
PEM	Proton-exchange membrane, usually a thin sheet of plastic that conducts protons, acting as a solid-state electrolyte for electrochemical reactions. Also known as a polymer-electrolyte membrane.
PEM-FC	Proton-exchange membrane fuel cell (also known as polymer-electrolyte fuel cells - PEFC).
Permeability	Ability of a membrane or other material to permit a substance to pass through it.
Proton	Subatomic particle in the nucleus of an atom that carries a positive charge and is not movable by electrical means.
Reactant	A chemical that is present at the start of a reaction.
Reformate	A product of catalytic reforming, used to convert hydrocarbon inputs to higher-octane or more purified reformates. Hydrogen is routinely produced as a reformate of natural gas.
SOFC	Solid-oxide fuel cell (solid electolyte). Temperatures of operation are typically 800°C–1,000°C (1,500°F–1,800°F).
Substrate	Material upon which semiconductor devices are fabricated.
UL	Underwriters Laboratories
UUV	unmanned underwater (or undersea) vehicles
Volt (V)	Measure of electrical pressure (or potential, or force) equal to 1 ampere of current drawing one watt of power.
Watt (W)	Measure of power equal to amps times volts. One watt of power yields 1 joule of work (energy) for one second.

Sources: Zacks (financial terminology), US Dept of Energy.

HISTORICAL ZACKS RECOMMENDATIONS



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