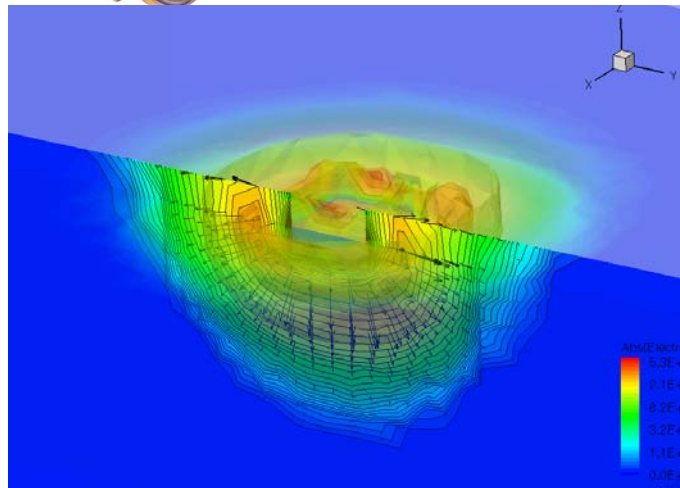


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**POWERSAFE TECHNOLOGY CORP. (PSFT.PK)**

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# AMPLIFICATION TECHNOLOGIES



3D field profile for a photodetector based on internal discrete amplification

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Our Business

Following our acquisition of all of the capital stock of ATI on February 17, 2009, our business consists primarily of developing ATI. ATI has invented an extremely sensitive photodetector technology, that it believes has significant performance and cost advantages over traditional technology and is positioned as a next generation solid state technology for low level light detection. ATI's platform semiconductor technology, which allows amplification of weak signals without introducing additional noise in the amplification process, is in principle applicable to, and has been patented to encompass, detection of signals other than light, and thus could in principle be used to create biological, radiological, electrical, and chemical sensors. ATI was issued a U.S. patent titled "High Sensitivity, high resolution detection of signals" in April 2005 and was granted another patent in August 2006. Over \$9 million has been invested in ATI to date. In addition, ATI has received over \$750,000 in government grants.

ATI intends to develop its technology and market its products for use in current and next generation low level light detection systems at the component level. Its technology and products will be marketed for existing applications for low light level detection as well as for use in new applications and detection systems.

We believe that the current market for devices for the detection of very low levels of light is in the range of \$300 million annually and growing. We believe that the ultimate market that may be addressed by ATI's products over a period of years is in the multi-billion dollar range.

Currently, detection and amplification of low level light signals is usually accomplished using Photomultiplier Tubes ("PMT"), and to a much lesser extent Avalanche Photodiodes ("APD"). PMTs, which are vacuum tubes, have been the standard solution since the 1950's. Their disadvantages include that they are not solid state, require high voltage and are bulky, fragile and sensitive to magnetic fields. They also have limitations in certain operational areas of speed and recovery. APDs disadvantages when used to detect signal strength include that they introduce excess noise (unwanted signals or distortion) in the amplification process, and have limited abilities to increase the strength (amplitude) of the signal (gain). APDs are much more effective when used only to detect the existence or absence of a signal, but not its strength, known as Geiger mode. However, in Geiger mode, APDs cannot be operated continuously, and require "dead time" before they recover to sense the presence or absence of the next signal. ATI's key patented technology, called Discrete Amplification ("DA"), allows the manufacture of semiconductor devices that provide high gain with very low noise, operate continuously in a "non gated" mode and feature a relatively wider wavelength spectrum in which a key measure of detection performance, Photon Detection Efficiency ("PDE") attains desirable levels.

Effective detection of low levels of light involves the conversion of photons to electrons (detection) and the subsequent multiplication of the weak electronic signal to a usable level (amplification). While ATI's invention also concerns the photodetection process, the primary innovation is in the way electron amplification is conducted. ATI's technology permits a high degree of gain without introducing appreciable noise. The foundation of the technology is a relatively new principle of independent amplification of each of the electrons that comprise a signal, transformation (amplification) of each such electron into a charge packet, and subsequent registration of these charge packets. The amplification is done using the process of controlled avalanche that allows the attainment of high levels of amplification without adding significant noise to the signal.

We believe this technology to be broadly applicable and not restricted to the amplification of signals generated by light. ATI believes that its technology can be used for creating chemical, biological and other types of sensors, and affords ATI potential access to a broad range of markets. The technology is universal in that it can be realized on a wide range of semiconductor materials and integrated into numerous semiconductor sensors, transducers, and detectors. It is implemented using standard technological and fabrication processes of semiconductor electronics. These processes have high yield, thus creating the potential for high volume manufacturing of low-cost devices. While we expect to compete primarily on performance, we expect that ultimately our cost of manufacturing will also provide an advantage.

Initially ATI implemented its technology on silicon, which is the material generally used in detection of light in the visible wavelength spectrum. In August 2008, in connection with the completion of phase II of a NASA Small Business Innovative Research (SBIR) grant, ATI announced that it successfully extended its technology from silicon to an InGaAs/InP material system, and from visible light wavelengths into the near infrared spectrum and produced the first high gain solid state photomultipliers for near infrared (NIR) wavelengths of 1000-1700 nm. The performance of these devices far exceeds the performance of any available solid state photodetector in the NIR wavelength range. The measured devices have a gain of over 200,000x and other desirable operating characteristics in areas such as timing resolution and PDE. In the first half of 2009, ATI began marketing and shipping NIR prototypes, and to a much lesser extent silicon based prototypes for scientific instrumentation, aerospace and defense applications. In the past three months we have shipped \$50,000 of product. In the past, ATI has sold experimental silicon devices to NASA/JPL and NIST for research applications.

ATI believes its devices to be of very high interest to researchers in a broad range of commercial and defense related fields including medical imaging, homeland security, biomedical, optical communication, night vision, spectroscopy, instrumentation, aerospace, light detection and ranging ("Lidar") and astronomy. In particular, its NIR devices have generated considerable interest among a number of government related entities who have suggested approaches for ATI to get additional funding to continue developing its technology.

ATI employs 10 PhDs in the US and Moscow. Its scientific team has done pioneering work, and has world leading expertise, in the field of sensors and photo-detectors.

We currently estimate that within the next 12 months we will have capital requirements of approximately \$3,250,000 in order to effectuate our business plan. To meet those requirements we will be seeking equity capital, applying for more government grants and seeking to participate in joint projects with other entities that already have either internal or government funding committed. However, there can be no assurance that we will be successful in raising the capital we require, obtaining grants or other government funding or finding suitable joint venture partners to effectuate our business plan.

On September 10 '09, we retained Corporate Awareness Group to perform internet public relations services for the company for a one month period thru its website [www.nohypenobull.com](http://www.nohypenobull.com), other sites under common control and mailing lists.

### *Plan of Operations*

Our products include both silicon devices for the visible spectrum and InGaAs/InP devices for the near infrared ("NIR"). We have marketed these devices to various research labs in both university and commercial environments. Applications being researched include positron emission topography ("PET") medical imaging systems, Lidar, night vision, and spectroscopy. We currently expect to continue to seek to work with researchers over the next 12 months and to participate in joint projects with other entities that already have either internal or government funding committed.

We have exhibited and presented technical papers in various industry conferences to promote our company and our products. We currently plan on continuing these marketing efforts over the next 12 months. Based on customer feedback and our ongoing research activities, we will seek to improve the design and operational characteristics of our products with each new fabrication run. We will seek to expand the sales of our products from research applications to commercial device usage. If the various research labs currently evaluating our products complete their evaluations, and find our product to work effectively, we believe that they will use our products in the next generation design of their devices.

For our silicon product, ATI is initially targeting the existing markets for PMTs and APDs. Developing a detector chip for PET medical imaging systems which currently use PMTs is one of our priorities. We have done some preliminary testing with an established manufacturer of

PET systems, and expect to do additional testing with that and other manufacturers when the next silicon device fabrication run, currently expected later in 2009, is completed. We have also been working with a research group at a premier medical school that focuses mainly on the development of novel instrumentation for high resolution PET. They have written to us that they feel the next revision of our devices will be suitable for the next generation high resolution, high performance PET detectors. In near infrared, our devices

afford new capabilities that we anticipate will allow the development of new uses, and only to a much lesser extent will we be targeting the replacement of competing devices.

We currently expect to complete a new fabrication run of silicon devices before the end of 2009 that will have somewhat improved characteristics and will provide larger area devices that are required for medical imaging and many other applications and use those devices to generate greater customer interest. We seek to test and implement certain new designs in another set of runs currently anticipated to be completed in the second quarter of 2010 that we believe will give us silicon devices that are commercial quality and have the potential to be market leaders in their space. We expect over time to need to optimize our devices for specific applications. We currently anticipate commencing a limited fabrication run of our NIR product in September 2009 that we expect will offer some performance improvement and will seek to create small arrays of devices. Creating detector arrays with multiple elements (detectors) in one single chip (die) is a critical goal in expanding markets for our devices. In early 2010 we currently expect to commence another NIR fabrication run that will involve more thoroughly improved designs and detector arrays.

We plan to take early steps in seeking to use our technology in fields other than traditional light detection, in particular mass spectroscopy and biological applications. We expect to use academic researchers to help us evaluate these potential applications.

ATI currently has only modest internal sales and marketing capabilities. We plan to supplement those by seeking distribution agreements for overseas markets that we cannot effectively cover.

#### *Plans to Acquire Plant and Equipment in the next 12 months*

ATI intends to continue to outsource the manufacturing of its products. We plan on expanding our internal measurement and testing capabilities over the next 12 months at a cost of approximately \$100,000. We expect to move our offices and will likely need to invest in leasehold improvements that should not exceed \$20,000.

#### *Potential Applications for ATI's Technology*

We believe that ATI's proprietary technology allows the creation of a semiconductor-based sensitive photo-detector that has performance parameters similar to those of a PMT but with all of the advantages of a solid state semiconductor device. We expect that systems using PMTs will largely seek to migrate to solid state technology over the coming years.

Potential applications for ATI's technology include:

*Nuclear Imaging Detector / Medical Instrumentation*  
(PET scanners, gamma cameras, computed tomography ("CT") scanners, etc.)

Currently, almost all commercial PET systems and virtually all gamma cameras utilize PMTs. APDs have not been utilized because of their poor performance and the high cost of the quantity of APDs needed to cover the detection area.

We estimate the current size of the market for sensitive photo-detectors used in medicine to be over \$100 million a year, and believe the market is growing rapidly, as new diagnostic devices are developed and insurance reimbursement for PET and other scan procedures becomes standard for many diagnoses. If the cost of the equipment were lower, we believe that there would be further growth in this market. We believe detector modules to be the single most expensive element of large scanners. We will seek to have our high performance detectors ultimately replace the PMT-based modules, leading to the overall expansion of the market, although there can be no assurance that we will successfully develop detectors with the specifications required in order to replace the PMT-based modules that are the industry standard today.

Our detectors are unaffected by magnetic fields, making it possible in theory to combine MRI and PET scanners in a single instrument. The medical community has long sought a device that has the ability to combine these two imaging modalities, and one major PET manufacturer has filed a patent covering aspects of such a combined device. By providing this capability with our device, we believe that we have the opportunity to make inroads in this market.

We also believe that our technology has the potential to enable better discrimination among various types of body tissue in next generation CT scanners. Although we believe that the CT scanner market appears to be much larger than the PET market, we are not focused on the CT market at this time.

### *Scientific Instrumentation*

Numerous scientific applications require detecting very low levels of light. Our technology has several advantages in applications such as fluorescence detection, time of flight measurements, spectroscopy, and others, because of wide spectral response, low noise and fast response speeds of ATI's devices.

### *Biochip Devices*

While biochips were first developed for genome analysis and are playing a major role in gene identification in human DNA, their applications are expanding into other areas such as toxicological, protein, and biochemical research and diagnostics. They can also be used for rapid detection of biological and chemical agents in biological and chemical warfare. Our technology can accommodate multi-element detector arrays with internal amplification, making the technology suitable for biochip devices.

Biochips could be useful in environmental monitoring, public health, and homeland security applications such as diagnosis of infectious diseases in minutes rather than days,

rapid identification of crime suspects and on-the-spot categorization of biological warfare agents. Examples of potential commercial products include small portable kits for testing for microorganisms in dairy products or for food pathogens such as E. coli and salmonella.

The overall biochip market is estimated to be in excess of \$500 million and is projected to grow substantially for several years. Our technology may have the potential to contribute to the growth of this market and create low-cost electronic sensor devices for consumer use.

#### *Chemical Lab-on-a-Chip and Analytical Instruments*

Small inexpensive sensor arrays could replace current analytical laboratories in many applications. They could be portable and provide analytical results almost immediately. Significant advancements have already been made in this field. Our technology has the potential to create even more sensitive and cheaper chemical lab-on-a-chip devices. In addition to traditional chemical analysis, examples of applications include breath alcohol testing and pipeline leak monitoring.

#### *Environmental Monitoring - Light Detection and Ranging*

We hope that vacuum tubes currently utilized in LIDAR applications could be replaced by rugged, solid-state devices based on ATI's technology. Due to its high sensitivity, the operation of a photo-detector based on the technology will be less susceptible to particle interference. The emergence of low-cost detectors with superior performance could lead to the substantial growth of this market. We have begun shipping our devices in 2009 to research labs targeting this application.

#### *Security Devices*

The ability to sense very weak sub-nanosecond impulses is valuable in many security applications. Our technology has the potential to create the most sensitive security devices compared with conventional APDs and APD arrays, including active pixel arrays for automatic monitoring.

#### *Competition*

Our main competitors are the existing PMT and APD manufacturers such as Hamamatsu Photonics K.K. (Japan), PerkinElmer Inc. (US), Photonis, SensL (Ireland), ET Enterprises Limited (UK), and RMD (US) and smaller specialty manufacturers. In addition, Hamamatsu, SensL, and some smaller companies have developed silicon based photodetectors ("SiPM"s) to compete with PMTs, that compete directly with our product. PerkinElmer has recently announced that it has licensed SiPM technology from the Max Planck Institute. Unlike ATI's technology, SiPM technology is based primarily on unpatented technology that is in the public domain. We believe that a design release

currently planned for the second quarter of 2010 will result in improvements to the dark count, which is the signal from the detector in the dark (with no illumination on the detector) and dynamic range, the time required for the detector to detect larger number of photons, which in effect lowers reset time (the time required for the detector to detect the next signal of our devices making them suitable for the majority of applications and having the potential to be a leader in its field. There are measurable characteristics of our device such as timing resolution and dynamic range, voltage and temperature stability that we feel make it inherently better than our competitors for many applications. Zecotek, a Canadian venture company, has also introduced a competing product. We believe that it does not currently present a substantial competitive threat.

In NIR, the available vacuum devices are extremely expensive, have very low PDE and do not in our view present a serious competitive challenge. Also to our knowledge there is no direct competition to ATI in the solid state market. We will likely seek to replace Geiger mode InGaAs/InP APDs. The market for these devices is small and served by a few small firms. While we hope to compete in the large InGaAs telecom market someday, we do not anticipate doing so in the near future due to the expensive major long term research that would be required.

### *Competitive Advantages*

We believe that ATI's key competitive advantages are its unique intellectual property and its scientific team. In April 2005 ATI was issued its cornerstone patent, U.S. Patent No. 6,885,827 titled "High Sensitivity, high resolution detection of signals." A continuation patent, U.S. Patent No. 7,085,502 with the same title, was granted in August 2006. Both these patents expire in July 2022. ATI has filed an additional patent application and a provisional patent application, and plans to file additional patent applications to further protect its intellectual property. International patent applications have been filed as well, and ATI has received a patent from the European Patent Office corresponding to its first US patent.

### Employees

ATI currently has 26 full time employees and four part time employees, including 21 full time and 4 part time employees in Moscow, 5 full time employees in New York and one full time and one part time consultant in New York. ATI expects that its US based staff will grow over time and that it will reduce staff in Moscow over the coming months. ATI will make full use of its highly qualified and relatively inexpensive overseas technical team for its R&D activities. It is expected that the Company will continue to use an outsourcing model both in the US and overseas, and will require only limited manufacturing personnel for the foreseeable future.

The information contained herein may contain forward-looking statements within the meaning of the Securities Act and the Exchange Act and, as such, may involve known and unknown risks, uncertainties and assumptions. These forward-looking statements relate to current expectations and are subject to the limitations and qualifications set forth in the information as well as in PSFT's documents filed with the Securities and Exchange Commission, including, without limitation, that actual events and/or results may differ materially from those projected in such forward-looking statements.