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# Vicor Technologies, Inc. (VCRT-OTC)

***VCRT: Revenue Generation Commenced in January 2010. Q1 Below Expectations But Outlook Remains Highly Positive.***

| | |
|---|---|
| **Current Recommendation** | **Outperform** |
| Prior Recommendation | N/A |
| Date of Last Change | 04/9/2010 |
| Current Price (05/14/10) | $0.73 |
| **Six- Month Target Price** | **$2.61** |

## OUTLOOK

Vicor began generating revenue in January 2010 after 10 years as a developmental company. Risks still abound but, in our opinion, are acceptable given the potential for sales and profitability to ramp rapidly. Early indications suggest the PD2i Analyzer™ has received a positive response from physicians. We expect sales to ramp towards the back half of 2010. Financial condition is a concern, although significantly mitigated by management's ability to continue to raise financing. We also expect a large near-term equity offering. We expect the company to become cash flow positive by late-2011. We maintain our Outperform rating and $2.61 price target.

## SUMMARY DATA

| | |
|---|---|
| **52-Week High** | **$0.75** |
| **52-Week Low** | **$0.51** |
| **One-Year Return (%)** | **N/A** |
| **Beta** | **0.00** |
| **Average Daily Volume (sh)** | **128,308** |
| **Shares Outstanding (mil)** | **42** |
| **Market Capitalization ($mil)** | **$31** |
| **Short Interest Ratio (days)** | **N/A** |
| **Institutional Ownership (%)** | **0** |
| **Insider Ownership (%)** | **N/A** |
| **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** | **N/A** |
| **P/E using 2010 Estimate** | **N/A** |
| **P/E using 2011 Estimate** | **N/A** |
| **Zacks Rank** | **N/A** |

| | |
|---|---|
| **Risk Level** | **N/A** |
| **Type of Stock** | **N/A** |
| **Industry** | **Med Instruments** |
| **Zacks Rank in Industry** | **N/A** |

## ZACKS ESTIMATES

**Revenue**
(in 000's)

| | Q1 (Mar) | Q2 (Jun) | Q3 (Sep) | Q4 (Dec) | Year (Dec) |
|---|---|---|---|---|---|
| 2008 | $0 A | $0 A | $0 A | $0 A | $0 A |
| 2009 | $0 A | $0 A | $0 A | $0 A | $0 A |
| 2010 | $100 A | $202 E | $545 E | $1,096 E | $1,942 E |
| 2011 | | | | | $11,373 E |

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

| | Q1 (Mar) | Q2 (Jun) | Q3 (Sep) | Q4 (Dec) | Year (Dec) |
|---|---|---|---|---|---|
| 2008 | | | | | -$0.29 A |
| 2009 | | | | | -$0.18 A |
| 2010 | -$0.06 A | -$0.06 E | -$0.03 E | -$0.02 E | -$0.16 E |
| 2011 | | | | | -$0.05 E |

Zacks Projected EPS Growth Rate - Next 5 Years % **N/A**

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## WHAT'S NEW

***First Quarter Financial Results…***

Vicor reported earnings for the first quarter ending March 31, 2010 on May 11, 2010. Vicor generated $100k in total revenue consisting of $88k from sales of its PD2i Analyzer™ and $12K from testing. The most recent quarter was the first period in which Vicor began generating revenue related to the PD2i Analyzer™, which launched in January 2010. Despite revenue coming in well below our $225k forecast, first quarter EPS came in at ($0.06), matching our estimate as a result of significantly lower than expected operating expenses.

While revenue came in lighter than expected, our positive long-term outlook for Vicor remains unchanged. As we detailed in our initial report on Vicor in May, accurately forecasting revenue will be difficult until the rate of instrument placements reaches a more consistent pattern. Of greater importance is that it appears physician interest in the PD2i Analyzer™ is real and that Vicor's business model is operating as hoped. Vicor's ability to generate testing revenue through the first quarter, albeit lower than we had modeled, is perhaps the most encouraging information from the company's press release as this component of revenue (as opposed to instrument sales) is what we expect to be the catalyst to exponential long-term growth for the company.

We estimate the company placed approximately 18 units during the quarter, roughly half of our forecasted 35 units. While the ramp in unit placements is trending lower than anticipated, we are highly encouraged that Vicor's business model appears to be validated and the company is generating testing revenue. Revenue, cash flow and income will experience significant growth once Vicor has established even a moderate (~ 500 units) installed base due to exponential growth in testing revenue. We therefore have little concern over the lower than anticipated rate of unit sales in the quarter and remain highly positive Vicor's long-term outlook.

Cash used in operations was $1,113k, up only slightly from the fourth quarter 2009. Vicor raised $970k through the sale of 8% subordinated notes and exited the quarter with $308k in cash and $1,832k in debt. While the balance sheet remains highly levered we remain comfortable that Vicor can continue to raise additional financing until the company becomes cash flow positive, which we believe could come as soon as late-2011. In fact, a footnote in the first quarter 10-Q mentions Vicor successfully raised an additional $949k from the sale of the 8% subordinate notes during the period April 1, 2010 through May 10, 2010. With interest payments on the debt almost exclusively PIK, cash burden is very low. We believe that this, along with a significant portion of the bondholders being directors and executives of the company substantially increases the likelihood that Vicor will be able to continue to service the debt and raise additional financing when needed. We also expect Vicor to look to take out the debt financing through an equity offering, which we believe could come in the early part of the second half of the year. We model the company to become cash flow positive by late 2011 and expect investor interest to grow as the rate of system placements escalates and revenue begins to ramp.

We have adjusted our model to reflect the lower instrument placement rate and lower test revenue relative to our earlier expectations but remain highly positive on the company's long-term outlook. We look for full-year revenue and EPS of $1,942k and ($0.16) with revenue heavily weighted towards the back half of the year.

We are maintaining our Outperform rating on Vicor with a $2.61 price target.

## OVERVIEW

## BUSINESS

Vicor Technologies, Inc ("Vicor") was formed in August 2005 and went public in 2007. The medical diagnostics company is focused on developing non-invasive technology to accurately predict the risk of future pathological events (i.e. sudden cardiac death, complications from diabetes, etc.). The company's technology is based on its proprietary point correlation dimension algorithm (PD2i® algorithm) which appears to be a superior alternative to currently used vital sign and heart rate variability measurement technology. Vicor is headquartered in Boca Raton, FL and employed ten people as of March 1, 2010.

Vicor received FDA marketing approval of its first product, the PD2i Analyzer™ ("Analyzer") in December 2008. The product subsequently went through additional programming updates and launched in January 2010. The Analyzer incorporates Vicor's PD2i® software technology into a private label electrocardiogram (ECG) machine. The product displays and analyzes ECG data that measures heart rate variability (HRV). The HRV data and analysis generated by the Analyzer software is not currently approved by the FDA to address a specific medical indication so the clinical significance of the data must currently be determined by a physician. However, there are currently 60 ICD-9 diagnosis codes available for which use of the Analyzer can be justified and physicians are currently being reimbursed by Medicare, Medicaid and private insurers through existing CPT codes. Vicor has clinical trials underway, the results from which are expected to be submitted to the FDA as early as the second quarter of 2010 seeking marketing clearance for specific clinical applications of the HRV data analysis. As new marketing applications are approved by the FDA, we expect sales, which commenced in early-2010, and physician interest in the Analyzer to significantly ramp.

In January 2010 Vicor signed a distribution agreement with VF Medical which will serve as exclusive distributor for the Analyzer in South Carolina, North Carolina and selected cities in Georgia. A 25-person sales team began marketing the Analyzer to cardiologists, electrophysiologists and other physicians with which VF Medical has long-standing relationships. Dr. S. Granville Vance, principal of VF Medical and a practicing family physician, purchased the first Analyzer which will be used in his seven-physician clinic in SC. Vicor is currently hiring in-house sales personnel and is engaged in discussions with other distributors as it prepares to roll-out its marketing programs to other states, which is expected to eventually become nationwide. Vicor's in-house sales efforts will largely focus on physicians with whom the company already has established relationships – 350 shareholders and 450 members of the company's National Cardiac Panel. Vicor is also in discussions with a separate distributor for marketing the device internationally. International sales are expected to commence in 2010 as well.

Vicor generates revenue through sales of the Analyzer as well as on each test run by physicians utilizing the device. This "printer, printer cartridge" business model should result in product sales providing the majority of revenue initially but per-test revenue quickly becoming the bulk of total sales as the installed unit base grows. Margins, which we expect to eventually approach 30% on products and 70% per-test, will also significantly increase as the installed base grows.

### PD2i® TECHNOLOGY

The PD2i® Algorithm technology allows a physician to evaluate heart rate variability information provided by an electrocardiogram. The technology, which is believed to be superior to existing HRV analysis, has potential applications in predicting fatal cardiac arrhythmias, imminent death and autonomic nervous system dysfunction, the latter which can lead to cardiac autonomic neuropathy (discussed below).

Conventional and widely-used heart rate variability analysis relies on a model using a linear stochastic algorithm and only focuses on the heart. Conversely the PD2i® technology uses a non-linear, non-stochastic model and focuses on how the brain influences heart rate. Conventional HRV analysis using a linear stochastic algorithm assumes that heart rate variability is random and is distributed around the mean. However, it has been shown that heartbeat intervals have internal correlations and are not random, which violates the linear model and severely impairs its predictive ability. It does not account for how the brain influences irregular heart rates. By contrast, Vicor's non-linear model presumes that the heart rate variation is not random and is caused physiologically (by the brain). Recent trials suggest that this may result in a more accurate analysis of HRV which can lead to earlier detection of autonomic nervous system dysfunction, more accurate identification of at-risk sudden cardiac death

individuals, quantifying the risk of death in the critically ill and other applications related to the brain-heart relationship.

Several sensory motor loops which are controlled by the brain such as temperature, pH level (blood acidity), baroreceptor reflex (maintains blood pressure) and others have been shown to control heart rate. Vicor's Chief Scientist, Dr. James Skinner, found that the degree to which these sensory motor loops cooperate (i.e. – act in concert) influences the degrees-of-freedom of the heart rate's variability. Normally, these sensory loops should act independently. When the body is threatened by disease or trauma it signals these loops to coordinate in order to keep it alive. This coordinated state is not sustainable however, and can have very serious and deadly consequences including ventricular tachycardia (fast heart rhythm that can lead to ventricular fibrillation or death), ventricular fibrillation (heart quivers and fails to pump blood) and sudden cardiac death. By measuring the degrees-of-freedom of the heart rate variability, the PD2i® algorithm may be able to more accurately determine which individuals are at near-term risk of suffering serious or fatal consequences from this coordinated sensory loop condition and allow the patient to seek appropriate treatment beforehand.

The PD2i® technology requires a maximum data collection of only 1,000 heartbeats (roughly twenty minutes where the patient is hooked up to the ECG machine through electrodes) and does not require that the patient's heart rate is elevated, for example by running on a treadmill. These are other significant advantages over other competing technologies which can necessitate substantially longer collection times and require that the patient's heart be stressed – a potentially dangerous activity for patients with weak hearts. Test results on the Analyzer, which can be read on a computer screen or printed, appear as positive or negative and are easily discerned by a physician.

## AUTONOMIC NERVOUS SYSTEM DYSFUNCTION

Autonomic nervous system dysfunction currently represents the biggest potential market for the Analyzer. While Vicor is not seeking FDA clearance to market the Analyzer specifically for ANS dysfunction testing, we believe, based on the size of the market, recent trial data, and suggested screening by the American Diabetes Association, that ANS/DAN testing represents a very attractive opportunity for Vicor.

The autonomic nervous system (ANS) acts as a control system for the body, functioning outside of our direct control. The ANS is part of the peripheral nervous system, controlling organs and muscles involuntarily. It controls visceral functions such as heart rate, blood pressure, respiration, salivation and urination.

Autonomic nervous system dysfunction, or dysautonomia, encompasses a wide variety of disorders of the ANS including tachycardia syndrome (significant increase in heart rate when standing from a sitting position), vasovagal syncope (fainting), mitral valve prolapse dysautonomia (chest pain from thickened heart valve) and pure autonomic failure (dizziness/fainting) among others. Depending on the severity of ANS dysfunction, the disorder can be severely debilitating with some individuals suffering from one or more of the following; excessive fatigue, excessive thirst, dizziness, anxiety, rapid or slow heart rate and fainting.

The causes of ANS dysfunction remain inconclusive but research has indentified several things that may be contributors to the disorder including; diabetes, hereditary factors, pregnancy, viral illness, Parkinson's disease and damage to the ANS system from physical trauma.

### Diabetic Autonomic Neuropathy (DAN)

Autonomic nervous system dysfunction is particularly prevalent among diabetics and if left untreated can result in the individual suffering from symptoms of diabetic autonomic neuropathy or DAN. Diabetic autonomic neuropathy results from diabetics' sugar levels remaining too high for an extended period, resulting in nerve damage which can severely negatively impact the quality of life of diabetics. DAN is a significant contributor to mortality rates among diabetics and is a major reason for increased costs of treatment among the diabetic population. The prevalence of DAN is still unknown and depending on the criteria used to evaluate the incidence rate, could be as little as 2% to as high as 90% of all diabetics. While DAN typically affects all parts of the ANS, its symptoms may be focused on a single organ or organ system. Clinical symptoms of DAN are most prevalent in the digestive system and include bloating, diarrhea, constipation, nausea and vomiting. Symptoms may also be evident in the cardiovascular system and can include increased heart rate, low blood pressure, fainting and nausea. However, clinical symptoms of diabetic autonomic neuropathy typically do not occur until long after the onset of diabetes, making early identification of the disorder extremely important. If left untreated, nerve damage from DAN can result in heart disease, loss of bowel control, kidney failure, impotence and blindness.

**Cardiovascular Autonomic Neuropathy (CAN)**

Cardiovascular autonomic neuropathy (CAN) is a common and very serious form of diabetic autonomic neuropathy which occurs in approximately 17% of type 1 and 22% of type 2 diabetics. CAN causes abnormalities in heart rate control and has been linked to postural hypotension (drop in blood pressure when standing up), myocardial ischemia (restriction in blood supply), sudden cardiac death and heart attacks. CAN can severely limit exercise capacity and increase the risk of an adverse cardiovascular event during exercise. Individuals with CAN are more likely to develop hypotension (low blood pressure) and hypertension (high blood pressure) after exercise. Studies have shown that diabetics with cardiovascular autonomic neuropathy are at an extraordinarily higher risk of dying than those without the disorder.

**Suggested Screening for Diabetic Neuropathies**

Patient history and physical examinations have proved ineffective in the early detection of DAN. Heart variability testing is now considered the best indicator of the disorder. In 2005 the American Diabetes Association published a statement titled *Diabetic Neuropathies* in which they recommended that all patients with diabetes should be screened for autonomic neuropathy through the use of heart rate variability testing. The statement suggests that all type 2 diabetics be screened at the time of diagnosis of the disease and type 1 diabetics screened five years after diagnosis. Specifically, the statement reads, "tests for heart rate variability, including expiration-to-inspiration ratio and response to the Valsalva maneuver and standing, may be indicated." The ADA suggests repeating these tests on an annual basis upon a negative screening for autonomic neuropathy.

We note, however that the ADA's recommended HRV testing using the Valsalva maneuver and expiration-to-inspiration ratio may have limitations relative to Vicor's PD2i® technology. Most importantly is that Vicor's Analyzer requires a smaller sample size and does not require the patient to raise their heart rate, the latter which can be particularly risky with cardiovascular autonomic neuropathy patients. The Analyzer, unaffected by noise or non-stationarity may also provide a more accurate diagnosis than the suggested testing measures. Given the prevalence of the disease and growing obesity epidemic in the U.S., we believe diabetic neuropathy screening represents an enormous opportunity for Vicor. The PD2i® technology potentially offers an earlier and more accurate diagnosis of DAN which the ADA has indicated can result in more effective treatment of the disorder and an improved patient prognosis.

According to the ADA statement; "The early recognition and appropriate management of neuropathy in the patient with diabetes is important for a number of reasons. 1) Non-diabetic neuropathies may be present in patients with diabetes. 2) A number of treatment options exist for symptomatic diabetic neuropathy. 3) Up to 50% of distal symmetric polyneuropathy (DPN) may be asymptomatic (patient shows no signs of the disorder), and patients are at risk of insensate (no feeling) injury to their feet. As > 80% of amputations follow a foot ulcer or injury, early recognition of at-risk individuals, provision of education, and appropriate foot care may results in reduced incidence of ulceration and consequently amputation. 4) Autonomic neuropathy may involve every system in the body. 5) Autonomic neuropathy causes substantial morbidity and increased mortality, particularly if cardiovascular autonomic neuropathy (CAN) is present."

**Diabetic Market**

According to the American Diabetes Association 2007 statistics, 23.6 million Americans have diabetes including 17.9 million diagnosed and 5.7 million undiagnosed with the disease. About 5% - 10% of all diabetics have type 1 diabetes. Approximately 1.6 million new cases are diagnosed each year. Diabetes is the seventh leading cause of death in the U.S. Heart disease and stroke are listed as the two most common related symptoms of diabetes-related deaths. The ADA estimates that approximately 75% of adults with diabetes have high blood pressure and 60% - 70% of all diabetics suffer from mild to severe forms of nervous system damage.

The 23.6 million Americans suffering from diabetes and the 1.6 million new cases diagnosed every year offers a huge market for HRV testing. Assuming 100% compliance of diabetics to the ADA suggested screening, this represents a potential HRV screening opportunity of over 18 million tests per year. Worldwide the market is exponentially larger. According to the World Health Organization, approximately 171 million people have diabetes. And while Vicor is not currently seeking FDA approval specifically for ANS/DAN testing, testing for the disorders are reimbursable under existing CPT codes. We believe the Analyzer offers family physicians, endocrinologists and internal medicine doctors a potentially more accurate diagnosis of DAN and assuming compliance of the ADA suggested testing by only a very small fraction of diabetics, offers Vicor a very substantial source of revenue.

## SUDDEN CARDIAC DEATH (SCD)

The identification of individuals at risk of suffering from near-term sudden cardiac death offers another significant opportunity for Vicor. Sudden cardiac death is the most common cause of natural death in the U.S. with approximately 400,000 people dying from SCD every year. Roughly 90% of victims that experience SCD symptoms die. SCD differs from a heart attack, the latter which occurs due to the lack of blood flow to the heart as a result of blockage in coronary arteries which feed the heart. Sudden cardiac death, by contrast, is an electrical problem between the brain and the heart. Sudden cardiac death is characterized by the sudden and unexpected loss of heart function which is caused by arrhythmias (abnormal heart rhythms) or tachycardias (rapid heart beat). The most common deadly arrhythmia is called ventricular fibrillation which is an erratic, quivering (rather than proper contraction) of the heart muscle. When this occurs the heart is unable to pump blood to vital organs, resulting in death within minutes if left untreated. Where heart attack victims often experience chest pain just prior to succumbing to a heart attack, in most cases there are no warnings signs that an individual will suffer from SCD.

As brain death and permanent death start to occur in four to six minutes after SCD strikes, immediate cardiopulmonary resuscitation (CPR) and the use of a defibrillator are essential for survival of SCD victims. The defibrillator, either external or implanted in the body, will deliver a shock to the victim in order to restore normal operation of the heart. Studies have shown that SCD victims have a roughly 90% chance of survival if defibrillation is provided within the first minute of experiencing the event. Survival drops to between 30% and 50% if defibrillation is provided within the first five minutes of experiencing SCD. It is estimated that 95% of otherwise lethal ventricular arrhythmias were effectively terminated by the use of implantable cardioverter defibrillators (ICD).

Implantable cardioverter defibrillators are small (~3") electronic devices that monitor heart rate and rhythm. ICDs are a relatively new technology with the first implanted in 1980. The "brain" portion of the device is implanted under the skin in the upper chest. The device is connected to the heart chamber through leads which are guided through veins inside the chest. When the ICD indentifies abnormal heart rhythms it delivers a shock to the heart which restores normal heart function.

While ICDs have shown to be very effective in terminating arrhythmias and tachycardias, only a small portion of SCD victims were fitted with an ICD at the time of SCD onset. Moreover, a substantial number of at-risk SCD victims still do not qualify for ICD implantation although Medicare revised their guidelines for qualification of ICD implantation in 2005. While the revised Medicare guidelines lowered the hurdle for patients to qualify for ICD implantation, they still only focus on the condition of the heart and exclude consideration of the brain as a trigger for SCD. In essence, the new guidelines broadened the demographic (i.e. – included milder forms of heart disease) for ICD implantation eligibility but failed to effectively identify those individuals at-risk of SCD. The result is a substantial number individuals at-risk of SCD will still remain ineligible to receive reimbursement for ICD implantation through Medicare.

The new guidelines will also compound the problem of over-implantation of ICDs as more people that are not at-risk of SCD are fitted with the devices. It has been shown that the vast majority of people who have been fitted with an ICD will not suffer from the onset of SCD and therefore, may have been inappropriately diagnosed as at-risk of experiencing sudden cardiac death. A meta-analysis of two clinical studies (*Cost-Effectiveness of Implantable Cardioverter-Defibrillators* October 2005 and *Amiodarone or an Implantable Cardioverter-Defibrillator for Congestive Heart Failure* January 2005) that were published in *The New England Journal of Medicine* showed that 76% of patients which were identified as at-risk of suffering from near-term SCD, in fact did not experience symptoms of an SCD episode (i.e. – the ICD was not needed). Over-implantation results in unneeded cost and the risk and discomfort of surgery – this is in addition to the potential to suffer mental anguish over the thought of being at-risk of SCD.

The use of heart rate analysis as an accurate predictor of SCD is still very much in its infancy. Vicor's PD2i® algorithm may be the most accurate and effective technology in predicting the risk of near-term sudden cardiac death and directly addresses the issues of over- and under-implantation of ICD. The company has demonstrated the efficacy of the PD2i® technology in several self-sponsored trials and is currently working with the University of Rochester in testing the algorithm for the prediction of SCD in a retrospective analysis of a large high-profile trial of heart failure patients.

### Trial Data - Sudden Cardiac Death

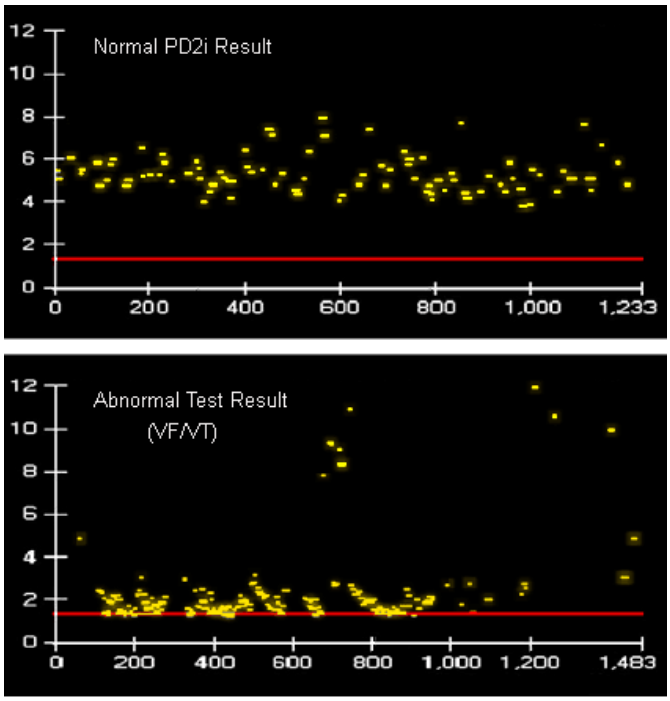
Heart rate variability analysis has not been widely adopted as a measure of risk of SCD because it has not demonstrated sufficient statistical predictability. This appears to be due the inadequate sensitivity and specificity of models using a linear algorithm. Vicor's PD2i® non-linear model, by contrast, has shown to be very accurate in

identifying patients at risk of suffering near-term SCD in recent studies (these tests were not reviewed by the FDA). Vicor's Cardiac Analyzer™ (CA) is being developed to identify patients that are at high-risk of sudden cardiac death within the next six to twelve months.

Vicor's technology determines which individuals are and are not at risk of experiencing near-term SCD by an analysis of the time-dependent point correlation dimension (PD2i®) algorithm. In simple terms, ECG data are fed into Vicor's software which then identifies which individuals are at-risk of an adverse arrhythmic event based on the tracking of the statistical measure "degrees-of-freedom" in the ECG data. Vicor has determined, with statistically significant accuracy, that ECGs with point correlation dimension scores less than or equal to 1.4 were associated with high risk of ventricular fibrillation (VF) or sustained ventricular tachycardia (VT).

***"…Using PD2i® Algorithm for Risk Stratification of Arrhythmic Death" Analysis***
Vicor demonstrated the ability of the CA to accurately predict the risk of VF/VT in a small trial called *Nonlinear Analysis of the Heartbeats in Public Patient ECGs Using Automated PD2i® Algorithm for Risk Stratification of Arrhythmic Death.* The study, which was published in the April 2006 issue of *Therapeutics and Clinical Risk* Management, included 44 sets of ECGs, each of which had a known outcome (22 VF/VT and 22 no VF/VT). The 22 which acted as the control group were randomly selected and did have arrhythmias but did not have VT/VF. The analysis was completed using blinded and automated procedures. Results showed the CA, by identifying which ECGs had PD2i® scores $\leq$ 1.4, accurately determined with 85% accuracy those individuals that did go on to experience ventricular fibrillation/ventricular tachycardia. It also identified with 100% accuracy those individuals who would not go on to experience VF/VT.

The data plots below are from the *Nonlinear Analysis of the Heartbeats*…trial. The PD2i® plot (top) is from a normal healthy subject. The bottom graph shows data from a patient who went on to experience VF/VT. PD2i® score of 1.4 is identified by the red line in both graphs. The healthy-patient graph has no data points near the red line, while the ECG data from the VF/VT patient shows repeated scores at and below 1.4 PD2i®. The graphs also demonstrate the ease of interpretation of the data.




Vicor Technologies, Inc

***"Risk Stratification for Arrhythmic Death"* Analysis**
In another trial, the CA Analyzer™ correctly identified with 85% accuracy those patients that would experience sudden cardiac death within the next 12 months. Results also showed the CA identified with 96% accuracy those patients that would not experience SCD within the next twelve months.

***"Risk Stratification for Arrhythmic Death in an Emergency Department Cohort"***

918 Total enrolled, 819 completed study

| | AD | no AD |
|---|---|---|
| **PD2i Pos** | 26 TP | 103 FP |
| **PD2i Neg** | 1 FN | 595 TN |

Sensitivity = 26/(26 + 1) = 96%
Specificity = 595/(595 + 103) = 85%
Negative predictive value = 595/(595 +1) = 99%
Positive predictive value = 26/(26 + 103) = 20%
Relative risk = 26/1 ×(595 + 1)/(26 + 103) = 24.2

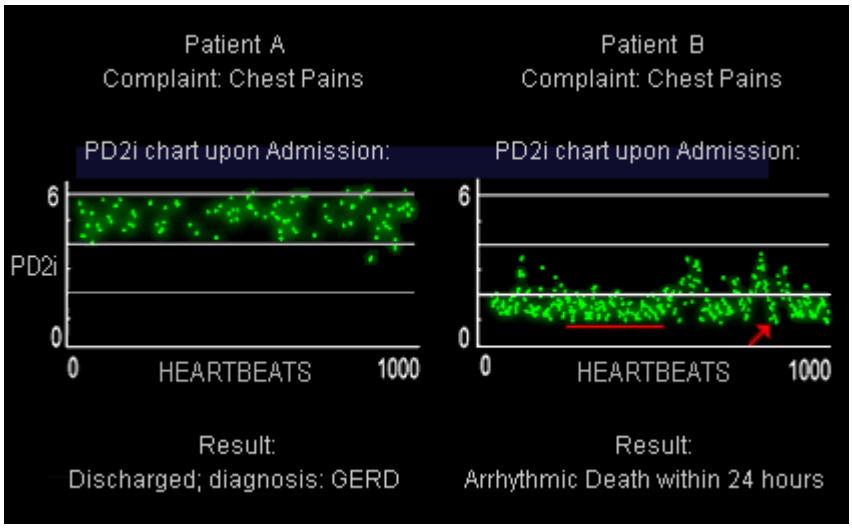
p < 0.01, Fisher's Exact Test for contingency tables

AD, arrhythmic death; TP, true positive; FP, false positive;

Dovepress/Therapeutics and Clinical Risk Management.

The trial, titled *Risk Stratification for Arrhythmic Death in an Emergency Department Cohort: A New Method of Nonlinear PD2i® Analysis of the ECG*, was published in the August 2008 issue of *Therapeutics and Clinical Risk Management*. The study enrolled 918 patients (819 patients completed the study) from six emergency departments after being admitted with chest pain and determined to be at risk of acute myocardial infarction (heart attack). The goal was to accurately predict arrhythmic death (i.e. – sudden cardiac death) using prospective data. Brief (~1,000 heartbeats, ~15 minutes) electrocardiograms were recorded and PD2i® results obtained. All-cause mortality at one-year was 6.2%, with 3.5% of those being arrhythmic deaths. Of the arrhythmic death fatalities, 34% were without previous history of myocardial infarction (MI) or diagnosis of acute myocardial infarction. This is particularly noteworthy as Medicare uses history of MI as one of the primary conditions for patients to qualify for ICD implantation.

The data plots below are from the *Risk Stratification for Arrhythmic Death*…study. Both patients were admitted to the hospital after complaining of chest pains. Patient "A" was discharged from the hospital within 24 hours of admission. He did not die of SCD within a one-year follow-up period. Patient "B" died from SCD in the hospital less than 24 hours after admission. The Analyzer correctly identified patient "B" as at-risk of an adverse cardiac event from the data points at or below the 1.4 PD2i® threshold (red line and red arrow).




Vicor Technologies, Inc.

***"Comparison of Linear-Stochastic and Nonlinear-Deterministic Algorithms"* Analysis**

A third analysis of trial data sponsored by Vicor called *Comparison of Linear-Stochastic and Nonlinear-Deterministic Algorithms in the Analysis of 15-Minute Clinical ECGs to Predict Risk of Arrhythmic Death* compared the CA to linear as well as other non-linear models in the prediction of arrhythmic death (AD). The study, which was published in the August 2009 issue of *Therapeutics & Clinical Risk Management*, included data from 397 patients

admitted to emergency departments due to chest pain and determined to be at low-to-high risk of myocardial infarction (MI). Fifteen minute ECGs were recorded which were then analyzed by three non-linear algorithms (PD2i®, detrended fluctuation analysis or DFA, and approximate entropy or ApEn) and four conventional linear-stochastic measures (standard deviation or SDNN, mean of normal or MNN, 1/f-Slope, and low frequency power/high frequency power or LF/HF). Each of these algorithms had a previously published indication for use in stratifying risk by clinical heartbeat analysis that was well established, over at least a decade. The study sponsors noted that they believe these seven were thought to be representative of the common and appropriate linear and non-linear algorithms.

Patient follow-up occurred at thirty days, six months and one-year. Primary clinical outcome measures were all-cause death, documented fatal arrhythmias, and presumed arrhythmic deaths. A three-member, blinded committee was used to assess undocumented cause of death. One-year data was available for 312 of the 397 enrolled patients. Results showed that the sensitivity of prediction of AD was relatively high for several of the algorithms, but sensitivity (correctly predicting who will suffer AD) and specificity (correctly predicting who will not suffer AD) together were only statistically significant for only PD2i® and MNN. PD2i® sensitivity and specificity at 30, 180 and 360 days was 100%/58%, 91%/58% and 95%/58% (Table 1 below is at 360 days), respectively. In addition the PD2i® algorithm showed a considerably higher "relative risk" score compared to all of the other measures. "Relative risk" is a statistical measure that considers the true-positive/false-negative (predicting AD-suffering AD/predicting no AD-suffering AD) ratio and emphasizes the severe undesirability of a false-negative. PD2i® not only showed statistical predictability of AD in patients with acute myocardial infarction (AMI) and history of MI but was the only algorithm which demonstrated statistical significance in prediction of AD in subgroups comprised of non-AMI and non-post-MI patients.

**Table 1** Comparison of linear and nonlinear algorithms in 312 low-to-high-risk patients presenting in the emergency department with chest pain and assessed risk of AMI > 7%. All subjects had ECGs recorded, follow-up completed, and no paced rhythms. The defined arrhythmic death outcomes are expressed as true or false predictions (T or F) by positive or negative algorithmic tests (P or N). The same edited N-N data set was used for the comparative algorithmic analyses

| **Nonlinear deterministic algorithms**[a–d] | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PD2i ≤ 1.4** | **PD2i > 1.4** | **DFA-OUT** | **DFA-IN** | **1/fS ≤ −1.07** | **1/fS > −1.07** | **ApEn ≤ 1.0** | **ApEn > 1.0** |
| TP = 20 | TN = 130 | TP = 6 | TN = 52 | TP = 6 | TN = 149 | TP = 4 | TN = 161 |
| FP = 96 | FN = 1* | FP = 218 | TN = 4 | FP = 75 | TN = 14 | FP = 57 | FN = 16 |
| SEN = 95** | SUR = 65 | SEN = 30 | SUR = 17 | SEN = 30 | SUR = 65 | SEN = 20 | SUR = 65 |
| SPE = 58** | OUT = 0 | SPE = 19 | OUT = 6 | SPE = 67 | OUT = 3 | SPE = 74 | OUT = 9 |
| REL >> 23** | N = 312 | REL = 0.13 | N = 312 | REL = 0.86 | N = 312 | REL = 0.80 | N = 312 |
| **Linear stochastic algorithms**[e–i] | | | | | | | |
| **SDNN ≤ 65** | **SDNN > 65** | **MNN ≤ 750** | **MNN > 750** | **LF/HF ≤ 1.6** | **LF/HF > 1.6** | **LF(ln) ≤ 5.5** | **LF(ln) > 5.5** |
| TP = 19 | TN = 55 | TP = 19 | TN = 154 | TP = 7 | TN = 188 | TP = 19 | TN = 90 |
| FP = 197 | FN = 6 | FP = 98 | FN = 6 | FP = 62 | FN = 18 | FP = 160 | FN = 6 |
| SEN = 76 | AF = 29 | SEN = 76 | AF = 29 | SEN = 28 | AF = 29 | SEN = 76 | AF = 29 |
| SPE = 23 | OUT = 6 | SPE = 61 | OUT = 6 | SPE = 76 | OUT = 8 | SPE = 36 | OUT = 8 |
| REL = 0.93 | N = 312 | REL = 4.33* | N = 312 | REL = 1.16 | N = 312 | REL = 1.69 | N = 312 |

**Notes:** **p ≤ 0.001; binomial probability test; with multiple-test alpha-protection (alpha level required is 8-fold smaller); expansion of $(P + Q)^n \times$ eightfold protection implies p = 0.00016; also p ≤ 0.001 by Fisher's exact test for row vs column associations in a 2 × 2 contingency table; all others in Table 1 are not significant by binomial probability test or Fisher's exact test. [a]PD2i, point correlation dimension (positive if minimum PD2i ≤ 1.4 dimensions, with a systematic low-dimensional excursion of more than 1 PD2i value); cases of randomized-phase SUR were identical to the cases of %N < 30%. [b]DFA-OUT, detrended fluctuation analysis ($\alpha_1$ [short-term] is positive, if outside normal range of 0.85 to 1.15); randomized-sequence surrogate rejections (SUR). [c]1/f S, 1/f Slope (positive, if ≤ −1.075 for slope of log[microvolts²/Hz] vs log [Hz] integrated over 0.04 Hz to 0.4 Hz). SUR = randomized phase. [d]ApEn, approximate entropy (positive with cut-point ≤1.0 units, slope distance). SUR = randomized phase. *This single AD patient died at 79 days and may not be a true FN; the ECG was recorded prior to two normal clinical ECGs, followed by a third positive one (ie, the patient could be classified as an "evolving acute MI" who may have been TN at the time the ECG was recorded). [e]SDNN, standard deviation of normal beats (positive, if ≤65 msec; for positive, if ≤ 50 msec, TP = 17). [f]MNN, mean of normal R-R intervals (positive, if ≤750 msec). [g]LF/HF, low frequency power (0.04 to 0.15 Hz)/high frequency power (0.15 to 0.4 Hz) (positive, ≤1.6). [h]LF(ln), low frequency power (0.04 to 0.15 Hz), normalized by natural logarithm (positive, ≤5.5).

**Abbreviations:** AF, atrial fibrillation-rejection (required for linear stochastic algorithms); AMI, acute myocardial infarction; ECG, electrocardiography; OUT, outlier-rejection; REL, relative risk; SEN, sensitivity (%); SPE, specificity (%); SUR, surrogate-rejection; N, total number of subjects.



While there are certain limitations to PD2i® use as a predictor of SCD, we believe the trial data indicates the algorithm may offer the most accurate diagnosis of at-risk SCD patients. One drawback is that patients with atrial fibrillation and arrhythmia rates > 10% of beats can not be diagnosed using non-linear algorithms such as PD2i®.

We also mention certain caveats to the trial data detailed above, none of which, however negate the results of the trials nor necessarily diminish the conclusions asserted by the authors. First, these trials were not reviewed by the FDA, the protocols were not approved by the FDA and the conclusions were not presented to or critiqued by an

independent panel. The *Nonlinear Analysis of the Heartbeats…*trial included a very small (44 patients) sample size which, when extrapolated to larger patient population, subjects the conclusions of the trial to larger degree of error. And, as noted, a number of patients were excluded from the trials which limits, albeit only modestly, the utility of the P2Di algorithm.

***"Prognostic Significance of Point Correlation Dimension Algorithm in CHF"***
Vicor's Cardiac Analyzer™ is currently being used to analyze data collected from a trial dubbed MUSIC (Merte Subita en Insufficiencia Cardiaca) for the prediction of SCD in congestive heart failure patients. In March 2009 Vicor announced a collaboration with the University of Rochester and the Catalan Institute of Cardiovascular Sciences in Barcelona which are sponsoring the data analysis. The collaboration, entitled "Prognostic Significance of Point Correlation Dimension Algorithm (PD2i®) in Chronic Heart Failure", is utilizing the CA to predict SCD in 651 patients with congestive heart failure.

The MUSIC trial enrolled more than 1,000 patients between 2003 and 2004 with patient follow-ups occurring over the following 44 months. MUSIC was billed as the largest heart failure population ever studied and the first trial to document abnormal heart rhythm as a predictor of SCD. Iwona Cygankiewicz, MD, lead author of the study noted that, "Our study documented that heart rate turbulence (HRT) might be considered a useful tool to identify heart failure patients at high risk of death, including high risk of dying suddenly." Relative to the applicability of the analysis, Cygankiewicz believes "HRT may help physicians more effectively manage heart failure patients by indicating the need for more frequent follow up visits at specialized heart failure units and more intensely-applied therapy, including ICD implantation in high-risk patients."

During the 44-month follow-up period 52 patients died from sudden cardiac death. Vicor, which is blinded from the trial analysis, submitted the ECG data to the University of Rochester on March 17, 2010. The University is expected to make a final determination of the efficacy of the Analyzer in predicting SCD, which we think could come within the next couple of weeks. Assuming a favorable result of the analysis, Vicor could file for 510(k) FDA approval for a claim of prediction of sudden cardiac death in congestive heart failure patients. FDA turn-around is typically about 90 days after 510(k) submission which means Vicor could potentially be marketing for the SCD indication as soon as the third quarter of this year.

Based on the compilation of positive trial data and other anecdotal information, we expect FDA to grant marketing clearance for the SCD indication. This will offer Vicor a very potent marketing message with which to target cardiologists and other physicians. With approximately seven million people with history of myocardial infarction and five million CHF sufferers in the U.S. with 400,000 new cases every year, the marketing audience is enormous and growing fast. With waning faith in previous unproven technologies in determining risk of SCD and the continuing problem of over-and under-implantation of ICDs, we expect the Analyzer to receive significant interest from cardiologists. With reimbursement codes already in-place and Vicor also potentially gaining FDA marketing clearance for a trauma indication (discussed below) during the third quarter, we believe sales could significantly accelerate during the second half of 2010.

## TRAUMA

Vicor is developing the Analyzer for a third application, trauma. The product, dubbed *P2Di-VS*™ ("Vital Sign" or "VS"), is being developed in collaboration with the U.S. Army Institute of Surgical Research (USAISR) and is expected to be used to assess the severity of critically injured combat casualties to determine the need for immediate life-saving intervention in those trauma victims who are at high-risk of imminent death. Civilian triage and trauma emergency response (i.e. – ambulatory) are other applications of the VS.

In January 2008 Vicor entered a collaborative research and development agreement with the USAISR for *"Prediction of Injury Severity and Outcome in the Critically Ill Using the Point Correlation Dimension Algorithm (PD2i®)".* The Army is using the Analyzer in an attempt to assess the severity of injury and probability of survival of critically injured combat casualties and critically ill civilian patients. Having the ability to accurately and quickly diagnose the severity of injuries allows for emergency responders to sort victims based on their need for medical treatment. Several cohorts are being studied including trauma victims, patients in intensive care units and combat casualties. The Army has presented findings of their analysis at several conferences in the U.S. and in Europe.

The VS has gone through a variety of testing by the U.S. Army. In the latest trial, with the use of the P2Di-VS™, the USAISR examined 325 trauma victims to determine which patients would die of their injuries. By looking at the interplay between the victims' heart and brain, the VS enabled physicians to correctly identify all twenty patients that would die of their injuries. Importantly, conventional triaging techniques had indentified only six of the twenty patients as requiring lifesaving intervention. In November 2009 Dr. Andriy Batchinsky, a researcher with the USAISR, made a presentation at the American Heart Association's Resuscitation Science Symposium in which he

identified the PD2i-VS™ as the most promising diagnostic tool for in-field trauma triage. Vicor expects to use data from their latest trial to support a 510(k) FDA filing for a claim of diagnosing those patients at imminent risk of death from trauma. We believe the company could file for this indication as early as the second quarter 2010 and potentially gain FDA marketing clearance in the third quarter.

Vicor, at the request of the USAISR, has completed programming of the VS which may also enable it to act as a continuous vital sign monitor. With this capability, the VS would provide an initial result with three minutes of collected data and an updated status every minute afterwards. The monitoring application would indicate the ongoing status of the patient's condition and alert critical care personnel if lifesaving intervention was required.

The VS would have applicability not only in war trauma but also as a diagnostic tool for civilian emergency responders and critical care personnel. With over 38 million emergency response calls in the U.S. every year, this would significantly expand the potential market for the product. The VS would enable paramedics to quickly and accurately assign a level of severity to victims' injuries which would be particularly important in situations with multiple trauma victims (i.e. – car accidents, collapsed building, etc.). After arriving at the hospital, the VS monitoring application would provide critical care personnel with ongoing status updates of the patient's condition.

Vicor has several studies planned and ongoing testing the VS as a diagnostic tool for in-field trauma and as a monitoring instrument including studies at Massachusetts General Hospital, the University of Mississippi Medical Center and further studies by the USAISR. Data from these studies is expected to be used for additional 510(k) filings seeking expanded marketing clearance including use as a continuous vital sign monitor.

While the USAISR clearly has an interest in the PD2i® technology, we do not have any indication that the U.S. government will eventually place orders for purchase of the Analyzer. We believe the most immediate and attractive market for the VS is for civilian use. Upon FDA clearance for the trauma indication, we expect Vicor to target hospitals and emergency service providers.

## ECONOMICS

Vicor generates revenue from both the sale of the Analyzer system as well as on a per-test basis. The Analyzer system consists of a private-label digital electrocardiograph machine that incorporates automated blood pressure recording and a laptop computer which utilizes proprietary software. When a physician runs an ECG, the Analyzer will access the internet and sends the recorded ECG files to Vicor's remote server where the files are analyzed by the PD2i® algorithm. The physician then has access to the analyzed results through an electronic health record along with a report and information that he can use to bill both public and private insurers. The physician can use currently available CPT codes (reimbursement codes used by Medicare/Medicaid as well as a majority of private insurers) to bill and collect for services provided by the Analyzer. The current billable CPT codes are for the measurement of heart rate variability in response to controlled exercise and paced respiration (we note that this is not a heart stress test) as well as recording and analyzing an EKG.

We expect Vicor to price the Analyzer system at $5,000 - $5,500 per unit which is billed when sold. In addition, Vicor bills physicians on a monthly basis for each test performed. We expect product sales margins to eventually approach 30% with testing margins at around 70%. CPT code reimbursement to physicians will likely be in the range of $80 - $160 per test, $25 - $50 of which will be passed onto Vicor. Based on these estimates, physicians would break even on the cost of the Analyzer after, at most (this calculation assumes only $30/test income to the physician – this could be as high as $135/test), 180 tests performed. Assuming just one test is performed per Analyzer per day, this puts break-even in about eight months. We think a more realistic scenario, especially as the Analyzer is approved for additional indications, is one to three tests per day. Depending on the level of reimbursement, this equates to an ongoing income stream to physicians of between $8,000 and $100,000 per year per device, following pay-off of the cost of the Analyzer system. And using these same assumptions, Vicor would generate per-test annual revenue of between $7,000 and $40,000 per unit.

The per-test model will not apply to tests performed in the field (i.e. – combat or emergency response) where Vicor is instead considering term licensing agreements.

## COMPETITION

The use of heart rate variability in the diagnosis of ANS, SCD and trauma is limited, mostly as result of the relatively unpredictable reliability of prior technologies. This has made competition in the space also relatively sparse.

A direct competitor to the Analyzer for the ANS indication is Ansar Group which markets a noninvasive ANS monitoring device called ANX 3.0 which the company sells for $40,000. More traditional, yet indirect competitors for ANS diagnosis include clinical screening tests, which include patient history and a physical exam. However, as we noted above, traditional clinic exams can be highly ineffective in early detection of ANS/DAN.

Risk of sudden cardiac death screening through HRV analysis is also in its infancy. Vicor's main direct competitor for this indication is Cambridge Heart, Inc. While Cambridge has sold several products in the U.S. and Europe since 2000, Vicor's technology offers physicians and patients certain advantages such as not requiring a cardiac stress test (elevated heart rate) and is not affected by common cardiac drugs. In addition, the upfront cost of the Analyzer is significantly less than Cambridge's competing products. We believe the trauma indication also has very few direct competitors.

Given the poor history of competing technologies and lack of a dominant player in the HRV space for the indications that Vicor is seeking, we believe the company is positioned very well to vigorously compete for market share. While the utility of PD2i® algorithm, like other non-linear algorithms, can be limited in certain cases, we believe this is more than offset by certain advantages not found in competing products. We believe the significantly improved accuracy, relatively short data collection time (~ 20 minutes), lack of required stress-test and significantly lower upfront costs offer advantages attractive to physicians which should bode well for sales and uptake of Vicor's Analyzer.

## FINANCIAL CONDITION/CAPITAL STRUCTURE

At March 31, 2010 the company had $308,000 in cash and $1.83 million in debt. Debt consists of $300,000 in bank loans, $360,000 in unsecured (convertible) loans and $1.17 million in convertible debt. See included table at end of report for capital structure and terms of debt/preferred.

**Preferred stock**
The company has two series ("A" and "B") of convertible cumulative preferred stock outstanding. The 8% dividends on both classes of preferred shares are cumulative and payable in kind (PIK). The 157,592 outstanding "A" shares are convertible into common stock at a 1:1 ratio and accrued dividends are convertible into common shares at $3.12 per common share. Accumulated dividends on the "A" shares was $303k at 12/31/2009. The 5.21 million "B" shares are junior to the "A" shares and convert into common shares at a 1:1 ratio. Accumulated dividends convert to common stock at $0.80 per common share. Accumulated dividends were $530k on the "B" shares through 12/31/2009.

**Short-term debt**
$660k of total debt is short-term, $360k (2004 Notes and 12% promissory notes) of which the maturities are being extended on a month-to-month basis. The remaining $300k of short-term debt is a bank loan. Maturities on the bank debt have been extended at various times in the past. The bank debt is senior, secured by $300k in certificates of deposit of Vicor's CEO (David Fater) and is held by BB&T Bank, with which Vicor has had a long-standing relationship. The bank debt and 2004 Notes pay cash interest while the 12% promissory notes are PIK. The 2004 Notes and 12% promissory notes are pari-passu with the 8% senior convertibles and are held by major shareholders, directors and executives of Vicor.

**Long-term debt**
$1.17 million of total debt is long-term which consists of two series (8% convertible or "senior" 8% converts and 8% subordinated convertible) of convertible notes.
**8% senior convertibles**
The 8% senior converts are convertible at any time at either $1.07 per share of common stock or 75% of the weighted-average common stock price, three days prior to the date of conversion notice (i.e. - $0.50 strike price on 3-day average price of $0.67). The notes must be redeemed in full upon Vicor issuing registered debt or equity in an amount of at least $3 million. The conversion feature in the convertible notes is accounted for as a derivative instrument and amortized over the term of the notes. The remaining $560k (excluding unamortized discount of $133k) of senior 8% converts matures two years from date of issuance – which is no earlier than May 5, 2011.

**8% subordinated convertibles**
The 8% sub converts are subordinated to the senior 8% converts and mature on October 7, 2012. They have no voluntary conversion rights until the 8% senior converts have been converted or repaid and are mandatorily convertible at the lesser of $0.80 per share of common stock or 80% per share of common stock upon Vicor issuing registered debt or equity in an amount of at least $3 million. $970k of 8% sub converts were sold during the three months ending 3/31/2010. Vicor subsequently raised an additional $949k from the sale of the bonds between March 31 and May 10, 2010.

**Cash-burn**
The company burned through $3.67 million in cash during 2009, including $1.02 million in the fourth quarter. Cash used in operations ticked up slightly to $1.11 million through the first quarter 2010. We expect cash expenses to materially increase on both a quarterly and an annual basis during 2010 as a result of initial sales and marketing programs for the Analyzer and expenses related to new clinical trial programs and additional 501(k) filings. We expect cash operating expenses, which had averaged approximately $253k per month during 2009, to increase to around $390k per month in 2010. The increased cash operating expenses will be partially offset by operating cash inflow from product and services (per-test sales) revenue. We estimate cash flow from operations, which was ($3.66) million in 2009, to fall to ($4.68) million in 2010. However, we expect cash from operations to show significant improvement towards the back half of 2010 as sales ramp. We expect continuous and consistent improvement into 2011 and beyond as operating expense growth moderates and device sales ramp which will in-turn exponentially increase per-test revenue. Based on our estimates we expect the company to turn cash flow positive by late-2011.

**Cash position**
While the company is highly levered with a meager cash balance and meaningful levels of short-term debt exposure, we have little concern relative to near-term (3 months) liquidity. The bank loans are secured with cash equivalents and management has indicated their relationship with BB&T remains strong. The other near-term debt is held by shareholders, directors and executives of the company which we believe makes calling the notes highly unlikely. With interest payments almost exclusively PIK, the company is not at-risk of tripping covenants of the convertible debt. The $308k cash balance and cash from operations will be insufficient to fund operations for more than a few weeks. However, the company is successfully raising cash through ongoing debt issuance, which we believe can continue for some time. In the meantime, we believe the company will look to raise cash through a public equity offering, which we think could materialize towards the early part of the second half of this year. With sales likely to significantly ramp towards the second half of 2010, operating margin and cash flow will show marked improvement. We believe the company could turn cash flow positive by the end of 2011. We believe investor interest will be strong enough for the company to raise as much as $6 million - $10 million through a public equity offering. An equity offering of at least $3 million would substantially clean up the balance sheet - automatically converting all the preferred stock as well as the subordinated 8% convertibles. It would also mandate that the senior 8% convertibles, 2004 Notes and 12% promissory notes be redeemed, leaving only the secured bank debt on the balance sheet. While an equity offering and resulting debt conversion will be highly dilutive, it should allow the company forego additional financing until it becomes cash flow positive. Our model assumes Vicor raises $8 million through a public equity offering during the second half of 2010.

Barring an equity offering we believe Vicor can continue to raise cash through additional convertible debt sales. The company has been very successful in converting debt to equity and rolling over financing and with interest payments almost exclusively PIK, we believe the company can continue this strategy.

## OUTLOOK

The company made its initial sale in January 2010, during which time they also signed a distribution agreement covering three U.S. states. While first quarter sales were below our forecast, our positive long-term outlook for Vicor remains unchanged. Of greater importance is that it appears physician interest in the PD2i Analyzer™ is real and that Vicor's business model is operating as hoped. Vicor's ability to generate testing revenue through the first quarter, albeit lower than we had modeled, is perhaps the most encouraging information from the company's May 11th press release as this component of revenue (as opposed to instrument sales) is what we expect to be the catalyst to exponential long-term growth for the company. Initial indications point to a positive response from physicians which has us optimistic that this trend will continue and result in approximately 253 unit sales in 2010. While near-term revenue is mostly a function of the number of units ("printers") placed, longer term success of Vicor is much more reliant on a number of other factors, most notably per-test ("printer cartridges") revenue. Unfortunately venturing an accurate guess of the number of units that Vicor will sell may be a much easier proposition than is forecasting testing revenue, especially as we look into 2011 and beyond. Among the challenges in forecasting per-test revenue is that it will be determined by a number of different components (including number of units placed, price per test charged by Vicor, utilization rate of the Analyzer, and rate of insurance reimbursement to physicians), the ultimate values of which can fall within wide ranges. Slight errors in accurately predicting the values of one or more of these components can result in significant flaws in our financial model. Our current predictions for revenue and gross profit are based on what we believe to be reasonable (i.e. – not overly optimistic nor overly conservative) assumptions relative to unit sales, utilization rate, and per-test reimbursement to physicians and Vicor, among other factors (see "Sales/GM Detail" appendix at end of report). Vicor's "printer, printer cartridge" business model can be highly profitable as high margin per-test revenue can grow exponentially with only moderate growth in unit placements. This means that depending on the level of revenue generated per-test, Vicor may only need to sell a very modest number (~ 500) of units to turn a net profit and generate positive cash flow. Of course we also assume that physicians embrace Vicor's technology, find enough utility for the Analyzer to make a reasonable financial return and experience no serious issues relative to insurance reimbursement (although insurance reimbursement does not currently appear to be an issue).

We expect sales growth to remain moderate throughout the first half of 2010 as the company and its distributors roll out their initial sales campaigns. We estimate Vicor sold approximately 18 units during the first quarter 2010. Going into the back half of the year sales growth should benefit as the Analyzer gains FDA marketing clearance for additional indications. This, along with Vicor beefing up its in-house and external sales forces, should provide the catalysts to increase the rate of sales in the third and fourth quarters of 2010. We look for Vicor to file for the SCD and trauma indications during the second quarter and with an expected 90-day approval period, expect the company to be marketing for these applications by the third quarter 2010. These additional approvals will substantially enhance Vicor's marketing message which should result in greater interest from physicians. We estimate Analyzer unit sales will be approximately 253 in all of 2010, comprised of 48 units and 205 units through the first and second six months of the year, respectively. We expect the bulk of revenue in 2010 to come from product sales but as the installed base grows so should the contribution from per-test revenue. We look for sales of $1.94 million in fiscal 2010, including $1.28 million in product sales and $663k in testing revenue. We expect gross margins to show consistent sequential growth as high margin per-test revenue increases as a percent of total revenue. We expect operating expenses, which were $5.33 million in 2009 to spike to $6.85 million in 2010.

The balance sheet remains highly levered with little cash and with headcount additions, ongoing clinical trials and FDA filings occurring throughout 2010, operating expenses will materially increase. Cash flow from product sales and incremental per-test revenue will provide a partial offset to operating expense growth but will be insufficient to sustain operations. We expect the company to continue to raise cash through the sale of convertible bonds and believe a large equity offering is likely towards the back half of the year. With the installed base beginning to grow and clear visibility of physician interest in the P2Di® technology which should further accelerate as additional indications coming online, we believe there will be sufficient investor interest to raise as much as $6 million - $10 million in new common equity. We believe this would provide more than enough cash for the company to operate until it can become cash flow positive.

Our longer-term outlook assumes Vicor can achieve an installed base of approximately 1,108 units by year-end 2011 (253 units sold in 2010 and 855 units sold in 2011) and grow that base at an annual rate of about 70% through 2013. Revenue and profitability should increase exponentially from testing revenue as the installed base grows. Operating expenses, which are more correlated to product sales than testing revenue, will fall as a percent of revenue as testing revenue becomes a greater percent of total company sales. The result will be a rapid improvement in profitability and cash flow. We model Vicor to become cash flow positive by late-2011 and generate $3.72 in net income in 2012.

## RECOMMENDATION

Vicor, although finally generating revenue, faces significant challenges in remaining a going-concern and eventually becoming cash flow positive. The company burned through $22.5 million of cash during the almost ten years of operating solely as a developmental company. The balance sheet is in tough shape, with little cash, significant amounts of esoteric and short-term financing and carrying a negative net-worth of $7.95 million. The long-term viability of the company's business model, while apparently currently sound, is largely predicated on theory, the effective application of which has yet to be determined (although we are highly encouraged as of the end of the first quarter 2010). Despite this, we believe Vicor represents an attractive investment opportunity. The PD2i® technology, developed by a highly experienced management team and decorated scientific advisory board, appears to be superior in accuracy and reliability relative to conventional heart rate variability analysis. We believe this, coupled with a tremendous desire in the clinical community for a functional technology for the prediction of future pathological events such as sudden cardiac death will translate into significant interest in Vicor's HRV technology from cardiologists, endocrinologists, electrophysiologists and other physicians.

Vicor is still on the front end of the initial roll-out of the Analyzer and early indications point to a positive response from physicians. We expect Vicor's sales force to initially market to the large network of physicians with which it has established relationships while the third-party domestic distributor exploits their long-standing contacts in SC, NC and Georgia. International sales should also commence in 2010. We think the company can place 48 units through the first six months of 2010. Based on compelling trial data, we expect Vicor to gain clearance for the SCD and trauma indications, likely sometime during the third quarter, which should help drive another 205 unit placements by the end of the year. Establishing a significant unit base will be key for Vicor as the company can then largely rely on high-margin per-test revenue to drive sales, cash flow and profitability. Going into 2011 Vicor will likely look to expand their geographical reach through additional distribution agreements. Based on early physician response and the size of the potential market for the Analyzer, we believe Vicor could have an installed base of 1,088 units and turn cash flow positive by the end of fiscal 2011.

In the meantime, Vicor will continue its strategy of issuing PIK pay bonds, which we expect to eventually materialize into a large equity offering – potentially in the early part of the second half of 2010. While an equity offering and resulting debt conversion will be highly dilutive, it will wipe the balance sheet clean and allow the company forego additional financing until it becomes cash flow positive. Our model assumes Vicor raises $8 million through an equity offering in the second half of 2010. And while we believe Vicor will look to tap the equity market within the coming months, the company can continue to operate through raising additional low cash-burden PIK convertible debt and preferred stock.

We look for the company to generate revenue of $1.94 million in 2010 and post a net loss of $8.60 million or $0.16 per share. We think this grows to $25.91 million and net income of $3.72 million or $0.05/share in 2012.

We are maintaining our Outperform rating on Vicor with a $2.61 price target.

Our valuation applies a multiple of 25x to expected 2013 EPS of $0.17 and discounts it back an annual rate of 15% to arrive at our $2.61 price target.

Risks to our recommendation include; Vicor is unable to obtain additional or sufficient financing, loans are called, PD2i® technology fails to gain significant acceptance by physicians, problems with insurance reimbursement to physicians, per-test revenue is significantly below expectations, economic forces constrain physician spending on the Analyzer, Vicor fails to gain SCD and/or trauma indications, and unexpected or higher- than-anticipated expenses adversely impact cash flow/profitability.

## KEY MANAGEMENT PROFILES*

**David Fater**
President, Chief Executive, Chief Financial Officer, and Director in June 2002. Mr. Fater was the founder and from January 1993 through the present, has been the Chief executive officer of ALDA & Associates International, Inc., a business and financial consulting firm specializing in healthcare and life sciences. Prior to his founding ALDA, Mr. Fater served as a senior executive with three public health care companies, including two in which he led the initial public offering process (BMJ Medical Management, Inc. and Community Care of America) and one which he led to a NYSE listing and a $1 billion market capitalization (Coastal Physician Group, Inc.). Mr. Fater was employed by Coastal Physician Group from January 1993 to June 1995; Community Care of America from July 1995 to December 1996; and BMJ Medical from January 1997 to July 1999. From June 2000 through July 2001 Mr. Fater was the chief financial officer of Vector Medical Technologies, Inc. Prior to his corporate experience, Mr. Fater was a key international business advisor to senior management and boards of directors as a senior international partner during a 24-year career with Ernst & Young from January 1969 to December 1992. He also has extensive experience with numerous mergers and acquisition transactions. He holds a B.S. in Accounting from the University of North Carolina. He is a Certified Public Accountant in Georgia, Illinois, North Carolina and New York.

**James E. Skinner, Ph.D.**
Vice President Research and Science and a Director since August 2000. Dr. Skinner was our President from August 2000 through July 2002. Dr. Skinner has experience both as a scientist and manager of large research and development projects. From December 1969 to February 1993 Dr. Skinner was a Professor at Baylor College of Medicine in Houston, where he was the recipient of many research grants from the National Institutes of Health. During his tenure at Baylor College of Medicine, he was the principal investigator of a Program Project Grant that operated five laboratories and three core facilities. From March 1993 to July 1997 Dr. Skinner was the Associate Director of the Totts Gap Medical Research Laboratories, Inc. In August 1997 he founded the Delaware Water Gap Science Institute, a nonprofit medical research organization devoted to the development of medical devices and pharmaceuticals, and has served as its director since its inception. Dr. Skinner is a graduate of Pomona College and received his Ph.D. from the University of California at Los Angeles.

**Dr. Jerry M. Anchin, Ph.D.**
Vice President and Product Development and Physician Training since October 2000 and a Director since September 2003. Dr. Anchin has extensive experience in the biotechnology business sector. He has been actively involved in the fields of immunology, molecular biology, drug discovery and protein chemistry since 1978. Dr. Anchin worked in biotechnology at International Immunoassay Labs from September 1981 to July 1988 as head of assay development and manufacturing, where he was instrumental in designing a novel assay for the detection of the protein creatine kinase that is released as a result of acute myocardial infarction. He received two patents for his work in this area. Dr. Anchin then worked for Immuno Pharmaceuticals from August 1993 to February 1996 and Prism Pharmaceuticals from February 1996 to June 1998. Dr. Anchin was employed by Ciblex Pharmaceuticals from June 1998 through August 2000, where he became group leader of the drug discovery program involving novel small molecules that will be entering clinical trials for the prevention of asthma. He has been granted five patents in the field of immunoassay and drug discovery and has four patents pending. Dr. Anchin holds a B.A. in Cell Biology from University of California at Santa Barbara and received his Ph.D. in Immunology from Texas A&M University.

**Dr. Daniel N. Weiss, M.D., F.A.C.C**
Joined Vicor Chief Medical Officer in April 2004. Dr. Weiss has extensive experience as a practicing cardiologist and electrophysiologist. He has been a partner in Florida Arrhythmia Consultants and a director of the Jim Moran Heart and Vascular Center since 1994. He is also a consultant to Fortune 500 Medical Device companies including Medtronics, St. Jude Medical and Guidant. He has been a clinical investigator in the MADIT II (*MultiCenter Automatic Defibrillator Implantation Trial*) and SCDHeFT (*Sudden Cardiac Death Heart Failure Trial*) clinical trials. He is a *cum laude* graduate of Princeton University with a BSE in Electrical Engineering and Computer Science. He received his Medical Degree with Distinction in Research from the Mount Sinai School of Medicine where he also received the Nathan A. Setz Award for Research in Cardiovascular and Renal Disease.

**Lloyd C. Chesney**
Joined Vicor as Chief Technology Officer (CTO) on January 1, 2010. Immediately prior to joining Vicor, he was Chief Technology Officer of MDVIP, a concierge physician organization providing personalized preventive medicine. During his tenure, he integrated MDTablet's electronic medical record into MDVIP's portal to provide bi-directional information exchange creating a dynamic patient health record, and integrated MDVIP's patient instant medical history into MDVIP's portal and MDTablet's electronic medical record for patient health risk assessments, which formed the foundation for individualized patient wellness plans. Previously, Mr. Chesney has served as CTO for Health Star Communications, a meeting logistics company as well as CTO for EHealth Latin America, a facilitator of hospital-centric, Web-based medical communication and education in Central and South America Cybear Inc., a then development-stage internet healthcare portal, CIO for Phymatrix Corp., a medical practice management company and CIO for the Palm Beach County Health Care District.

## KEY SCIENTIFIC ADVISORY BOARD PROFILES*

**Mark E. Josephson, M.D.**
Chief of Cardiology at Beth Israel Deaconess Medical Center, a major patient care, research and teaching affiliate of Harvard Medical School, the author of *Clinical Cardiac Electrophysiology*, the fundamental textbook in the field.

**Hein J. J. Wellens, M.D.**
Professor and Chairman of the Department of Cardiology at Academisch Ziekenhuis Maastricht in Amsterdam, the Netherlands. He is a director of the Interuniversity Cardiology Institute of the Netherlands and is a member of the Netherlands Academy of Arts and Sciences. He also has an appointment of visiting lecturer at Harvard Medical School.

**Richard M. Luceri, M.D., F.A.C.C.**
Recently retired director, Interventional Arrhythmia Center Holy Cross Hospital, Fort Lauderdale, FL as well as a clinical investigator in the MADIT II (*MultiCenter Automatic Defibrillator Implantation Trial*) and author SCDHeFT (*Sudden Cardiac Death Heart Failure Trial*).

**Jules Mitchel, Ph.D.**
Founder of Target Health, Inc., a full-service contract research organization supporting all aspects of pharmaceutical drug and device development.

**Robert G. Hauser, M.D., F.A.C.C., FHRS**
Chairman of the Cardiovascular Services Division at Abbott Northwestern Hospital and former CEO of Cardiac Pacemakers, Inc., acquired by Guidant Corporation.

**Jonathan Kaplan, M.D., M.P.H.**
Medical director for Fidelis Care New York and formerly the corporate medical director for Excellus Blue Cross Blue Shield.

**David Chazanovitz**
President and CEO of Alveolus, Inc., the former chief executive officer of Cambridge Heart, Inc. (our only FDA-approved competitor).

**Edward F. Lundy, M.D., Ph.D.**
Chief of Cardiothoracic Surgery at the Active International Cardiovascular Institute at Good Samaritan Hospital in Suffern, New York. In addition to his M.D. from the University of Michigan, Dr. Lundy also received a Ph.D. from that institution in Physiology with a primary focus on altered-state physiologies such as hibernation.

* Vicor Technologies, Inc 10-K for period ending 12/31/2009

## CAPITAL STRUCTURE

Vicor Technologies, Inc. 3/31/2010

**Debt**

| | FYE 2009 | 3/31/2010 |
|---|---|---|
| **ST** | | |
| 2004 Notes | $250,000 | $250,000 |
| 12% Convert Promissory Notes | $110,000 | $110,000 |
| 15% Promissory Notes | $0 | $0 |
| Bank loans | $100,000 | $300,000 |
| Other | $0 | $0 |
| **LT** | | |
| 8% Convertible Notes | $773,000 | $560,000 |
| 8% Convert Sub Notes | $278,000 | $612,000 |
| Bank Loans | $200,000 | $0 |

**Preferred Stock**

| | FYE 2008 | FYE 2009 | 3/31/2010 |
|---|---|---|---|
| **Series A** Shares Outstanding | 157,572 | 157,592 | 157,592 |
| **Series B** Shares Outstanding | 4,781,295 | 5,210,101 | 5,210,101 |

**Bank loans**

Cash pay interest. Senior secured debt. Held by BB&T Bank.

$300,000 total. The loans are collateralized by $300,000 worth of CDs of David Fater.

$100,000 of the $300,000 in loans bears interest @ 4.83% and is due October 26,2010. The other $200,000 is not due for at least 1 year.

**2004 Notes**

Cash pay interest. Pari-passu with 12% convert promiss notes and 8% senior convertibles.
12% convertible note payable to a stockholder (physician) and convertible to common stock @ $2.25/share. Maturity extended month-to-month

**12% Convertible Prom Notes**

PIK pay interest. Pari-passu with 2004 Notes and 8% senior convertibles.
Bear interest monthly. Converted $1.2 million to Seires "B" preferred during 2008 @ $0.80 and $200,000 @ $0.40. Maturity extended month-to-month

**15% Prom Notes**

Was redeemed by an individual in 2009 and converted it into 200,000 common shares.

**8% Convertibles**

PIK pay interest. Unamortized discount of $324k as of 12/31/2009.

At various times though Sept 17, 2009 the company sold 8% converts. First sale was $740k on May 5, 2009.

Due 2 years from issuance and convertible anytime into common at discretion of the holder.

Conversion price = lesser of 75% of weighted avg common stock price 3 days prior to the date of

conversion or $1.07/share of common stock.

To be redeemed upon equity offering > $3MM.

**8% Sub Converts**

PIK pay interest. Unamortized discount of $625k as of 12/31/09.
Due Oct 7, 2012 and sub to other 8% convert notes. Mandatorily convertible into common at qualifying event at either $0.80 per share of

common or 80% price of common stock sold at qualifying event (equity offering > $3MM).

The holders have no voluntary conversion rights until Sept 16, 2011.

# FINANCIAL STATEMENTS

## INCOME STATEMENT

Vicor Technologies, Inc

| | 2009 A | Q1A | Q2E | Q3E | Q4E | 2010 E | 2011 E | 2012 E | 2013 E |
|---|---|---|---|---|---|---|---|---|---|
| Product Revenue | $0.0 | $88.0 | $150.0 | $378.8 | $663.0 | $1,279.8 | $4,417.4 | $5,379.6 | $5,638.5 |
| *YOY Growth* | - | - | - | - | - | - | *245.2%* | *21.8%* | *4.8%* |
| Testing Revenue | $0.0 | $12.0 | $51.8 | $166.1 | $432.6 | $662.5 | $6,955.8 | $20,528.3 | $40,652.7 |
| *YOY Growth* | - | - | - | - | - | - | *949.9%* | *195.1%* | *98.0%* |
| Total Revenues | $0.0 | $100.0 | $201.8 | $544.8 | $1,095.6 | $1,942.3 | $11,373.2 | $25,907.9 | $46,291.2 |
| *YOY Growth* | - | - | - | - | - | - | *485.6%* | *127.8%* | *78.7%* |
| Cost of Goods Sold | $0.0 | $85.0 | $148.2 | $377.5 | $692.8 | $1,303.5 | $5,757.8 | $10,246.3 | $16,311.9 |
| Gross Profit | $0.0 | $15.0 | $53.6 | $167.3 | $402.9 | $638.8 | $5,615.5 | $15,661.6 | $29,979.3 |
| *Gross Margin* | - | *15.0%* | *26.6%* | *30.7%* | *36.8%* | *32.9%* | *49.4%* | *60.5%* | *64.8%* |
| R&D | $964.0 | $157.0 | $225.0 | $265.0 | $295.0 | $942.0 | $1,110.0 | $1,265.0 | $1,370.0 |
| *% R&D* | - | *157.0%* | *111.5%* | *48.6%* | *26.9%* | *48.5%* | *9.8%* | *4.9%* | *3.0%* |
| G&A | $4,372.0 | $1,445.0 | $1,470.0 | $1,490.0 | $1,505.0 | $5,910.0 | $7,450.0 | $9,875.0 | $11,940.0 |
| *% G&A* | - | *1445.0%* | *728.3%* | *273.5%* | *137.4%* | *304.3%* | *65.5%* | *38.1%* | *25.8%* |
| Dep & Amort | $41.0 | $12.0 | $16.0 | $20.0 | $24.0 | $72.0 | $200.0 | $400.0 | $600.0 |
| *% Dep & Amort* | - | *12.0%* | *7.9%* | *3.7%* | *2.2%* | *3.7%* | *1.8%* | *1.5%* | *1.3%* |
| Interest Expense | $1,944.0 | $357.0 | $435.0 | $650.0 | $5.0 | $1,447.0 | $25.0 | $35.0 | $45.0 |
| Operating Income | ($7,321.0) | ($1,956.0) | ($2,092.4) | ($2,257.7) | ($1,426.1) | ($7,732.2) | ($3,169.5) | $4,086.6 | $16,024.3 |
| *Operating Margin* | - | - | - | - | - | - | - | *15.8%* | *34.6%* |
| Realized gain/(loss) on derivatives | $1,083.0 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| Unrealized gain/(loss) on derivatives | $1,074.0 | ($117.00) | $0.00 | $0.00 | $0.00 | ($117.00) | $0.00 | $0.00 | $0.00 |
| Net Income before preferred div. | ($5,164.0) | ($2,073.0) | ($2,092.4) | ($2,257.7) | ($1,426.1) | ($7,849.2) | ($3,169.5) | $4,086.6 | $16,024.3 |
| Preferred Stock (series A&B) dividends | ($479.0) | ($126.0) | ($180.0) | $0.0 | $0.0 | ($306.0) | $0.0 | $0.0 | $0.0 |
| Amort of deriv discount on series B pref | ($979.0) | ($249.0) | ($200.0) | $0.0 | $0.0 | ($449.0) | $0.0 | $0.0 | $0.0 |
| Value of warrants | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 |
| Total dividends to preferred stock holders | ($1,458.0) | ($375.0) | ($380.0) | $0.0 | $0.0 | ($755.0) | $0.0 | $0.0 | $0.0 |
| Pre-Tax Income | ($6,622.0) | ($2,448.0) | (2,472.4) | (2,257.7) | (1,426.1) | ($8,604.2) | ($3,169.5) | $4,086.6 | $16,024.3 |
| Taxes | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $367.8 | $4,006.1 |
| *Tax Rate* | - | - | - | - | - | - | - | *9.0%* | *25.0%* |
| Net Income to common stock | ($6,622.0) | ($2,448.0) | (2,472.4) | (2,257.7) | (1,426.1) | ($8,604.2) | ($3,169.5) | $3,718.8 | $12,018.2 |
| *YOY Growth* | *22.2%* | *-66.0%* | *-65.7%* | *-52.8%* | *-226.9%* | *-29.9%* | *-63.2%* | *-217.3%* | *223.2%* |
| *Net Margin* | - | - | - | - | - | - | - | *14.4%* | *26.0%* |
| EPS | ($0.18) | ($0.06) | ($0.06) | ($0.03) | ($0.02) | ($0.16) | ($0.05) | $0.05 | $0.17 |
| *YOY Growth* | - | - | - | - | - | - | - | - | *223.2%* |
| Diluted Shares O/S | 37,513 | 42,426 | 44,250 | 67,000 | 68,000 | 55,419 | 69,000 | 69,500 | 69,500 |

*Brian Marckx, CFA*

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## SALES/GROSS MARGIN ESTIMATES

Vicor Technologies, Inc

| | Units sold qtr | Total units sold | Average sale price | | Rev/ test | Product revenue | Prod rev % of total | | # tests/ unit per month | tests/ qtr | Test revenue | Test rev % of total | Total Revenue | Product GM | Test GM | Gross Profit | Gross Margin |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2010** | | | | | | | | | | | | | | | | | |
| Q1 | 18 | 18 | $5,000 | | $30 | $88,000 | 88% | | 8 | 23 | $12,000 | 12% | $100,000 | | | $15,000 | 15.0% |
| Q2 | 30 | 48 | $5,000 | | $30 | $150,000 | 74% | | 12 | 36 | $51,840 | 26% | $201,840 | 15.0% | 60.0% | $53,604 | 26.6% |
| Q3 | 75 | 123 | $5,050 | | $30 | $378,750 | 70% | | 15 | 45 | $166,050 | 30% | $544,800 | 17.0% | 62.0% | $167,339 | 30.7% |
| Q4 | 130 | 253 | $5,100 | | $30 | $663,000 | 61% | | 19 | 57 | $432,630 | 39% | $1,095,630 | 19.0% | 64.0% | $402,853 | 36.8% |
| **FY** | **253** | **253** | **$5,038** | **avg** | **$30** | **$1,279,750** | **66%** | **avg** | **13** | **40** | **$662,520** | **34%** | **$1,942,270** | **17.0%** | **62.0%** | **$628,320** | **32.3%** |
| **2011** | | | | | | | | | | | | | | | | | |
| Q1 | 170 | 423 | $5,150 | | $30 | $875,500 | 52% | | 21 | 63 | $799,470 | 48% | $1,674,970 | 20.0% | 65.0% | $694,756 | 41.5% |
| Q2 | 205 | 628 | $5,160 | | $30 | $1,057,800 | 44% | | 24 | 72 | $1,356,480 | 56% | $2,414,280 | 21.0% | 66.0% | $1,117,415 | 46.3% |
| Q3 | 230 | 858 | $5,170 | | $30 | $1,189,100 | 37% | | 26 | 78 | $2,007,720 | 63% | $3,196,820 | 22.0% | 67.0% | $1,606,774 | 50.3% |
| Q4 | 250 | 1108 | $5,180 | | $30 | $1,295,000 | 32% | | 28 | 84 | $2,792,160 | 68% | $4,087,160 | 23.0% | 68.0% | $2,196,519 | 53.7% |
| **FY** | **855** | **1108** | **$5,165** | **avg** | **$30** | **$4,417,400** | **39%** | **avg** | **25** | **74** | **$6,955,830** | **61%** | **$11,373,230** | **21.5%** | **66.5%** | **$5,575,368** | **49.0%** |
| **2012** | | | | | | | | | | | | | | | | | |
| Q1 | 250 | 1358 | $5,190 | | $30 | $1,297,500 | 27% | | 29 | 87 | $3,544,380 | 73% | $4,841,880 | 25.0% | 69.0% | $2,769,997 | 57.2% |
| Q2 | 258 | 1616 | $5,200 | | $30 | $1,341,600 | 23% | | 31 | 93 | $4,508,640 | 77% | $5,850,240 | 25.0% | 69.0% | $3,446,362 | 58.9% |
| Q3 | 260 | 1876 | $5,250 | | $30 | $1,365,000 | 19% | | 34 | 102 | $5,740,560 | 81% | $7,105,560 | 26.0% | 70.0% | $4,373,292 | 61.5% |
| Q4 | 262 | 2138 | $5,250 | | $30 | $1,375,500 | 17% | | 35 | 105 | $6,734,700 | 83% | $8,110,200 | 26.0% | 70.0% | $5,071,920 | 62.5% |
| **FY** | **1030** | **2138** | **$5,223** | **avg** | **$30** | **$5,379,600** | **21%** | **avg** | **32** | **97** | **$20,528,280** | **79%** | **$25,907,880** | **25.5%** | **69.5%** | **$15,638,953** | **60.4%** |
| **2013** | | | | | | | | | | | | | | | | | |
| Q1 | 265 | 2403 | $5,250 | | $30 | $1,391,250 | 15% | | 37 | 111 | $8,001,990 | 85% | $9,393,240 | 27.0% | 70.0% | $5,977,031 | 63.6% |
| Q2 | 267 | 2670 | $5,250 | | $30 | $1,401,750 | 13% | | 39 | 117 | $9,371,700 | 87% | $10,773,450 | 27.0% | 70.0% | $6,938,663 | 64.4% |
| Q3 | 270 | 2940 | $5,250 | | $30 | $1,417,500 | 12% | | 41 | 123 | $10,848,600 | 88% | $12,266,100 | 27.0% | 70.0% | $7,976,745 | 65.0% |
| Q4 | 272 | 3212 | $5,250 | | $30 | $1,428,000 | 10% | | 43 | 129 | $12,430,440 | 90% | $13,858,440 | 27.0% | 70.0% | $9,086,868 | 65.6% |
| **FY** | **1074** | **3212** | **$5,250** | **avg** | **$30** | **$5,638,500** | **12%** | **avg** | **40** | **120** | **$40,652,730** | **88%** | **$46,291,230** | **27.0%** | **70.0%** | **$29,979,306** | **64.8%** |

**ASSUMPTIONS**

**Average sale price:** management has indicated the Analyzer will sell at a price between $5,000 and $5,250. We assume sales are initially made at the lower end of this range in order to ramp the installed base. We assume the company gains pricing power over time.

**Revenue per test:** revenue to Vicor for each test run is expected to average between $25 and $50. As there's little visibility where revenue/ test will come in at, we are using the lower end of this range. This may prove to be conservative and will be adjusted if necessary when there is more clarity on where testing revenue is trending

**Tests run per month:** this is expected to be in the 22 to 66 range. Initially we think this may be optimistic as physicians get comfortable with the technology and FDA approval for specific indications is still in limbo. We assume tests/ per month shows continuous sequential growth. Our figures for test/ month may also prove to be conservative - and will be updated when there's more visibility where this is trending.

**Gross margins:** we assume testing margins are initially ~ 60% and trend towards 70% over time. Relative to product margins, we expect to see continuous sequential improvement from efficiencies and purchasing power as unit sales increase. We have modeled product margins to grow sequentially from 15% initially

*Brian Marckx, CFA*

**BALANCE SHEET**

Vicor Technologies, Inc

| | March 31, 2010 | December 31, 2009 | September 30, 2009 |
|---|---|---|---|
| **Assets** | | | |
| **Current assets:** | | | |
| Cash | $308 | $544 | $1,065 |
| A/R | $92 | $0 | |
| Inventory | $40 | $0 | |
| Prepaid expenses | $81 | $74 | $43 |
| Total current assets | $521 | $618 | $1,108 |
| | | | |
| PP&E, net | $111 | $21 | |
| Deposits | $16 | $12 | $12 |
| Deferred charges | $80 | $168 | $567 |
| Intellectual property, net of accum. Amortization | $218 | $229 | $238 |
| **Total Assets** | **$946** | **$1,048** | **$1,949** |
| | | | |
| **Liabilities and Shareholders' Equity** | | | |
| **Current liabilities:** | | | |
| Accounts payable and accrued expenses | $874 | $600 | $755 |
| Current debt | $660 | $460 | $760 |
| Due to related parties | $100 | $100 | $100 |
| Total current liabilities | $1,634 | $1,160 | $1,615 |
| | | | |
| **Long-term liabilities:** | | | |
| Long-term debt | $1,172 | $1,251 | $611 |
| Accrued dividends | $959 | $833 | $744 |
| Derivative financial instruments payable in common stock | $5,135 | $4,414 | $7,187 |
| **Total Liabilities** | **$8,900** | **$7,658** | **$10,157** |
| | | | |
| **Net capital deficiency:** | | | |
| Preferred stock: | | | |
| Series A Conv., 157,592 shares o/s @ FYE '08 and '09 | - | - | - |
| Series B Junior Conv., 4,781,295 o/s @ FYE '08 and 5,210,101 o/s @ FYE '09 | - | - | - |
| Common stock | $4 | $4 | $4 |
| Additional paid-in-capital | $47,952 | $46,848 | $45,808 |
| Stock subscriptions in process | - | - | $600 |
| Deficit accumulated during development stage | ($55,910) | ($53,462) | ($54,620) |
| **Net capital deficiency:** | ($7,954) | ($6,610) | ($8,208) |

*Source: Vicor Technologies, Inc. / Zacks Investment Research* *Brian Marckx, CFA*

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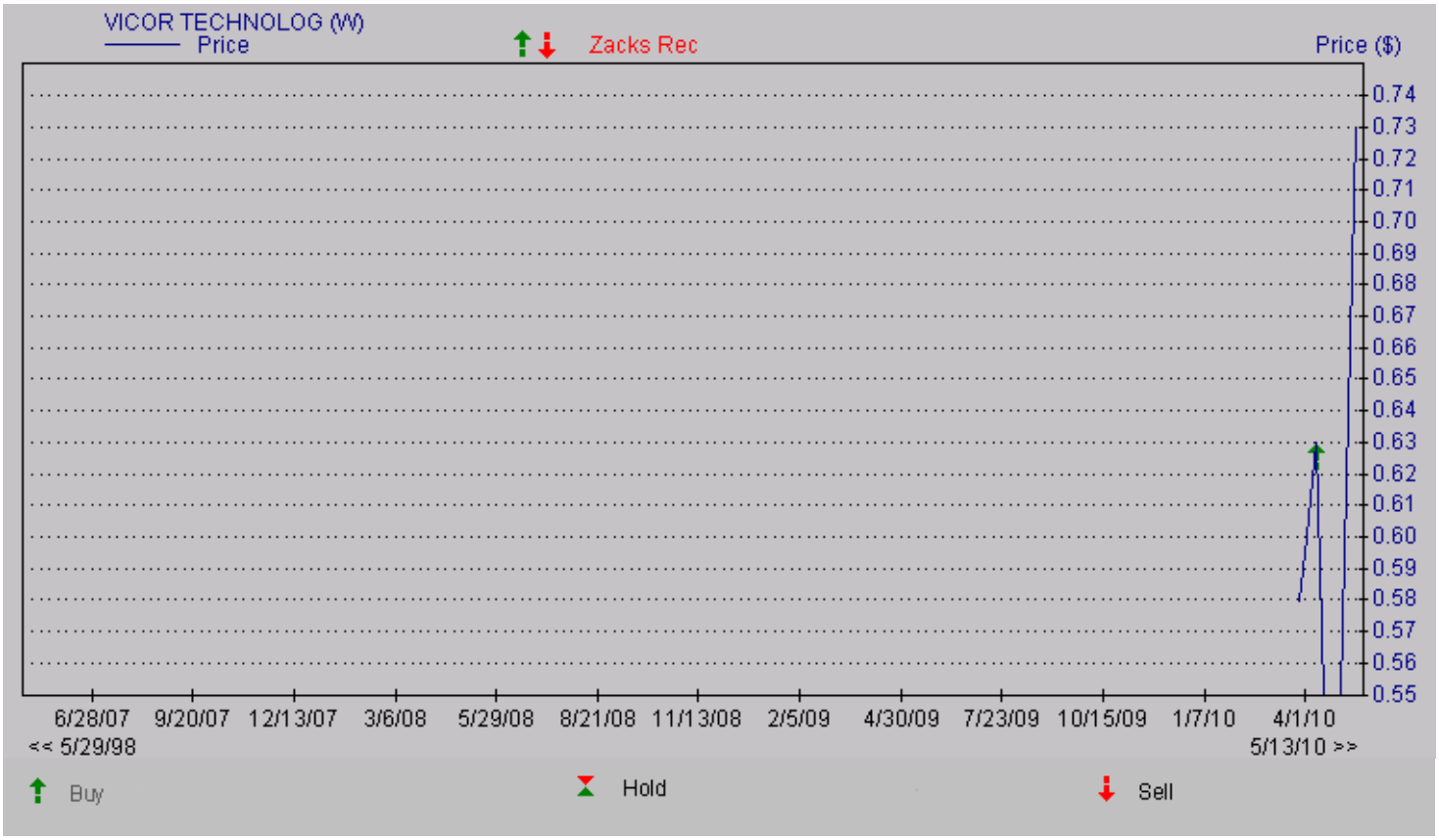
## CASH FLOW STATEMENT

Vicor Technologies, Inc

| | Three Months March 31, 2010 | Three Months March 31, 2009 |
|---|---|---|
| **Cash Flows From Operating Activities:** | | |
| Net loss | ($2,073) | ($1,146) |
| Depreciation and Amortization | $15 | $12 |
| Noncash interest from conversion of debt to equity | - | $32 |
| Noncash interest from deferred financing costs and debt-based derivative liabilites | $371 | - |
| Gain on derivative financial instruments | $117 | $294 |
| Gain from sale of assets | - | - |
| Securities issued for services | $29 | $7 |
| Beneficial conversion feature of notes | $10 | - |
| Contributed research and development expenses | - | - |
| Merger related costs | - | - |
| Shares in lieu of interest payments | $1 | $6 |
| Equity-based compensation | $286 | $142 |
| Changes in assets and liabilities: | | |
| A/R | ($92) | - |
| Inventory | ($40) | - |
| Prepaid expenses and other assets | ($11) | ($20) |
| Accounts payable and accrued expenses | $274 | $170 |
| Net cash provided by operating activities | ($1,113) | ($503) |
| | | |
| **Cash Flows From Investing Activities:** | | |
| Purchase of intellectual property | - | - |
| Net proceeds from sale of equipment | - | - |
| Purchase of PP&E | ($93) | - |
| Net cash used in investing activities | ($93) | - |
| | | |
| **Cash Flows From Financing Activities:** | | |
| Due to related parties | - | - |
| Proceeds from bank loans | - | - |
| Proceeds from sale of preferred stock | - | $261 |
| Proceeds from sale of common stock | - | $128 |
| Repayment of notes | - | - |
| Proceeds from bridge loan | - | $200 |
| Procceds from sale of notes | $970 | - |
| Proceeds for stock to be issued | - | - |
| Contributed capital | - | - |
| Net cash provided by financing activities | $970 | $598 |
| | | |
| **Net increase in cash** | ($236) | $86 |
| **Cash at beginning of year** | $544 | $182 |
| **Cash at end of year** | **$308** | **$268** |

*Source: Vicor Technologies, Inc. / Zacks Investment Research* *Brian Marckx, CFA*

## HISTORICAL ZACKS RECOMMENDATIONS




## DISCLOSURES

**The analysts contributing to this report do not hold any shares of VCRT. Zacks EPS and revenue forecasts are not consensus forecasts.** Additionally, the analysts contributing to this report certify that the views expressed herein accurately reflect the analysts' personal views as to the subject securities and issuers. Zacks certifies that no part of the analysts' compensation was, is, or will be, directly or indirectly, related to the specific recommendation or views expressed by the analyst in the report. Additional information on the securities mentioned in this report is available upon request. This report is based on data obtained from sources we believe to be reliable, but is not guaranteed as to accuracy and does not purport to be complete. Because of individual objectives, the report should not be construed as advice designed to meet the particular investment needs of any investor. Any opinions expressed herein are subject to change. This report is not to be construed as an offer or the solicitation of an offer to buy or sell the securities herein mentioned. Zacks or its officers, employees or customers may have a position long or short in the securities mentioned and buy or sell the securities from time to time. Zacks uses the following rating system for the securities it covers. **Outperform**- Zacks expects that the subject company will outperform the broader U.S. equity market over the next one to two quarters. **Neutral**- Zacks expects that the company will perform in line with the broader U.S. equity market over the next one to two quarters. **Underperform**- Zacks expects the company will under perform the broader U.S. Equity market over the next one to two quarters. The current distribution of Zacks Ratings is as follows on the 988 companies covered: Outperform- 13.3%, Neutral- 79.0%, Underperform – 7.1%. Data is as of midnight on the business day immediately prior to this publication.