

GSE SYSTEMS INC  
Form 10-K  
March 08, 2012

Conformed

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549  
FORM 10-K

(Mark  
One)  
 [ X ]

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d)  
OF THE SECURITIES EXCHANGE ACT OF 1934  
For the fiscal year ended December 31, 2011

OR

[ ]

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d)  
OF THE SECURITIES EXCHANGE ACT OF 1934  
For the transition period from \_\_\_\_ to \_\_\_\_

Commission File Number 001-14785  
GSE Systems, Inc.  
(Exact name of registrant  
as specified in its charter)

Delaware  
(State of incorporation)

52-1868008  
(I.R.S. Employer Identification Number)

1332 Londontown Blvd., Suite 200, Sykesville  
MD  
(Address of principal executive offices)

21784  
(Zip Code)

Registrant's telephone number, including area code: (410) 970-7800

SECURITIES REGISTERED PURSUANT TO SECTION 12(b) OF THE ACT:

Title of each class  
Common Stock, \$.01 par value

Name of each exchange on which registered  
NYSE Amex Stock Exchange

SECURITIES REGISTERED PURSUANT TO SECTION 12(g) OF THE ACT: NONE

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.  
Yes  [ ] No  [X]

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act.  
Yes  [ ] No  [X]

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes  [ X ] No  [ ]

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Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes  No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See the definitions of "large accelerated filer", "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer <input type="checkbox"/>	Accelerated filer <input type="checkbox"/>	Non-accelerated filer <input type="checkbox"/>	Smaller reporting company <input checked="" type="checkbox"/>
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(Do not check if a smaller reporting company)

Indicate by check mark whether the registrant is a shell company (as defined in rule 12(b)-2 of the Exchange Act). Yes  No

The aggregate market value of Common Stock held by non-affiliates of the Registrant was \$40,048,374 on June 30, 2011, the last business day of the Registrant's most recently completed second fiscal quarter, based on the closing price of such stock on that date of \$2.16.

The number of shares outstanding of the registrant's Common Stock as of March 8, 2012 was 18,363,728 shares.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement for the 2012 Annual Meeting of Stockholders to be filed pursuant to Regulation 14A under the Securities Exchange Act of 1934, as amended, are incorporated by reference into Part III.

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\*to be incorporated by reference from the Proxy Statement for the registrant’s 2012 Annual Meeting of Shareholders.

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CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS.

This report and the documents incorporated by reference herein contain “forward-looking” statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act that are based on management’s assumptions, expectations and projections about us, and the industry within which we operate, that have been made pursuant to the Private Securities Litigation Reform Act of 1995 which reflect our expectations regarding our future growth, results of operations, performance and business prospects and opportunities. Wherever possible, words such as “anticipate”, “believe”, “continue”, “estimate”, “intend”, “may”, “plan”, “potential”, “predict”, “expect”, “should”, “expressions, or the negative of these terms or other comparable terminology, have been used to identify these forward-looking statements. These forward-looking statements may also use different phrases. These statements regarding our expectations reflect our current beliefs and are based on information currently available to us. Accordingly, these statements by their nature are subject to risks and uncertainties, including those listed under Item 1A Risk Factors, which could cause our actual growth, results, performance and business prospects and opportunities to differ from those expressed in, or implied by, these statements. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. Except as otherwise required by federal securities law, we are not obligated to update or revise these forward-looking statements to reflect new events or circumstances. We caution you that a variety of factors, including but not limited to the factors described below under Item 1A Risk Factors and the following, could cause our business conditions and results to differ materially from what is contained in forward-looking statements:

- changes in the rate of economic growth in the United States and other major international economies;
- changes in investment by the nuclear and fossil electric utility industry, the chemical and petrochemical industries and the U.S. military;
  - changes in the financial condition of our customers;
    - changes in regulatory environment;
    - changes in project design or schedules;
      - contract cancellations;
  - changes in our estimates of costs to complete projects;
  - changes in trade, monetary and fiscal policies worldwide;
    - currency fluctuations;
- war and/or terrorist attacks on facilities either owned or where equipment or services are or may be provided;
  - outcomes of future litigation;
- protection and validity of our trademarks and other intellectual property rights;
  - increasing competition by foreign and domestic companies;
    - compliance with our debt covenants;
  - recoverability of claims against our customers and others; and
  - changes in estimates used in our critical accounting policies.

Other factors and assumptions not identified above were also involved in the formation of these forward-looking statements and the failure of such other assumptions to be realized, as well as other factors, may also cause actual results to differ materially from those projected. Most of these factors are difficult to predict accurately and are generally beyond our control. You should consider the areas of risk described above in connection with any forward-looking statements that may be made by us. You should not place undue reliance on any forward-looking statements. New factors emerge from time to time, and it is not possible for us to predict which factors will arise.

We undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise. You are advised, however, to consult any additional disclosures we make in proxy statements, quarterly reports on Form 10-Q and current reports on Form 8-K filed with the SEC.

## PART I

### ITEM 1. BUSINESS.

GSE Systems, Inc. (“GSE Systems”, “GSE”, the “Company”, “our”, “we” or “us”), a Delaware corporation organized in March 1994, is a world leader in real-time, high fidelity simulation. The Company provides simulation, educational, and engineering solutions and services to the nuclear and fossil electric utility industry and the chemical and petrochemical industries. As of December 31, 2011, GSE was the parent company of:

- ◆ GSE Power Systems, Inc., a Delaware corporation;
- ◆ GSE Power Systems, AB, a Swedish corporation;
- ◆ GSE Engineering Systems (Beijing) Co. Ltd., a Chinese limited liability company;
  - ◆ GSE Systems, Ltd., a Scottish limited liability company;
  - ◆ TAS Engineering Consultants Ltd., an English limited liability company.
    - ◆ GSE EnVision, Inc., a New Jersey corporation; and
    - ◆ EnVision Systems (India) Pvt. Ltd., an Indian limited liability company.

The Company has a 49% minority interest in GSE-UNIS Simulation Technology Co., Ltd. a Chinese limited liability company and has a 10% minority interest in Emirates Simulation Academy, LLC (“ESA”), a United Arab Emirates limited liability company. The Company has only one reportable segment.

The Company’s annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and all amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act (15 U.S.C. 78m(a) or 78o(d)) will be made available free of charge through the Investor Relations section of the Company’s Internet website (<http://www.gses.com>) as soon as practicable after such material is electronically filed with, or furnished to, the SEC. In addition, the public may read and copy any materials we file with the SEC at the SEC’s Public Reference Room at 100 F Street, NE, Washington, DC 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC at <http://www.sec.gov>.

## Recent Developments.

The continued dramatic increase in global energy demand is well documented and, we believe, will continue to grow for decades to come. Today there are some 435 nuclear power reactors operating in 30 countries plus Taiwan; in 2010 these provided about 14% of the world's electricity. Per the World Nuclear Association, there are currently 60 power reactors under construction in 13 countries and Taiwan, plus another 163 reactors on order or planned in 28 countries, most of these being in Asia. According to the World Nuclear Association, 50 countries with no current nuclear power capability have announced considerations to add nuclear energy to their power generation capabilities (15 in the Middle East and North Africa, 14 in Asia-Pacific, 6 in Africa, 12 in Europe, and 3 in South America). In the U.S., the Nuclear Regulatory Commission ("NRC") is actively reviewing 13 combined construction and operating license applications for 21 nuclear power reactors. On February 9, 2012, the NRC approved plans to build the first new nuclear power plant in the U.S in more than 30 years. The new plant will use AP1000 reactors built by Westinghouse Electric, a standardized design approved by the NRC in December 2011. Each new plant will be required to have a full scope simulator ready for operator training and certification about two years prior to fuel loading. With our leading market share, excellent reputation, and world-class technology, GSE is poised to capitalize on the world-wide nuclear energy growth by providing training and simulation solutions.

On September 21, 2011 the Company announced that it has been selected to provide a real-time, high-fidelity engineering simulator for the B&W mPower™ Small Modular Reactor (SMR) design. The simulator will be used as a platform for validation of plant system designs and the development of control and logic strategies, and serve as a key part of the human factors engineering program. Generation mPower LLC is working to fully develop and deploy the B&W mPower™ reactor technology. The reactor is a First-of-a-Kind (FOAK), scalable, modular, passively safe, advanced light water system. The B&W mPower™ reactor is being designed to provide 160 MWe of clean, zero-emissions energy for four years of operation without refueling. The agreement with B&W solidifies the Company's position as the industry leader in providing high-fidelity engineering simulation for FOAK reactor designs. The flexible platform helps mitigate risk by allowing customers to verify and validate systems and processes at the design stage, when changes can be made more easily and cost-effectively than during plant construction. The Company and B&W will work together beyond this initial phase to expand the scope of the simulator and synchronize throughout the design process. The Company views the application of our high-fidelity simulation in the engineering phase as a natural, and increasingly necessary, extension of its use in existing nuclear and non-nuclear energy facilities. This agreement represents the Company's ongoing efforts to diversify its business model, and leverage the Company's benchmark technical and human assets.

On March 11, 2011 a 9.0 magnitude earthquake and subsequent tsunami occurred along the northeast coast of Japan. The Fukushima Daiichi I Nuclear Power Plant, which is maintained by the Tokyo Electric Power Company (TEPCO), was crippled by a tsunami estimated at 46 feet, nearly 2.5 times the height of the 19 foot seawall protecting the plant. The reactors shut down automatically after the earthquake, with emergency generators providing power to the facility's electronics and cooling systems. However, the flooding was too severe and caused a power failure inside the facility that prevented the cooling systems from working, thus leading to overheating and a partial core meltdown.

Most countries with nuclear programs have reacted to the Fukushima disaster by announcing the delay of new nuclear plants while they conduct reviews of their programs. On March 23, 2011, the NRC issued a Temporary Instruction (“TI”) regarding a special NRC inspection to all holders of operating licenses for nuclear reactors. The objective of the TI was to independently assess the adequacy of actions taken by the U.S. Nuclear licensees in response to the Fukushima Daiichi nuclear accident and was used to evaluate the industry’s readiness for a similar event and to aid in determining additional regulatory actions by the NRC. In February 2012, the NRC voted to issue the first three new rules to deal with safety issues based on eight changes identified by the NRC’s Fukushima task force, with implementation expected by the end of 2016. The rules, subject to review and commission action, will require all U.S. nuclear operators to develop plans to deal with extreme situations, such as earthquakes, floods and other natural disasters that could affect multiple reactors operating at a single site. In addition, all plants would have to improve instrumentation in the pools used to store spent nuclear fuel and have to make changes to containment “vent” structures at plants similar in design to the Daiichi nuclear plant.

In Japan, new Prime Minister, Yoshihiko Noda, spoke in September 2011, at a meeting on nuclear safety and security at the United Nations General Assembly, of Japan’s continuing need for nuclear energy while raising the safety of nuclear plants to the highest level. Mr. Noda has also stated that he is determined to restart the country’s idle reactors by the summer of 2012. At December 31, 2011, GSE’s Swedish subsidiary had projects in progress in Japan with a backlog of \$4.6 million. None of these projects have been delayed or affected by the Fukushima disaster. For the three and twelve months ended December 31, 2011, revenue recognized on projects with Japanese customers totaled 12.4% and 12.4%, respectively, of the Company’s consolidated revenue.

The German government announced in May 2011 that they would phase out all of the country’s nuclear power plants by 2022. The country’s seven oldest reactors, which were taken offline for a safety review immediately after the Japanese crisis, have been permanently shutdown. In the three and twelve months ended December 31, 2011, KSG Kraftwerks-simulator GmbH provided 8.7% and 9.2% of the Company’s consolidated revenue. We have been informed by KSG, who provides training services for the German electric utilities and has 13 specific full scope simulators for 17 German nuclear power plants, due to the phasing out of the country’s nuclear power plants, that GSE should not anticipate any additional significant orders for simulator upgrades from KSG beginning in 2012, however, there will be no impact on GSE’s current projects. At December 31, 2011, the Company has backlog of approximately \$1.9 million related to KSG projects.

In early March 2012, the state-run China Daily cited Deputy Director of the Committee of Population, Resources and Environment of the CPPCC National Committee, Wang Yuqing, as saying that the ban on the proposed new atomic energy plants that was put in place following the Fukushima disaster would soon be removed as a comprehensive plan on nuclear safety control has been submitted to the State Council.



Previous nuclear accidents have resulted in new regulations requiring additional operator training, higher fidelity models and new testing scenarios. Accordingly, as evidenced by the new safety rules that the NRC has recently voted to issue and the comments in the China Daily, it is likely that additional governmental regulations enacted in the aftermath of the Fukushima nuclear accident will result in the requirement for plant modifications and new testing scenarios that will result in the need for higher simulator fidelity, such as that designed and supplied by GSE. GSE has developed PSA-HD™, an engineering-grade nuclear simulation solution that allows operations personnel to train for and develop responses to severe accident scenarios based on the operations of their specific facility. PSA-HD's real-time code can be integrated with a nuclear plant's existing full-scope training simulator and is applicable to all current nuclear plant designs. PSA-HD can be used to validate the utility's severe accident management guidelines, demonstrate the safety of current plant designs to regulators and stakeholders, and identify potential issues with existing plant design that may require modification. PSA-HD includes high-fidelity models of the plant's reactor core, containment structures and spent fuel pool. The models simulate severe accident conditions which mirror those that occurred at the Fukushima facility, such as the release of radioactive materials due to overheating of the core, exposure of the fuel rods in the spent fuel pool, and hydrogen build up in the containment building.

In order to meet the world's needs, all forms of energy will play a part, not just nuclear power. Per the ExxonMobil 2012 the Outlook for Energy: A View to 2040, "By 2040 electricity generation will account for more than 40% of global energy consumption. "Oil will remain the most widely used fuel, but natural gas will grow fast enough to overtake coal for the number-two position. For both oil and natural gas, an increasing share of global supply will come from unconventional sources, such as those from shale formations. Demand for natural gas will rise by more than 60% through 2040." For more than three decades, GSE has leveraged the simulation capability that we developed for nuclear power for non-nuclear projects. Globally we have delivered 121 fossil power plant simulators and 96 process full scope industry simulators.

According to the U.S. Energy Information Administration, world energy consumption is forecasted to increase by 52% from 505 quadrillion BTU in 2008 to 770 quadrillion BTU in 2035. New consumption means new production, which means new plants, new workers, and an enormous amount of training to provide a skilled workforce. GSE recognized this growing need for energy industry training several years ago and began developing various training solutions leveraging the use of our simulation technology. GSE created a 163 module, five-simulator training course that was sold to the Emirates Simulation Academy LLC, in the UAE, a training academy that was created by GSE and two other partners in 2007. The Company worked with the University of Strathclyde in Glasgow, Scotland to incorporate GSE's simulation into the University's degreed and industrial education programs. GSE developed a 20-week "Nuclear Operator Jump Start Training Program" for Southern Nuclear Company in Augusta, GA utilizing the Company's VPanel™ interactive visual training simulator. The advantage of the VPanel™ simulator is its scalability and ease of configuration for both team and individual training, plant specific or cross training. The VPanel™ allows customers to utilize their existing simulator load while bringing many full scope simulator capabilities directly into the classroom for a fraction of the cost. The "Operator Jump Start" program helps customers screen and train new operator candidates. This training program is designed to provide essential knowledge and skills to potential nuclear plant operators and to determine if candidates have the ability to successfully complete the customer's own operator licensing programs. The program includes instruction on fundamental sciences (including Generic Fundamentals Examinations "GFES"), plant systems and operations. Additionally, in 2011 GSE began providing instructors to teach Senior Reactor Operator ("SRO") certification training for a major southeastern U.S. utility. GSE differentiated its approach by leveraging its VPanel™ technology and generic pressurized water reactor ("GPWR") simulator load to reinforce the instructor-led training with hands-on exercises.

In order to expand its simulation-based training programs, on January 4, 2011, GSE acquired EnVision Systems, Inc., subsequently renamed GSE-EnVision Inc., which provides interactive multi-media tutorials and simulation models, primarily to the petrochemical and oil & gas refining industries. EnVision's products provide a foundation in process fundamentals, as well as plant operations and interaction. This acquisition gives GSE a tiered offering when it comes to simulation, as well as a large library of training content in multiple languages. GSE-EnVision is a product-oriented

business model with significantly higher margins than our core business.

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A compounding problem is facing the energy industry. While experiencing rapid growth requiring new plants and new workers, the incumbent industry workforce is aging and facing dramatic turnover. Per the Nuclear Energy Institute, as of 2008 nearly 38% of the U.S. nuclear power industry would be eligible to retire by 2013. According to the Center for Energy Workforce Development, an estimated 46% of the current energy industry workforce may need to be replaced by 2015 due to attrition and retirement. While the data is readily available in the nuclear industry because it is so heavily regulated, similar demographics exist in the fossil, oil & gas, chemical and petrochemical industries. While this issue has been looming for some time, the impact has been somewhat delayed due to the recent global economic downturn. Some employees that were planning on retiring in the near future saw their savings significantly reduced and were forced to postpone their retirements. Accordingly, the Company anticipates that in the near future, a larger number of employees are likely to retire within a shorter time span and the need to find qualified employees to replace them will become an acute issue.

Except for some insightful early adopters, many companies tend to put off spending on training until they absolutely have to or they are in trouble. Often it is viewed as a cost rather than an investment, and aside from travel, it is one of the first things to be cut during economic downturns. However, the statistics associated with new plant builds and the aging workforce are undeniable, and training will be required to supply the skilled employees that will be needed to staff the new plants and replace the retirees. Therefore, when the energy industry recognizes the need to train, they will want training that is faster and better than what is traditionally available. Additionally, they will have to consider the nature of the next generation workforce who has grown up with a computer and vast amounts of interactive multimedia. Standard classroom training will not provide the efficacy that will be needed nor satisfy the interest level of the new workforce.

In fact, according to the NTL Institute's statistics on learner retention only 5% of information is retained from lecture, and only 10% from reading. However, 75% retention is accomplished when learners practice by doing. These statistics support GSE's success with the Nuclear Operator Jump Start Training Program at Southern Nuclear Company, as our design combines traditional instructor-led classroom training with structured simulator exercises supporting the concepts learned. This model is transportable globally to anywhere a new energy workforce is needed.

Case studies demonstrate that the inclusion of "serious gaming" technology such as immersive 3D environments can reduce training time and improve learning significantly. In fact, the Royal Canadian Army was able to reduce the cost of training and increase the pass rate of students by incorporating gaming into the curriculum. Due to the advancement of computer processing power and graphics technology, immersive commercially viable off-the-shelf 3D game engines are readily available. Additionally, this style of learning also lends itself to the next generation workforce, and as such GSE is investing significantly in 3D visualization. This investment comes in the form of strategic hires, investment in technology, and software product development. Through development efforts already undertaken, GSE's engineers have discovered how to link our industry-leading, high fidelity models to commercially off-the-shelf game engines. This enables us to make the invisible visible, for example seeing the inside of an operating reactor, steam generator, or turbine generator. Blending the learning strategy by incorporating 3D visualization interfacing high fidelity real time simulation models will allow GSE to provide the energy industry with better, faster, less costly training ideally suited for the next generation workforce. We received our first 3D visualization order in July 2011 and recognized modest revenue from 3D visualization sales in 2011. However, we anticipate 3D visualization revenue to scale dramatically over the coming years.

Background.

GSE Systems was formed on March 30, 1994 to consolidate the simulation and related businesses of S3 Technologies, General Physics International Engineering & Simulation and EuroSim, each separately owned and operated by ManTech International Corporation, GP Strategies Corporation and Vattenfall AB, respectively.

In December 1997, the Company acquired 100% of the outstanding common stock of J.L. Ryan, Inc. (“Ryan”), a provider of engineering modifications and upgrade services to the power plant simulation market. The combination of the Company’s pre-existing technology with the technical staff of the acquired Ryan business positioned the Company to be more competitive for modifications and upgrade service projects within the nuclear simulation market.

In October 2002, GSE purchased the stock of ManTech Automation Systems (Beijing) Company Ltd, from ManTech International Corp. The Chinese company, which has fifteen employees, was renamed GSE Systems Engineering (Beijing) Company Ltd. This acquisition gave the Company a base in China to pursue and implement simulation projects in that emerging market.

In 2007, the Company formed a subsidiary, GSE Systems Ltd., in the United Kingdom. The British subsidiary was established to provide training solutions to the nuclear power industry.

On April 26, 2010, the Company completed the acquisition of TAS Holdings Ltd (“TAS”). TAS, located in Stockton-on-Tees in the United Kingdom, provides engineering consulting, specializing in electrical system design, instrumentation and controls engineering and automation engineering. The majority of TAS’s customers reside in the petroleum refining, oil and gas, chemical and petrochemical industries.

On July 28, 2010, the Company received a formal business license from the Chinese government for the Chinese joint venture, GSE-UNIS Simulation Technology Co., Ltd. (“GSE-UNIS”), a limited liability company. GSE-UNIS is 51% owned by Beijing UNIS Investment Co., Ltd. (“UNIS”) and 49% owned by GSE. The largest shareholder of UNIS is Tsinghua University, a prestigious technology university in China. Established in 1988, UNIS has been acting as an incubator company transferring new technologies from the University’s research laboratory to the commercial sector. The origin of its simulation platform can be traced back to 1984, a national award-winning technology developed by Tsinghua University. Over the past 20 years, hundreds of simulators have been built based upon this technology for approximately 200 customers in the fossil fueled electric power industry, accounting for about 50% of the total Chinese fossil fueled power market. Its solid customer base and strong relationships with the academic and government sector will help GSE-UNIS service contracts in both the fossil fueled as well as nuclear power markets in the Chinese market.

On January 4, 2011, the Company completed the acquisition of EnVision Systems, Inc. (“EnVision”), acquiring 100% ownership in EnVision for a purchase price of approximately \$4.0 million in cash and contingent consideration. EnVision, which has been renamed GSE EnVision Inc., provides interactive multi-media tutorials and simulation models, primarily to the petrochemical and oil & gas refining industries. EnVision is headquartered in Madison, NJ, has an Indian subsidiary based in Chennai, India, and was founded in 1991. EnVision’s tutorials and simulation models serve the entry-level training market for the oil & gas refining and specialty chemicals industries. EnVision’s products provide a foundation in process fundamentals and plant operations and interaction. EnVision has completed more than 750 installations in over 28 countries and its approximately 130 clients include Shell Oil Company, BP, Total and Chevron.

Nuclear and Fossil Fuel Power Simulation.

### Industry History

The real-time simulation industry grew from the need to train people on complex and potentially dangerous operations, without placing life or capital assets at risk. Real-time simulation has been used for the training of plant operators for the power industry, including both nuclear power plants and conventional fossil fuel power plants (i.e., coal, oil, and natural gas), since the early 1970s. Real-time simulation usage has traditionally centered on initial training of operators and follow-on training of operators in emergency conditions that can best be achieved through simulation replicating actual plant operations.

In the U.S. nuclear power industry, use of a simulator that accurately reflects the current actual plant design is mandated by the U.S. Nuclear Regulatory Commission (“NRC”). This mandate resulted from the investigation of the accident at the Three Mile Island nuclear plant in 1979, which was attributed, at least in part, to operator error. The NRC requires nuclear plant operators to earn their licenses through simulator testing. Each U.S. nuclear plant simulator must pass a certification program to ensure that the initial plant design and all subsequent changes made to the actual plant control room or plant operations are accurately reflected in the simulator. U.S. plant operating licenses are tied to simulator certification. Other countries throughout the world look to the NRC for guidance in establishing their local controls for nuclear plants.

Full scope power plant simulators are a physical representation of the entire plant control room. For older plants, the control panels are connected to an input/output (I/O) system, which converts analog electrical signals to digital signals understood by the simulation computer. For newer plants, the control rooms consist mainly of digital control systems and a series of computer screens used by the operator to control the plant. The simulation computer houses the mathematical models which simulate the physical performance of the power plant’s systems such as the reactor core, steam boiler, cooling water, steam turbine, electrical generator, plant system controls and electrical distribution systems. Partial scope simulators can be viewed as a subset of a full scope simulator. Instead of simulating the entire performance of the power plant, a partial scope simulator might represent one or two critical systems such as the steam turbine and/or electrical generator operation.

In the past, training simulators had to strike a delicate balance between providing an accurate engineering representation of the plant, while still operating in “real-time” in order to provide effective training. As computing power has increased, so too has the capacity of simulators to provide more accurate plant representations in real-time based upon simulation models developed from engineering design codes. The more sophisticated and accurate engineering codes allow customers to use the simulator to help validate plant design, control system strategies, control system displays, and develop plant operating procedures and training material.

Simulation also is used to validate proposed plant equipment changes and to confirm the results of such changes, prior to making the change in the plant, which can save time and money, as well as reduce the risk of unsafe designs, for the utility.

The importance of nuclear power to the U.S. energy supply is resulting in the extension of the useful lives of U.S. nuclear power plants. Any service life extension of a nuclear power plant is likely to require major upgrades to the plant's equipment and technology, including its simulator.

Fossil fuel plant simulators are not required by law or regulation, but are justified as a cost-effective approach to train operators on new digital control systems being implemented at many fossil fuel power plants. The size, complexity and price of a fossil plant simulator are much lower than for simulators used for nuclear plants. Fossil plant simulators have traditionally used lower fidelity (less sophisticated) mathematical models to provide an approximate

representation of plant performance. The demand for highly accurate models did not exist in the early market for fossil simulators since the main use of the simulator was to train operators on the functionality of distributed control systems for plant start-up activities.

As control system vendors aggressively pursued the replacement of old style control systems and control rooms with modern digital control systems ("DCS"), the fossil simulation market also changed. Utility customers demanded simulators as part of the control system upgrades, and DCS vendors recognized the value in using simulators early in the design process. Control strategies and equipment set points are validated on the simulator prior to plant start up to ensure the control schemes work properly and the expected plant performance is achieved. Performing these tests on a high fidelity simulator saves days or weeks in the plant start up, thereby reducing cost and ensuring quicker revenue generation by the utility.

#### Industry Future

According to ExxonMobil's 2012 The Outlook for Energy, the global demand for energy is expected to rise by 30% by 2040 and up 60% in non-OECD countries. Electrical generation will account for 40% of global energy consumption.

Viewed as a clean, non-carbon producing source of energy, the public perception of nuclear power became more favorable over the past decade. The anticipated renaissance was slowed by the economic downturn in 2008, yet nuclear construction worldwide continued. The natural disasters that caused the destruction of the Fukushima Daiichi plant in Japan dominated the industry news in 2011. Industry reaction to the event was mixed. Germany decided to phase out of nuclear power by 2021. However other countries are continuing to build new nuclear reactors, including the U.S. In February 2012, the U.S. NRC issued the Combined Operating License for the Vogtle Units 3 & 4 AP1000 reactors for Southern Nuclear. The Company is building the simulators for those reactors through Westinghouse Electric Company LLC ("Westinghouse").

The NRC is evaluating what direction to give the industry as a result of the events at Fukushima. The Company anticipates the need for U.S. utilities to extend the capabilities of their simulators to simulate long lasting events with serious electrical system issues, degradation of battery backup systems and other equipment problems. In addition, the Company anticipates the need for real-time simulation of core damage resulting from the lack of available cooling capacity. Engineering codes used to calculate the safety margins of plants can be used to accurately simulate plant damage resulting from extensive reactor fuel damage. The Company has developed a method to implement these engineering codes in the real-time simulator environment to provide the most accurate simulation solution available on the market. PSA-HD™ is the Company's real-time solution for severe accident simulation. PSA-HD will enable utilities to better test, validate and train on Severe Accident Management Guidelines.

The Company sees the continued construction of new nuclear plants both domestically and internationally that will provide significant opportunities for expansion of the Company's business. Westinghouse and its consortium team member The Shaw Group are under contract to provide two Westinghouse AP1000™ nuclear power plants at the Vogtle site, located in Burke County Georgia. The new units are expected to begin commercial operation in 2016 and 2017. In addition to the Vogtle plant, the Westinghouse consortium is constructing two AP1000 nuclear power plants at SCANA Corporation's V.C. Summer Nuclear Station in Jenkinsville, S.C.

Internationally, there are currently over 60 nuclear reactors under construction in 14 countries. Per the World Nuclear Association ("WNA"), China has 13 nuclear power reactors in commercial operation, and 27 under construction. China's aim is to have a six fold or more increase in nuclear capacity by 2020. In Russia, eight large reactors are under active construction, seven further reactors are then planned to replace some existing plants, and by 2016 ten new reactors should be operating. Further reactors are planned to add new capacity by 2020. New plants are on the drawing board or under construction in Argentina, Canada, Brazil, Bulgaria, Finland, France, Japan, India, Pakistan, Romania, Slovakia, South Korea, Taiwan, Ukraine and the United Arab Emirates. Other Middle East and Asia Pacific countries are actively evaluating the potential for nuclear power.





The U.S. Department of Energy believes that there is a need and a market in the U.S. for Small Modular Reactors ("SMRs"), and started a program in 2011 to advance the licensing and commercialization of SMR designs. The anticipated benefits of these designs are lower capital costs, faster construction, scalable power production and enhanced safety. Two of the primary SMR designers are using the Company's simulation technology and engineering expertise to help in the early design phase of these plants.

Beyond new construction, numerous U.S. and international utilities are extending the useful life of their current assets. These license extension processes in the nuclear industry will result in significant changes in plant equipment and control room technology. Based upon U.S. NRC regulations, each training simulator is required to reflect all changes that are made in the actual plant, thus when changes in plant equipment and control room technology are made, the nuclear power plants must either upgrade existing simulators or purchase brand new simulators. In January 2010, The Shaw Group, a major nuclear engineering and construction company, estimated that up to 67 reactors in the future could be up-rated to produce more power, creating a \$25 billion market for plant modifications in the U.S. alone.

A second phenomena affecting the industry is the aging of the nuclear and fossil plant operator workforce which will result in the need for simulation to train the next generation of plant operators. Per the Nuclear Energy Institute, as of 2008 nearly 38% of the U.S. nuclear power industry would be eligible to retire by 2013. According to the Center for Energy Workforce Development, an estimated 46% of the current energy industry workforce may need to be replaced by 2015 due to attrition and retirement. Thus, the industry is faced with an aging workforce at the same time new capacity is needed, thereby placing significant pressure on the industry to find and train the next generation of operations and maintenance personnel. In their employment outlook for the utilities industry, the Bureau of Labor Statistics states "Because on-the-job training is very intensive in many utilities industry occupations, preparing a new workforce will be one of the industry's highest priorities during the next decade".

Therefore, the Company believes that these trends, if they come to fruition in whole or even in part, represent a market opportunity for its real-time simulation, education and training, engineering services for new plants and next generation learning products and services.

#### GSE's Solutions

The Company's Power Simulation business is a leader in the development, marketing and support of high fidelity, real-time, dynamic simulation software for the electric utility industry. The Company continues to invest in the development of sophisticated simulation solutions to address emerging technical and training needs of the industry. These developments focus on more advanced modeling of reactor and electrical system phenomena, as well as applications that support automated testing and lifecycle management of plant and simulator data.

The sophistication of the Company's proprietary simulation technology enables the Company to serve not only the operator training market, but to support the engineering and plant design market. The Company's technology is used for multiple purposes in plant design, including creation of the initial plant logic and control design prior to implementation by the DCS company; as a test bed for equipment sizing assumptions, and to test the efficacy of the human factors design of the control room screens.

The Company has also developed integrated training solutions which combine the power of the Company's simulation technology with training content to provide turn-key training for the power and process industries. These training programs will help industry bridge the gap between university level training and real world experience through simulation. Recognizing the workforce development challenges facing the power industry, the Company has invested in new learning platforms based upon 3D visualization and serious gaming technology. This technology has numerous applications from visualizing the complex phenomena inside a nuclear reactor to capturing the experience of a subject matter expert in how to maintain key plant equipment. This technology is also focused at a new generation of power plant workers that learn differently and expect a more interactive and technology based delivery system. The result is the Company's VizSim-3D™ learning environment.

In addition to operator training, the Company's simulation products and services permit plant owners and operators to simulate the effects of changes in plant configuration and performance conditions to optimize plant operation. These features allow the Company's customers to understand the cost implications of replacing a piece of equipment, installing new technology or holding out-of-service assets. GSE has also developed a suite of tools based on sophisticated signal analysis and simulation techniques to help its customers manage their assets by determining equipment degradation before it severely impacts plant performance.

GSE provides both turn-key solutions, including simulated hardware and proprietary software, to match a specific plant, and discrete simulation technology for specific uses throughout a plant. Its substantial investment in simulation technology has led to the development of proprietary software tools. These tools significantly reduce the cost and time to implement simulation solutions and support long-term maintenance. The Company's high fidelity, real-time simulation technology for power plant fluid, logic and control, electrical systems and associated real-time support software, JADE, is available for use primarily on UNIX, Linux and Windows computer platforms. The Company's Xtreme tools were designed for the Windows environment. Both technologies were specifically designed to provide user friendly graphic interfaces to the Company's high fidelity simulator.

Our Power Simulation products include:

- .. Java Applications & Development Environment (JADE™), a Java-based application that provides a window into the simulation instructor station and takes advantage of the web capabilities of Java, allowing customers to access the simulator and run simulation scenarios from anywhere they have access to the web. JADE includes the following software modeling tools:
- .. JFlow™, a modeling tool that generates dynamic models for flow and pressure networks.
- .. JControl™, a modeling tool that generates control logic models from logic diagrams.
- .. JLogic™, a modeling tool that generates control logic models from schematic diagrams.
- .. JElectric™, a modeling tool that generates electric system models from schematic and one-line diagrams.
- .. JTopmeret®, a modeling tool that generates two phase network dynamic models.
- .. JDesigner™, a JADE based intuitive graphic editor for all JADE tools.
- .. JStation™, a JADE based web-enabled Instructor Station.

- .. Xtreme Tools™, a suite of software modeling tools developed under the Microsoft Windows environment. It includes:
  - .. Xtreme Flow™, a modeling tool that generates dynamic models for flow and pressure networks.
  - .. Xtreme Control™, a modeling tool that generates control logic models from logic diagrams.
  - .. Xtreme Logic™, a modeling tool that generates control logic models from schematic diagrams.
  - .. Xtreme Electric™, a modeling tool that generates electric system models from schematic and one-line diagrams.
- .. RELAP5-HD®, a real-time version of the safety analysis code RELAP5 developed by the Idaho National Laboratory. The Company's High Definition version of RELAP5 R/T enables the engineers to understand and control all of the internal functions of RELAP5, making this solution unique in the market.
- .. PSA-HDTM, a real-time environment for running the Electric Power Research Institute's (EPRI) MAAP 5.0 severe accident analysis code. The MAAP 5.0 code is used by safety analysis engineers to estimate the effects of core damage in beyond design basis scenarios. PSA-HD provides an integrated simulator environment that gives engineers and operators a view of the entire plant response to severe accident events and allows for validation of the plant's Severe Accident Management Guidelines.
- .. SimExec® and OpenSim™, real-time simulation executive systems that control all real-time simulation activities and allow for an off-line software development environment in parallel with the training environment. OpenSim is targeted for users of Microsoft Windows operating systems, while SimExec is targeted for users of Microsoft Windows, UNIX and Linux operating systems.
- .. SmartTutor™, complementary software for instructor stations. It provides new capabilities to help improve training methodologies and productivity. Using Microsoft Smart Tag technology, SmartTutor allows the control of the simulator software directly from Microsoft Office products. The user can run training scenarios directly from a Microsoft Word document, or he can plot and show transients live within a Microsoft PowerPoint slide.
- .. SmartTools™, are a suite of tools that assist the simulator maintenance staff in automatically testing and documenting the performance of the simulator against baseline data to ensure the simulator continues to perform correctly. The tools were specifically designed to support the Scenario Based Testing requirements of the ANSI/ANS 3.5 2009 standard being adopted by the nuclear industry.
- .. Xtreme I/S™, a Microsoft Windows based Instructor Station that allows the use of Microsoft Word and PowerPoint to control the real-time simulation environment. Xtreme I/S is a user-friendly tool for classroom training and electronic report generation. It provides real-time plant performance directly from the simulator during classroom training, which drastically increases learning efficiency.
- .. Pegasus Surveillance and Diagnosis System™, a software package for semi-automatic plant surveillance and diagnostics, incorporates sophisticated signal processing and simulation techniques to help operators evaluate the condition and performance of plant components. Pegasus permits plant management to identify degraded performance and replace components before they fail.
- .. SIMON™, a computer workstation system used for monitoring stability of boiling water reactor plants. SIMON assists the operator in determining potential instability events, enabling corrective action to be taken to prevent unnecessary plant shutdowns.

VPPanel™, an interactive visual training solution. For customers that already have a full scope ANS 3.5 Certified simulator, the VPanel provides a second hardware platform that will run the ANS 3.5 Simulator software model at a fraction of the cost of building a second full scope simulator. The VPanel Simulator provides the same fidelity of operation as their existing simulator but the VPanel offers portability and versatility at a very affordable price. All of the features and functions of the full scope ANS 3.5 Simulator are duplicated in the VPanel simulator but the VPanel can be used in a classroom setting or as a second simulator to alleviate many of the time pressures our customers are experiencing with their current simulators. For nations considering entry into the nuclear power industry the VPanel is the ideal tool to help build a base of experienced nuclear workers either at a university or industrial training facility. Since the VPanel uses a software load from an ANS 3.5 Certified simulator it will accurately reflect the operations and response of an operating nuclear power plant. The VPanel provides nations entering the nuclear power industry with realistic hands on experience of the operation of a nuclear facility long before they begin construction on their facilities.

The Power Simulation business also provides consulting and engineering services to help users plan, design, implement, and manage/support simulation and control systems. Services include application engineering, project management, training, site services, maintenance contracts and repairs.

### Strategy

The goal of the Power Simulation business is to service the needs of the industry at the intersection of a growing global demand for energy and reduction in qualified energy operations professionals. This will take place on three fronts:

- ◆ Continue serving its traditional customer base, building new full scope simulators for newly constructed plants, and upgrading technology and services within the installed base.
- ◆ Combine its simulation capability with training content and new visualization technology to provide totally integrated training solutions for the new workforce.
- ◆ Expand the use of high fidelity simulation beyond training to help with plant design, control system design and verification, and control room human factors design.

**Traditional Simulation Market.** Nuclear power currently accounts for about 20% of the total electrical output in the United States and this percentage will likely remain the same even as total capacity increases. Any new nuclear power plants with electric output greater than 1,000 megawatts will likely be of the advanced reactor designs created by Westinghouse, General Electric and Areva. These new designs require new simulators and training programs, as they are different from the nuclear power plant designs currently in operation. Additionally, the market for Small Modular Reactors, for plants producing 45 megawatts – 200 megawatts will require new simulators and training programs for the same reasons. In addition to new power plants, existing nuclear power plants will likely be required to remain on-line for a longer period than originally expected. In order to stay in operation, many plants will require life extension modifications. Since nearly all existing U.S. nuclear power plants went on-line before 1979, their designs and technology can also benefit from the substantial advances in plant design and technology developed over the past 30 years. For example, several of the Company's U.S. utility customers have been replacing their existing hard panel control rooms with modern distributed control systems (DCS) as are common in fossil fuel plants and which have been implemented in Europe for several years. Significant changes to control room instrumentation and overall control strategy from hard panel to DCS generally require modification or replacement of the plant simulator. With the largest installed base of nuclear plant simulators in the world, the Company believes it is uniquely positioned to serve this market segment with new simulation products and services. GSE has received several projects in the last few years for implementing digital turbine control systems in U.S. plants.



As plants extend their useful life, many plan to “up-rate” the existing capacity to increase electrical yield. By changing the capacity of certain equipment in a plant, the utility can gain upwards of a 10%-15% increase in output. Again, any such changes must be reflected in the control room simulator, and operators must be trained on the new equipment before implementation.

In addition to the United States markets, several emerging regions of the world are expanding their electrical capacity with both nuclear and fossil fuel power plants. This is particularly the case in China and India.

**Education and Training.** One of the most effective ways for adults to learn and retain knowledge is through experiential learning, or learning by doing. The Company continues to develop simulation products and learning materials that tightly couple experiencing plant operations through the use of a simulator, in a variety of learning environments. For example, increased training requirements and demands for performance improvement have resulted in simulator training time becoming scarce. By providing the actual training simulator models in a classroom setting, through VPanel solutions, the value of the simulator is increased by allowing more personnel the training advantages of interactive, dynamic real-time simulation. Traditionally the plant control room simulator asset was primarily used by the plant operating staff. These portable simulation devices are being used by non-traditional simulator users to become familiar with plant operations, practice scenarios prior to implementation in the plant, and for other system familiarization and studies by various departments throughout the utility.

Beyond traditional simulator applications are the Company’s VizSim 3D products which merge high fidelity simulation with serious gaming and visualization. The benefits of this combined approach are:

- ◆ Allows for situated learning
- ◆ Combines high engagement and powerful content
  - ◆ Triggers profound reflections
- ◆ Permits a rapid understanding of complex environments
  - ◆ Shows how actions affect context
- ◆ Avoids repetitiveness and boredom associate with traditional earning methods

**Engineering Simulation.** The resurgence of the nuclear industry has produced many new nuclear designs, resulting in more intelligent control rooms and more complex digital control and safety systems. In addition to new nuclear “First-of-a-Kind” (FOAK) plant design, new types of energy plants such as Integrated Gasification Combined Cycle plants integrate chemical and power generation technologies through a variety of control platforms. A real-time, dynamic simulator supports the design of the plant in a way that was not available for the previous generation of plant design.

The simulator becomes a tool to: (1) reduce project risk during the design process, (2) provide an invaluable platform for demonstrating the new design to regulators, customers and stakeholders, and (3) train operators for licensing prior to plant commissioning.

Building a simulator when the design is not complete presents significant challenges. The Company is able to accomplish the task because its staff of senior engineers have modeled up to 8 to 10 different power plants in both nuclear and non-nuclear power generation. This gives the Company the ability to create workable interim solutions until the plant design is finalized. The key to the Company's success with this is its large engineering team experienced in nuclear power plant design and operation. Also, the high fidelity modeling products which are necessary to make possible the development of accurate models based on design data giving the plant designer the confidence that the simulator truly represents the performance of the future plant.

**Optimize Existing Engineering Resources.** GSE's Power domestic service organization focuses on simulator upgrades and retrofits. In addition to domestic resources, GSE has developed a network of trained engineers in Russia, Ukraine, Czech Republic, Bulgaria, and China. These foreign resources provide low cost engineering and software development capabilities and are readily available to supplement the United States engineering staff as necessary.

### Strategic Alliances

GSE's strategic alliances have enabled the Company to penetrate regions outside the United States by combining the Company's technological expertise with the regional presence and knowledge of local market participants. These strategic alliances have also permitted the reduction of research and development and marketing costs by sharing such costs with other companies.

In recent years, a significant amount of the Company's international business has come from contracts in Eastern Europe, including the republics of the former Soviet Union, and the Pacific Rim. In order to acquire and perform these contracts, the Company entered into strategic alliances with various entities including: All Russian Research Institute for Nuclear Power Plant Operation (Russia); Kurchatov Institute (Russia); Risk Engineering Ltd. (Bulgaria); Samsung Electronics (Korea); Toyo Engineering Corporation (Japan); UNIS (China) and Westinghouse Electric Company LLC (U.S.).

### Competition

The Power Simulation business encounters intense competition. In the nuclear simulation market, GSE competes directly with larger firms primarily from Canada and France, such as L-3 MAPPS Inc., a subsidiary of L-3 Communications, CORYS T.E.S.S and Western Services Corp. The fossil simulation market is represented by smaller companies in the U.S. and overseas. Several of the Company's competitors have greater capital and other resources than it has, including, among other advantages, more personnel and greater marketing, financial, technical and research and development capabilities. Customer purchasing decisions are generally based upon price, the quality of the technology, experience in related projects, and the financial stability of the supplier.

### Customers

The Power Simulation business has provided approximately 200 simulation systems to an installed base of over 75 customers worldwide. In 2011, approximately 66% of the Company's revenue was generated from end users outside the United States. Customers include, among others, ABB Inc., American Electric Power, Bernische Kraftwerke AG (Switzerland), British Energy Generation Ltd. (UK), Comisi3n Federal de Electricidad (Mexico), Concern Titan-2 (Russia), Emerson Process Management, Georgia Power, K3rnkrafts3kerhet och Utbildning AB (Sweden), Kraftwerks-Simulator-Gesellschaft mbH (Germany), Nuclear Engineering Ltd. (Japan), PSEG Nuclear, Inc., Slovensk3 elektr3rne, a.s. (Slovakia), and Westinghouse Electric Co.





The following Power Simulation customers have provided more than 10% of the Company's consolidated revenue for the indicated periods:

	Years ended December 31,		
	2011	2010	2009
Slovenské elektrárne, a.s.	10.0%	22.0%	13.5%
Emerson Process Management	6.8%	11.1%	12.1%
Titan-2 Concern	0.6%	5.0%	10.7%

## Sales and Marketing

The Company markets its Power Simulation products and services through a network of direct sales staff, agents and representatives, systems integrators and strategic alliance partners. Market-oriented business and customer development teams define and implement specific campaigns to pursue opportunities in the power marketplace.

The Company's ability to support its multi-facility, international and/or multinational Power Simulation clients is facilitated by its network of offices and strategic partners in the U.S. and overseas. Power Simulation offices are maintained in Maryland and Georgia, and outside the U.S., in Sweden, China and the United Kingdom. In addition to the offices located overseas, the Company's ability to conduct international business is enhanced by its multilingual and multicultural work force. GSE has strategic relationships with systems integrators and agents representing its interests in the Czech Republic, Bulgaria, Japan, Mexico, People's Republic of China, South Africa, South Korea, Taiwan, Ukraine and the United Kingdom.

## II. Process Industries.

### Industry

Throughout the process industries there is continuing competitive pressure, reduction of technical resources, and an aging workforce which is forcing process manufacturers to turn to advanced technologies for real-time optimization, training, and advanced process control. Operational efficiency is vital for companies to remain competitive where many of the manufacturing industries operate on very thin margins. In addition, the process industries are facing increasing safety standards via legislation and national and international standards and codes of practice. The Gulf of Mexico oil spill disaster in 2010 raised the public's awareness of the financial, environmental and safety issues associated with human operating errors and this has added pressure to the process industries to ensure that their operators are fully trained and that safety issues are addressed.

### The Future

The process industries such as oil refining, and specialty chemicals have long relied on steady state simulation for plant design and optimization. The trend going forward is to leverage the investment in steady-state models into a dynamic simulation environment that can be used both in the design process and for operator training. The industry phrase is multipurpose dynamic simulation. Equally important are the same labor issues that are facing other sectors of the energy industry and manufacturing in general, and that is the aging workforce. Compounding the problem for the process industries versus the nuclear industry is the lack of regulation surrounding operator qualifications and training.



The Company sees the same opportunity to provide integrated simulation and training solutions to the process industries as it does for the power generation industry. In addition to plant operating personnel the supporting engineering and control system suppliers face the same challenges as subject matter experts retire and the next generation of workers has little practical experience to go along with their formal education.

#### GSE's Solutions

The acquisitions of TAS Engineering Consultants Ltd. ("TAS") and EnVision Systems, Inc. ("EnVision"), combined with the Company's traditional simulation capabilities, combine to offer the full spectrum of training, simulation and engineering solutions. GSE offers interactive multimedia tutorials and simulation models for teaching the fundamentals of various refinery and petrochemical plant operations, dynamic real-time simulation capabilities for process operator training and plant design validation and verification, and consultancy services for engineering design and safety regulations compliance.

With the acquisition of EnVision on January 4, 2011 (subsequently renamed GSE EnVision Inc.), GSE now offers a full range of training products for the oil & gas, refining, petrochemical and specialty chemicals industry. The EnVision suite of products provides Computer Based Tutorials and Process Specific Simulation Models to provide a sound fundamental knowledge of key processes and equipments. These products support both self-paced and instructor led learning environments. Each product fits a specific purpose and phase of the training cycle.

In 2010 GSE introduced JPro™ simulation software for the process industries, an upgraded version of SimSuite Pro™. JPro consists of an integrated software suite which can build, test and run simulation models, dynamically and in real time. These models are used for process and control system design, process scale up and evaluation, engineering study, advanced process control and operator training. The models can be used alone or connected to virtually any control system. JPro provides an easier to use interface to the same highly sophisticated model building environment of SimSuite Pro. JPro uses the same interface as GSE's JADE tool suite, thereby making it easier for customers of integrated gasification and combined cycle and other plants that require a combination of chemical plant and power plant modeling capabilities.

TAS Engineering Consultants Ltd. is a leading supplier in the UK of engineering consultancy services which satisfy many of the needs of high availability, high hazard industries typified by a requirement to register under Control of Major Hazard Accident (COMAH) legislation in the United Kingdom. TAS's key engineering consultancy offerings include:

- ◆ Arc flash hazard studies,
- ◆ Electrical safety management,
- ◆ Functional safety (IEC 61508) support,
- ◆ Potentially explosive atmosphere support,
  - ◆ Alarm management, and
- ◆ Preventative maintenance procedures incorporating human factors.

Building on client relationships developed in the provision of specialist consultancy, TAS seeks to develop long term relationships based on support in electrical, instrumentation, control and automation projects, electrical switchgear replacement and new automation systems.

In 2011, with the support of GSE UK, GSE-TAS continued to make good progress. The company has been delivering Arc Flash studies across 23 sites in Europe, the Middle East and Africa from the \$600,000 contract secured in 2010, from a global tooling, engineered components and advanced materials supplier. The remaining four sites in Europe are scheduled for completion in 2012. The Company expects to undertake studies for the same organization in 2012 across their Asian facilities and is developing relationships with other major companies for similar services. During 2011 the GSE-TAS subsidiary secured a contract in excess of \$500,000 from a major global engineering company in the oil and gas market to assist them in the delivery of a major North Sea oil project by providing expertise in electrical and instrumentation engineering. This work commenced in December 2011 and is expected to complete in July 2012.

The GSE culture and expertise is one of customized project execution and delivery. This marketplace places a high value on experience, both company-wide and for the individuals on the project teams, so GSE promotes its long history in training simulators, while also seeking new applications.

### Strategy

GSE is uniquely positioned in the process simulation market to provide the full continuum of training solutions which combine computer base learning, generic and plant specific simulators with the training infrastructure and course material to enable the customer to truly benefit from the simulator investment. The core concepts of process simulation make the technology a basis for other potential process improvement activities, such as Advanced Process Control and Process Optimization, which is where some of the major GSE competition has more business focus than for operator training. GSE will continue to emphasize its operator training focus and strengths, as well as the application of the process simulator for change management, where changes in the process, control strategy, or operating procedures can be evaluated in real time before they are applied to the actual process units. On-stream time is an important economic factor, and there is recognizable value in avoiding the risk of unplanned process disturbances from unvalidated changes.

The Company will continue to pursue solutions for emerging market segments such as Fracking, Liquefied Natural Gas (LNG) and Integrated Gasification Combined Cycle ("IGCC") power plants. These new plants produce electricity more efficiently than traditional power plants by first converting existing refinery waste materials into synthetic gas that is used to power a gas turbine. The gas is then burned to create steam to turn a steam turbine. The unique nature of these plants requires expertise both in chemical process simulation and power simulation. GSE is one of the few simulator companies in the world with expertise in both areas.

TAS is well positioned to meet the increasing demand for specialist support, as recognition of Arc Flash hazards develop in the United Kingdom and Europe. Through cooperation with GSE, TAS is poised to expand into new markets such as Europe and the Middle East. Additionally, the opportunity for the closer integration of sales and support activities between GSE and TAS will allow for cross selling between GSE and TAS clients. As an example of this, TAS is now supporting the GSE Sweden office and has supported GSE Inc. bids in the process industry.

## Customers

Hydrocarbon and chemical process customers include numerous large oil refineries and chemical plants such as BP (Germany), Statoil ASA (Norway), Bayernoil (Germany), Chevron, Emerson Process Management, Saudi Basic Industries Corporation (Saudi Arabia), Shell Oil, Savannah River Nuclear Solutions, LLC, Total (Belgium), and Bechtel Hanford National Laboratory.

Upstream and downstream oil and gas, chemical manufacturing, power generation and pharmaceutical companies represent the majority of TAS's current clients.

## Competition

GSE's process simulation competitors are a varied group. There are major corporations offering a wide range of products and services that include operator training simulators. There are also companies focused on process technology and manufacturing enhancement, such as Invensys and Honeywell who are Distributed Control System ("DCS") distributors to the refining industry and provide operator simulation as part of their DCS offering. There is a collection of companies with specific industry niches that enables them to compete in operator training simulation, such as Kongsberg and RSI Simcon. There are also the smaller training companies that compete at the lower cost levels of Computer Based Training ("CBT") or simple simulations close to CBT such as Simtronics.

The GSE focus on dynamic simulation for training and design validation is a business strength, and its vendor independence, with the ability to integrate to different vendor's process control systems, is also a value which is appreciated by customers. GSE can be seen as a best-of-breed type of supplier because it is not tied to a major control system, nor is it providing simulation software for engineering and business management with high annual license fees.

## Sales and Marketing

The Company will market its Process Simulation technologies through a combination of techniques including its existing direct sales channel, sales agents, and strategic alliance partners. Sales representatives and partners are located in Azerbaijan, Bulgaria, China, Egypt, Mexico, Qatar, Saudi Arabia, Malaysia, Romania, Singapore, Thailand, UAE, and Vietnam. Relationships developed with typical power plant DCS companies are now expanding to process plant applications as the DCS companies target an increase in market share in the process industries. In addition, the acquisition of EnVision Systems provides access to a large installed base of computer based learning customers that may require more plant specific simulator solutions.

## Competitive Advantages.

The Company believes that it is in a strong position to compete in the Simulation markets based upon the following strengths:

- ◆ **Reputation for Customer Satisfaction.** As part of its ISO-9000 Quality Program Certification, GSE measures customer satisfaction across numerous factors such as On-Time Delivery, Problem Solving, and Customer Communication. In each category measured we routinely exceed customer expectations.
- ◆ **Technical and Applications Expertise.** GSE is a leading innovator and developer of real-time software with more than 38 years of experience producing high fidelity real-time simulators. As a result, the Company has acquired substantial applications expertise in the energy and industrial process industries. The Company employs a highly educated and experienced multinational workforce of 262 employees, including approximately 189 engineers and scientists. Of the 189 engineers, approximately 61% of these engineers and scientists have advanced science and technical degrees in fields such as chemical, mechanical and electrical engineering, applied mathematics and computer sciences, while an additional 34% have master degrees, and another 11% have doctorate degrees in the aforementioned fields.
- ◆ **Proprietary Software Tools.** GSE has developed a library of proprietary software tools including auto-code generators and system models that substantially facilitate and expedite the design, production and integration, testing and modification of software and systems. These tools are used to automatically generate the computer code and systems models required for specific functions commonly used in simulation applications, thereby enabling it or its customers to develop high fidelity real-time software quickly, accurately and at lower costs. GSE-EnVision Systems has added a substantial library of Process Specific Simulation models and Computer Based Learning Modules aimed at the oil and gas, refining and specialty chemicals market.
- ◆ **Open System Architecture.** GSE's software products and tools are executed on standard operating systems with third-party off-the-shelf hardware. The hardware and operating system independence of its software enhances the value of its products by permitting customers to acquire less expensive hardware and operating systems. The Company's products work in the increasingly popular Microsoft operating environment, allowing full utilization and integration of numerous off-the-shelf products for improved performance.
- ◆ **Training Curricula.** The Company has developed hundreds of detailed courses and simulator exercise material or specific industrial applications including oil and gas refining, gas-oil production and separation and desalination.
- ◆ **International Strengths.** Approximately 66% of the Company's 2011 revenue was derived from international sales of its products and services. GSE has a multinational sales force with offices located in Beijing, China, Nyköping, Sweden, Stockton-on-Tees, UK and agents, representatives and partners in 20 other countries. To capitalize on international opportunities and penetrate foreign markets, the Company has established strategic alliances and partnerships with several foreign entities and universities.

Intellectual Property.

The Company depends upon its intellectual property rights in its proprietary technology and information. GSE maintains a portfolio of trademarks (both registered and unregistered), copyrights (both registered and unregistered), and licenses. While such trademarks, copyrights and licenses as a group are of material importance to the Company, it does not consider any one trademark, copyright, or license to be of such importance that the loss or expiration thereof would materially affect the Company. The Company relies upon a combination of trade secrets, copyright, and trademark law, contractual arrangements and technical means to protect its intellectual property rights. GSE distributes its software products under software license agreements that grant customers nonexclusive licenses for the use of its products, which are nontransferable. Use of the licensed software is restricted to designated computers at specified sites, unless the customer obtains a site license of its use of the software. Software and hardware security measures are also employed to prevent unauthorized use of the Company's software, and the licensed software is subject to terms and conditions prohibiting unauthorized reproduction of the software.

The Company does not own any patents. The Company believes that all of the Company's trademarks (especially those that use the phrase "GSE Systems") are valid and will have an unlimited duration as long as they are adequately protected and sufficiently used. The Company's licenses are perpetual in nature and will have an unlimited duration as long as they are adequately protected and the parties adhere to the material terms and conditions.

GSE has seven registered U.S. trademarks: GSE Systems®, JTOPMERET®, Openexec®, RELAP5-HD®, REMITS-Real-Time Emergency Management Interactive Training System®, RETACT®, and SimExec®. Some of these trademarks have also been registered in foreign countries. The Company also claims trademark rights to BRUSTM, ESmartTM, GAARDSTM, GCONTROL+TM, GFLOW+TM, GLOGIC+TM, GPower+TM, ISISTM, Java Application and Development Environment (JADE)TM, OpenSimTM, PEGASUS Plant Surveillance and Diagnosis SystemTM, PSA-HDTM, RACSTM, Sens BaseTM, SIMONTM, SimSuite PowerTM, SimSuite ProTM, SmartTutorTM, THORTM, VPanelTM, Vista PINTM, Xtreme I/S™.

In addition, the Company maintains federal statutory copyright protection with respect to its software programs and products, has registered copyrights for some of the documentation and manuals related to these programs, and maintains trade secret protection on its software products.

Despite these protections, the Company cannot be sure that it has protected or will be able to protect its intellectual property adequately, that the unauthorized disclosure or use of its intellectual property will be prevented, that others have not or will not develop similar technology independently, or, to the extent it owns any patents in the future, that others have not or will not be able to design around those patents. Furthermore, the laws of certain countries in which the Company's products are sold do not protect its products and intellectual property rights to the same extent as the laws of the United States.

Industries Served.

The following chart illustrates the approximate percentage of the Company's 2011, 2010, and 2009 consolidated revenue by industries served:

	2011	2010	2009
Nuclear power industry	67%	72%	73%
Fossil fuel power industry	16%	18%	21%



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Process industry	15%	8%	4%
Training and education industry	2%	2%	2%
Total	100%	100%	100%

Contract Backlog.

The Company does not reflect an order in backlog until it has received a contract that specifies the terms and milestone delivery dates or other payment terms. As of December 31, 2011, the Company's aggregate contract backlog totaled approximately \$51.5 million of which approximately \$34.3 million or 66.6% is expected to be converted to revenue by December 31, 2012. As of December 31, 2010, the Company's aggregate contract backlog totaled approximately \$55.9 million.

Employees.

As of December 31, 2011, the Company had 262 employees as compared to 248 employees at December 31, 2010.

ITEM

1A.

The following discussion of risk factors contains “forward-looking statements,” as discussed on pages 3 and 4 of this Annual Report on Form 10-K. These risk factors may be important to understanding any statement in this Annual Report on Form 10-K or elsewhere. The Company believes that the following risk factors may cause the market price for its common stock to fluctuate, perhaps significantly. In addition, in recent years the stock market in general, and the shares of technology companies in particular, have experienced extreme price fluctuations. The Company’s common stock has also experienced a relatively low trading volume, making it further susceptible to extreme price fluctuations. The following information should be read in conjunction with Item 7 Management’s Discussion and Analysis of Financial Condition and Results of Operations and the consolidated financial statements and related notes under Item 8 Financial Statements and Supplementary Data.

We routinely encounter and address risks, some of which may cause our future results to be different, sometimes materially, than we presently anticipate. Discussion about important operational risks that we encounter can be found in Item 1, Business and Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations. We have described certain important strategic risks below. Our reactions as well as our competitors’ reactions to material future developments may affect our future results.

The Company’s business is largely dependent on sales to the nuclear power industry. Any disruption in this industry would have a material adverse effect upon the Company’s revenue.

In 2011, 67% of GSE’s revenue was from customers in the nuclear power industry (72% in 2010 and 73% in 2009). The Company expects to derive a significant portion of its revenue from customers in the nuclear power industry for the foreseeable future. The Company’s ability to supply nuclear power plant simulators and related products and services is dependent on the continued operation of nuclear power plants and, to a lesser extent, on the construction of new nuclear power plants. A wide range of factors affect the continued operation and construction of nuclear power plants, including the political and regulatory environment, the availability and cost of alternative means of power generation, the occurrence of future nuclear incidents, such as the one which occurred at the Fukushima Daiichi nuclear plant, and general economic conditions.

The Company's global growth is subject to a number of economic and political risks.

The Company conducts its operations in North America, Europe, Asia and the Middle East. Global economic developments affect businesses such as GSE, and the Company's operations are subject to the effects of global competition. The Company's global business is affected by local economic environments, including inflation, recession and currency volatility. Political changes, some of which may be disruptive, can interfere with the Company's supply chain, its customers and all of its activities in a particular location. While some of these risks can be hedged using derivatives or other financial instruments and some are insurable, such attempts to mitigate these risks are costly and not always successful. The current global recession has not yet had a material impact on the Company's business and the Company has seen no significant delays or cancellations to the projects it is currently working on. We are not aware of any significant delays or cancellations to projects that we expect to secure in 2012. However, we may see an impact on our operations due to uncertainties and fluctuations as the economy recovers.

#### Risk of international sales and operations.

Sales of products and services to end users outside the United States accounted for approximately 66% of the Company's consolidated revenue in 2011, 71% of consolidated revenue in 2010, and 65% of consolidated revenue in 2009. The Company anticipates that international sales and services will continue to account for a significant portion of its revenue in the foreseeable future. As a result, the Company may be subject to certain risks, including risks associated with the application and imposition of protective legislation and regulations relating to import or export (including export of high technology products) or otherwise resulting from trade or foreign policy and risks associated with exchange rate fluctuations. Additional risks include potentially adverse tax consequences, tariffs, quotas and other barriers, potential difficulties involving the Company's strategic alliances and managing foreign sales agents or representatives and potential difficulties in accounts receivable collection. The following countries have provided more than 10% of the Company's revenue for the indicated period:

	Year Ended December 31,		
	2011	2010	2009
Japan	13%	9%	6%
United Kingdom	12%	5%	5%
Federal Republic of Germany	12%	9%	8%
Slovak Republic	10%	22%	14%
Russian Federation	0%	6%	12%

#### Risks related to contract with Slovenské elektrárne, a.s.

In 2009, the Company entered into a contract with Slovenské elektrárne, a.s. ("SE") to provide a full scope simulator for a two unit reactor plant in Slovakia. To date, the Company has recognized \$21.0 million of revenue under the terms of the contract. In September 2011, the Company received a \$3.0 million change order for this contract which increased its total contractual value to \$26.8 million. \$2.1 million of the \$3.0 million change order related to compensation provided by SE to the Company for a nine and half month delay caused by SE.

In November and December 2011 and January 2012, SE notified the Company of various alleged breaches of the contract. In the notification, SE claimed a contractual penalty for delay in the amount of \$1.0 million related to the Company's failure to complete Factory Acceptance Testing ("FAT") for the simulator and unspecified potential damages for other alleged breaches of the contract.

Based upon the schedule for the completion of FAT contained in the contract, which currently does not take into account the acknowledged nine and a half month delay caused by SE, the Company does not believe that it was responsible for the delay in FAT completion. After engaging in discussions with SE, the Company formally responded to all of the claims in January 2012. The Company and SE are currently discussing a resolution of all of their outstanding issues. However, at December 31, 2011, the Company has \$5.0 million of recoverable costs and accrued profit not billed, and a \$2.9 million performance bond in place to secure completion of the contract.

The Company's expense levels are based upon its expectations as to future revenue, so it may be unable to adjust spending to compensate for a revenue shortfall. Accordingly, any revenue shortfall would likely have a disproportionate effect on the Company's operating results.

The Company's revenue was \$51.1 million, \$47.2 million, and \$40.1 million for the years ended December 31, 2011, 2010, and 2009, respectively. The Company's operating income (loss) was \$2.2 million, \$(1.2) million, and \$563,000 for the years ended December 31, 2011, 2010, and 2009, respectively. The Company's operating results have fluctuated in the past and may fluctuate significantly in the future as a result of a variety of factors, including purchasing patterns, timing of new products and enhancements by the Company and its competitors, and fluctuating global economic conditions. Since the Company's expense levels are based in part on its expectations as to future revenue and includes certain fixed costs, the Company may be unable to adjust spending in a timely manner to compensate for any revenue shortfall and such revenue shortfalls would likely have a disproportionate adverse effect on operating results.

Our backlog is subject to reduction and cancellation.

Backlog represents products or services that our customers have committed by contract to purchase from us. Our backlog as of December 31, 2011, was \$51.5 million. Our backlog is subject to fluctuations and is not necessarily indicative of future backlog or sales. Moreover, cancellations of purchase orders or reductions of the services requesting in existing contracts could substantially and materially reduce our backlog and, consequently, future revenues. Our failure to replace canceled or reduced backlog could result in lower revenues.

The Company is dependent on product innovation and research and development, which costs are incurred prior to revenue for new products and improvements.

The Company believes that its success will depend in large part on its ability to maintain and enhance its current product line, develop new products, maintain technological competitiveness and meet an expanding range of customer needs. The Company's product development activities are aimed at the development and expansion of its library of software modeling tools, the improvement of its display systems and workstation technologies, and the advancement and upgrading of its simulation technology. The life cycles for software modeling tools, graphical user interfaces, and simulation technology are variable and largely determined by competitive pressures. Consequently, the Company will need to continue to make significant investments in research and development to enhance and expand its capabilities in these areas and to maintain its competitive advantage.

The Company relies upon its intellectual property rights for the success of its business; however, the steps it has taken to protect its intellectual property may be inadequate.

Although the Company believes that factors such as the technological and creative skills of its personnel, new product developments, frequent product enhancements and reliable product maintenance are important to establishing and maintaining a technological leadership position, the Company's business depends, in part, on its intellectual property rights in its proprietary technology and information. The Company relies upon a combination of trade secret, copyright, and trademark law, contractual arrangements and technical means to protect its intellectual property rights. The Company enters into confidentiality agreements with its employees, consultants, joint venture and alliance partners, customers and other third parties that are granted access to its proprietary information, and limits access to and distribution of its proprietary information. There can be no assurance, however, that the Company has protected or will be able to protect its proprietary technology and information adequately, that the unauthorized disclosure or use of the Company's proprietary information will be prevented, that others have not or will not develop similar technology or information independently, or, to the extent the Company owns any patents in the future, that others have not or will not be able to design around those future patents. Furthermore, the laws of certain countries in which the Company's products are sold do not protect the Company's products and intellectual property rights to the same extent as the laws of the United States.

The industries in which GSE operates are highly competitive. This competition may prevent the Company from raising prices at the same pace at which its costs increase.

The Company's businesses operate in highly competitive environments with both domestic and foreign competitors, many of whom have substantially greater financial, marketing and other resources than the Company. The principal factors affecting competition include price, technological proficiency, ease of system configuration, product reliability, applications expertise, engineering support, local presence and financial stability. The Company believes that competition in the simulation fields may further intensify in the future as a result of advances in technology, consolidations and/or strategic alliances among competitors, increased costs required to develop new technology and the increasing importance of software content in systems and products. As the Company's business has a significant international component, changes in the value of the dollar could adversely affect the Company's ability to compete internationally.

GSE may encounter difficulties in effectively integrating acquired businesses.

As part of our business strategy, we have acquired companies with compatible or related products. These and any future acquisitions we make will be accompanied by the risks commonly encountered in acquisitions of companies, which include, among other things:

- ◆ potential exposure to unknown liabilities of the acquired companies;
  - ◆ higher than anticipated acquisition costs and expenses;
- ◆ difficulty and expense of assimilating the operations and personnel of the companies, especially if the acquired operations are geographically distant;
  - ◆ potential disruption of our ongoing business and diversion of management time and attention;
- ◆ failure to maximize our financial and strategic position by the successful incorporation of acquired technology;
  - ◆ difficulties in adopting and maintaining uniform standards, controls, procedures and policies;
  - ◆ loss of key employees and customers as a result of changes in management; and
  - ◆ possible dilution to our shareholders.

We may not be successful in overcoming these risks or any other problems encountered in connection with any of our acquisitions. We may make a strategic acquisition knowing that the transaction may adversely affect our short-term profitability, perhaps because the acquisition candidate may be experiencing operating losses. We may believe that acquiring such a company outweighs the operating losses the candidate is experiencing and the losses that we expect to experience before being able to make the acquisition candidate profitable. The completion of such an acquisition in the future would negatively affect our profitability and may cause a decline in our stock price. While we believe we have established appropriate and adequate procedures and processes to mitigate the risks of such an acquisition, there is no assurance that the transaction will be successful and not have a negative effect on profitability.

A failure to attract and retain technical personnel could reduce our revenues and our operational effectiveness.

There is a continuing demand for qualified technical personnel. We believe that our future growth and success will depend upon our ability to attract, train and retain such personnel. Our design and development efforts depend on hiring and retaining qualified technical personnel. Although we currently experience relatively low rates of turnover for our technical personnel, the rate of turnover may increase in the future. An inability to attract or maintain a sufficient number of technical personnel could have a material adverse effect on our contract performance or on our ability to capitalize on market opportunities.



The nuclear power industry, the Company's largest customer group, is associated with a number of hazards which could create significant liabilities for the Company.

The Company's business could expose it to third party claims with respect to product, environmental and other similar liabilities. Although the Company has sought to protect itself from these potential liabilities through a variety of legal and contractual provisions as well as through liability insurance, the effectiveness of such protections has not been fully tested. Certain of the Company's products and services are used by the nuclear power industry primarily in operator training. Although the Company's contracts for such products and services typically contain provisions designed to protect the Company from potential liabilities associated with such use, there can be no assurance that the Company would not be materially adversely affected by claims or actions which may potentially arise.

The use of derivative instruments by the Company in the normal course of business could result in financial losses that negatively impact the Company's net income.

GSE periodically enters into forward foreign exchange contracts to manage market risks associated with the fluctuations in foreign currency exchange rates on foreign-denominated trade receivables. The Company could recognize financial losses as a result of volatility in the market values of these contracts or if a counterparty fails to perform. The Company minimizes credit exposure by limiting counterparties to internationally recognized financial institutions.

The issuance of performance bonds and bid bonds by the Company in the normal course of business could result in financial losses that negatively impact the Company's net income.

The Company is often required to issue performance bonds to its customers as a normal part of its business activities. The Company's customers may have the ability to draw upon these performance bonds in the event the Company fails to cure a material breach of the contract within 30 days of receiving notice from the customer regarding the nature of the breach. As of December 31, 2011, the Company has issued bid and performance bonds on eight contracts totaling \$5.6 million, of which \$4.2 million have been cash collateralized; the largest of these performance bonds was for \$2.9 million. Although the Company expects no material breaches to occur on these contracts, if such a breach were to occur and the Company failed to cure such breach, the Company could incur a loss of up to \$5.6 million.

Cybersecurity incidents could disrupt business operations, result in the loss of critical and confidential information, and adversely impact our reputation and results of operations.

Global cybersecurity threats can range from uncoordinated individual attempts to gain unauthorized access to our information technology (IT) systems to sophisticated and targeted measures known as advanced persistent threats. While we employ comprehensive measures to prevent, detect, address and mitigate these threats (including access controls, data encryption, vulnerability assessments, continuous monitoring of our IT networks and systems and maintenance of backup and protective systems), cybersecurity incidents, depending on their nature and scope, could potentially result in the misappropriation, destruction, corruption or unavailability of critical data and confidential or proprietary information (our own or that of third parties) and the disruption of business operations. The potential consequences of a material cybersecurity incident include reputational damage, litigation with third parties, diminution in the value of our investment in research, development and engineering, and increased cybersecurity protection and remediation costs, which in turn could adversely affect our competitiveness and results of operations.

The Company is subject to a wide variety of laws and regulations.

The Company's businesses are subject to regulation by U.S. federal and state laws and foreign laws, regulations and policies. Changes to laws or regulations may require the Company to modify its business objectives if existing



practices become more restricted, subject to escalating costs or prohibited outright. Particular risks include regulatory risks arising from federal laws, such as laws regarding export of sensitive technologies or technical information. The Company's business and the industries in which it operates are also at times being reviewed or investigated by regulators, which could lead to enforcement actions, fines and penalties or the assertion of private litigation claims and damages.

The Company's stockholder protection rights agreement and classified Board of Directors could deter acquisition proposals and make it difficult for a third party to acquire control of the Company, which could have a negative effect on the price of the Company's Common Stock.

The Company has a stockholder protection rights agreement and a classified board of directors, which could discourage potential acquisition proposals and could delay or prevent a change in control of the Company. This deterrent could adversely affect the price of the Company's Common Stock and make it difficult to affect a change in the composition of the Board of Directors or a change in management of the Company.

The price of our common stock is highly volatile and could decline regardless of our operating performance.

The market price of our common stock could fluctuate in response to, among other things:

- ◆ changes in economic and general market conditions;
- ◆ changes in the outlook and financial condition of certain of our significant customers and industries in which we have a concentration of business;
- ◆ changes in financial estimates, treatment of our tax assets or liabilities or investment recommendations by securities analysts following our business;
  - ◆ changes in accounting standards, policies, guidance or interpretations or principles;
  - ◆ sales of common stock by our directors, officers and significant stockholders;
- ◆ our failure to achieve operating results consistent with securities analysts' projections; and
  - ◆ the operating and stock price performance of competitors.

These factors might adversely affect the trading price of our common stock and prevent you from selling your common stock at or above the price at which you purchased it. In addition, in recent periods, the stock market has experienced significant price and volume fluctuations. This volatility has had a significant impact on the market price of securities issued by many companies, including ours and others in our industry. These changes can occur without regard to the operating performance of the affected companies. As a result, the price of our common stock could fluctuate based upon factors that have little or nothing to do with our company, and these fluctuations could materially reduce our share price.

ITEM 1B. UNRESOLVED STAFF COMMENTS.

None.

ITEM 2. PROPERTIES.

The Company is headquartered in a facility in Sykesville, Maryland (approximately 40,000 square feet). The lease for this facility expires on June 30, 2018.

In addition, the Company leases office space domestically in St. Marys, Georgia, Madison, New Jersey, Cary, North Carolina and Tarrytown, New York and internationally in Beijing, China, Chennai, India, Nyköping, Sweden and Stockton-on-Tees, England. The Company leases these facilities for terms ending between 2012 and 2014.

ITEM 3. LEGAL PROCEEDINGS.

The Company and its subsidiaries are from time to time involved in ordinary routine litigation incidental to the conduct of its business. The Company and its subsidiaries are not a party to, and its property is not the subject of, any material pending legal proceedings that, in the opinion of management, are likely to have a material adverse effect on the Company's business, financial condition or results of operations.

ITEM 4. MINE SAFETY DISCOLSURES.

Not applicable.

PART II

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

The Company's common stock is listed on the NYSE Amex Stock Exchange, where it trades under the symbol "GVP". The following table sets forth, for the periods indicated, the high and low sale prices for the Company's common stock reported by the NYSE Amex Stock Exchange for each full quarterly period within the two most recent fiscal years:

	2011	
Quarter	High	Low
First	\$ 3.85	\$ 1.90
Second	\$ 2.40	\$ 2.13
Third	\$ 2.36	\$ 1.64
Fourth	\$ 2.10	\$ 1.54

2010

Quarter	High	Low
First	\$ 5.98	\$ 4.76
Second	\$ 5.73	\$ 4.06
Third	\$ 4.13	\$ 3.35
Fourth	\$ 3.71	\$ 3.21

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The following table sets forth the equity compensation plan information for the year ended December 31, 2011:

Plan category	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights (a)	Weighted Average Exercise Price of Outstanding Options, Warrants and Rights (b)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a) (c)
Equity compensation plans approved by security holders	3,340,583	\$3.36	747,746
Equity compensation plans not approved by security holders	--	\$ --	--
Total	3,340,583	\$3.36	747,746

There were approximately 1,038 holders of record of the common stock as of December 31, 2011. The Company has never declared or paid a cash dividend on its common stock. The Company currently intends to retain future earnings to finance the growth and development of its business and, therefore, does not anticipate paying any cash dividends in the foreseeable future on its common stock.

The Company believes factors such as quarterly fluctuations in results of operations and announcements of new products by the Company or by its competitors may cause the market price of the common stock to fluctuate, perhaps significantly. In addition, in recent years the stock market in general, and the shares of technology companies in particular, have experienced extreme price fluctuations. The Company's common stock has also experienced a relatively low trading volume, making it further susceptible to extreme price fluctuations. These factors may adversely affect the market price of the Company's common stock.

On September 4, 2009, the Company raised \$15.0 million through the sale of 2.5 million shares of its common stock, \$.01 par value per share. The shares were sold under a shelf registration statement which was declared effective by the Securities and Exchange Commission on August 21, 2009. On September 23, 2009, the Company raised an additional \$2,250,000 when the Company's underwriter exercised an over-allotment option in full to purchase an additional 375,000 shares of the Company's common stock at the public offering price of \$6.00 per share. The aggregate net proceeds received by the Company from the two transactions were approximately \$15.9 million. The Company paid the underwriter a fee in the amount of 6% of the gross proceeds received by the Company from the offering (\$1,035,000) and paid \$339,000 in other transaction fees.

Effective April 26, 2010, GSE Systems Inc., through its wholly owned subsidiary GSE Systems, Ltd. (GSE UK), completed the acquisition of TAS Holdings Ltd. ("TAS"), a provider of engineering consulting, specializing in electrical system design, instrumentation and controls engineering and automation engineering. GSE UK acquired 100% of the outstanding common stock of TAS. The purchase price for the common stock of TAS was equal to (i) the consolidated net asset value of TAS as of April 26, 2010, approximately \$600,000, and (ii) four times the adjusted consolidated pre-tax income of TAS for the year ended September 30, 2009, approximately \$1.7 million (the "Adjusted Profit Consideration"), for a total of approximately \$2.3 million in cash, GSE Systems, Inc. common stock and

contingent consideration.

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Approximately \$500,000 of the consolidated net asset value was paid on the closing date and the remaining \$100,000 of the consolidated net asset value was paid during the third quarter 2010. On the closing date, the TAS Shareholders were entitled to receive approximately \$683,000 (40% of the Adjusted Profit Consideration) payable in GSE common stock. Based upon the formula agreed to by the parties, the TAS Shareholders received 122,617 shares of GSE common stock.

#### Issuer Purchases of Equity Securities

On March 21, 2011, the Board of Directors authorized the purchase of up to \$3.0 million of the Company's common stock in accordance with the safe harbor provisions of Rule 10b-18 of the Securities Exchange Act of 1934. During the year ended December 31, 2011, the Company repurchased 824,374 shares at an aggregate cost of \$1.6 million.

Month	Total number of shares purchased	Average price paid per share	Total number of shares purchased as part of publicly announced program	Approximate dollar value of shares that may yet be purchased under the program
January 1 - January 31	-	-	-	-
February 1 - February 29	-	-	-	-
March 1 - March 31	-	-	-	\$ 3,000,000
April 1 - April 31	-	-	-	\$ 3,000,000
May 1 - May 31	9,000	\$ 2.30	9,000	\$ 2,979,334
June 1 - June 30	141,881	\$ 2.22	150,881	\$ 2,664,019
July 1 - July 31	109,787	\$ 2.24	260,668	\$ 2,418,509
August 1 - August 31	239,332	\$ 2.12	500,000	\$ 1,910,402
September 1 - September 30	21,400	\$ 1.78	521,400	\$ 1,872,412
October 1 - October 31	201,349	\$ 1.63	722,749	\$ 1,538,639
November 1 - November 30	82,251	\$ 1.84	805,000	\$ 1,388,299
December 1 - December 31	19,374	\$ 1.93	824,374	\$ 1,350,712

## Performance Graph

The following graph compares the Company's cumulative total shareholder return since December 31, 2006 through December 31, 2011 with that of the NYSE Amex Composite Index and a peer group index. The Peer Group consists of companies selected on a line-of-business basis and includes Aspen Technology, Inc., L-3 Communications Holdings and Honeywell International. The graph assumes an initial investment of \$100 on December 31, 2006 in the Company's common stock and each index. There were no dividends declared or paid by the Company during the five year period. The Company has never paid a dividend on its common stock. The indices are re-weighted daily, using the market capitalization on the previous tracking day. The comparisons shown in the graph below are based upon historical data. The stock price performance shown in the graph below is not necessarily indicative of, or intended to forecast, the potential future performance of the Company's common stock. The graph was prepared for the Company by Research Data Group, Inc.

	12/31/2006	12/31/2007	12/31/2008	12/31/2009	12/31/2010	12/31/2011
GSE Systems, Inc.	100.00	153.96	88.71	82.39	54.43	29.32
NYSE Amex Composite	100.00	122.46	73.97	100.19	127.31	128.98
Peer Group	100.00	137.10	79.43	97.62	122.23	127.53



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## ITEM 6. SELECTED FINANCIAL DATA.

Historical consolidated results of operations and balance sheet data presented below have been derived from the historical financial statements of the Company. This information should be read in connection with the Company's consolidated financial statements.

	Years ended December 31,				
	2011	2010	2009	2008	2007
Contract revenue	\$ 51,126	\$ 47,213	\$ 40,060	\$ 29,004	\$ 31,900
Cost of revenue	34,781	36,081	29,736	21,187	22,217
Gross profit	16,345	11,132	10,324	7,817	9,683
Operating expenses:					
Selling, general and administrative	12,672	11,683	7,749	7,383	7,214
ESA related charges	-	-	1,508	-	-
Depreciation	497	579	504	446	258
Amortization of definite-lived intangible assets	948	102	-	-	-
Total operating expenses	14,117	12,364	9,761	7,829	7,472
Operating income (loss)	2,228	(1,232 )	563	(12 )	2,211
Interest income (expense), net	131	19	56	130	(433 )
ESA related charges	-	-	(865 )	-	-
Gain (loss) on derivative instruments	(68 )	(913 )	763	(453 )	(11 )
Other income (expense), net	72	83	(397 )	(226 )	(555 )
Income (loss) before income taxes	2,362	(2,043 )	120	(561 )	1,212
Provision (benefit) for income taxes	(564 )	206	917	129	43
Net income (loss)	\$ 2,927	\$ (2,249 )	\$ (797 )	\$ (690 )	\$ 1,169
Basic income (loss) per common share (1)	\$ 0.15	\$ (0.12 )	\$ (0.05 )	\$ (0.04 )	\$ 0.09
Diluted income (loss) per common share (1)	\$ 0.15	\$ (0.12 )	\$ (0.05 )	\$ (0.04 )	\$ 0.08
Weighted average common shares outstanding:					
-Basic	18,952	18,975	16,938	15,747	12,927
-Diluted	19,123	18,975	16,938	15,747	14,818
			As of December 31,		
	2011	2010	2009	2008	2007

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Working capital	\$ 30,240	\$ 30,040	\$ 31,469	\$ 13,888	\$ 14,711
Total assets	58,815	53,614	49,520	31,015	28,364
Long-term liabilities	2,352	799	206	906	695
Stockholders' equity	38,783	36,906	37,143	20,700	20,365

(1) In 2007, \$49,000 of preferred stock dividends were deducted from net income to arrive at net income attributed to common shareholders.

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ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

At December 31, 2011, the Company had cash and cash equivalents of \$20.3 million. The Company has entered into 2012 with \$51.5 million of backlog; \$34.3 million of which is expected to convert to revenue in 2012. The Company anticipates that its normal operations will generate all of the funds necessary to fund its consolidated operations during the next twelve months.

Additionally, in November 2011 the Company entered into a Master Loan and Security Agreement and Revolving Credit Note with Susquehanna Bank ("Susquehanna"). The Company and its subsidiaries, GSE Power Systems, Inc., and GSE EnVision Inc., were jointly and severally liable as co-borrowers. The Loan Agreement provides a \$7.5 million revolving line of credit for the purpose of (i) issuing stand-by letters of credit and (ii) providing working capital. Working capital advances bear interest at a rate equal to the Wall Street Journal Prime Rate of Interest, floating with a floor of 4 ½%. The two-year agreement is to expire on November 1, 2013. The Company believes that it will have sufficient liquidity and working capital during the next twelve months without additional financing.

As collateral for the Company's obligations, the Company granted a first lien and security interest in all of the assets of the Company, including but not limited to, accounts receivable, inventory, proceeds and products, intangibles, trademarks, patents, intellectual property, machinery and equipment.

Initially, all (i) issuances of stand-by letters of credit and (ii) advances of working capital (collectively referred to as the "Advances") required that the Company maintain cash balances (the "Cash Balance Requirement") at the Bank in an amount equal to the Advances, with a minimum of \$3.0 million at all times. The Cash Balance Requirement was to be reduced to the minimum amount if the Company's consolidated net income after taxes (exclusive of (a) gains and losses on derivatives and (b) stock option expense), as defined ("Net Income"), was positive for the year ending December 31, 2011. Thereafter, the Cash Balance Requirement will remain at the minimum amount as long as the Company's quarterly Net Income commencing for the quarter ending March 31, 2012, remains positive and the Company is in compliance with the covenants. If the Company's quarterly Net Income, is negative or the Company is not in compliance with the covenants, the Cash Balance Requirement will revert to the amount of the Advances, until the Company attains positive Net Income for two consecutive quarters. The credit agreements contained certain restrictive covenants regarding future acquisitions, and incurrence of debt. In addition, the credit agreements contained financial covenants with respect to the Company's cash flow coverage ratio, minimum tangible capital base, quick ratio, and tangible capital base ratio. At December 31, 2011 and throughout all of 2011, the Company had not paid any interest or principal payments related to any borrowings for over one year. As such, the cash flow coverage ratio is not applicable at December 31, 2011.

	Covenant	As of December 31, 2011
Minimum tangible capital base	Must Exceed \$26.0 million	\$31.3 million
Quick ratio		2.71 : 1.00

	Must Exceed 2.00 :	
	1.00	
Tangible capital base ratio	Not to Exceed .75 :	.64 : 1.00
	1.00	

As the Company's Net Income for the year ended December 31, 2011 was positive, the Company currently will only be required to maintain cash balances of \$3.0 million at Susquehanna. At December 31, 2011, the Company had \$200,000 in Advances, all of which consisted of outstanding stand-by letters of credit.

On January 4, 2011, the Company completed the acquisition of EnVision Systems, Inc. ("EnVision"), acquiring 100% ownership in EnVision for a purchase price of approximately \$4.0 million in cash and contingent consideration. EnVision, which has been renamed GSE EnVision Inc., provides interactive multi-media tutorials and simulation models, primarily to the petrochemical and oil & gas refining industries. EnVision is headquartered in Madison, NJ, has an Indian subsidiary based in Chennai, India, and was founded in 1991. EnVision's tutorials and simulation models serve the entry-level training market for the oil & gas refining and specialty chemicals industries. EnVision's products provide a foundation in process fundamentals and plant operations and interaction. EnVision has completed more than 750 installations in over 28 countries and its approximately 130 clients include Shell Oil Company, BP, Total and Chevron.

### Critical Accounting Policies and Estimates.

As further discussed in Note 2 to the consolidated financial statements, in preparing the Company's financial statements, management makes several estimates and assumptions that affect the Company's reported amounts of assets, liabilities, revenues and expenses. Those accounting estimates that have the most significant impact on the Company's operating results and place the most significant demands on management's judgment are discussed below. For all of these policies, management cautions that future events rarely develop exactly as forecast, and the best estimates may require adjustment.

**Revenue Recognition on Long-Term Contracts.** The majority of the Company's revenue is derived through the sale of uniquely designed systems containing hardware, software and other materials under fixed-price contracts. In accordance with U.S. generally accepted accounting principles ("GAAP"), the revenue under these fixed-price contracts is accounted for on the percentage-of-completion method. This methodology recognizes revenue and earnings as work progresses on the contract and is based on an estimate of the revenue and earnings earned to date, less amounts recognized in prior periods. The Company bases its estimate of the degree of completion of the contract by reviewing the relationship of costs incurred to date to the expected total costs that will be incurred on the project. Estimated contract earnings are reviewed and revised periodically as the work progresses, and the cumulative effect of any change in estimate is recognized in the period in which the change is identified. Estimated losses are charged against earnings in the period such losses are identified. The Company recognizes revenue arising from contract claims either as income or as an offset against a potential loss only when the amount of the claim can be estimated reliably and realization is probable and there is a legal basis of the claim.

Uncertainties inherent in the performance of contracts include labor availability and productivity, material costs, change order scope and pricing, software modification and customer acceptance issues. The reliability of these cost estimates is critical to the Company's revenue recognition as a significant change in the estimates can cause the Company's revenue and related margins to change significantly from the amounts estimated in the early stages of the project.

As the Company recognizes revenue under the percentage-of-completion method, it provides an accrual for estimated future warranty costs based on historical and projected claims experience. The Company's long-term contracts generally provide for a one-year warranty on parts, labor and any bug fixes as it relates to software embedded in the systems.

The Company's system design contracts do not normally provide for "post customer support service" (PCS) in terms of software upgrades, software enhancements or telephone support. In order to obtain PCS, the customers normally must purchase a separate contract. Such PCS arrangements are generally for a one-year period renewable annually and include customer support, unspecified software upgrades, and maintenance releases. The Company recognizes revenue from these contracts ratably over the life of the agreements.

Revenue from the sale of software licenses which do not require significant modifications or customization for the Company's modeling tools are recognized when the license agreement is signed, the license fee is fixed and determinable, delivery has occurred, and collection is considered probable.

Revenue for contracts with multiple elements is recognized in accordance with ASC 605-25 Revenue Recognition-Multiple Element Arrangements.

Revenue from certain consulting contracts is recognized on a time-and-material basis. For time-and-material type contracts, revenue is recognized based on hours incurred at a contracted labor rate plus expenses.



**Capitalization of Computer Software Development Costs.** In accordance with U.S. generally accepted accounting principles, the Company capitalizes computer software development costs incurred after technological feasibility has been established, but prior to the release of the software product for sale to customers. Once the product is available to be sold, the Company amortizes the costs, on a straight line method, over the three year estimated useful life of the product. As of December 31, 2011, the Company has net capitalized software development costs of \$1.8 million. On an annual basis, and more frequently as conditions indicate, the Company assesses the recovery of the unamortized software development costs by estimating the net undiscounted cash flows expected to be generated by the sale of the product. If the undiscounted cash flows are not sufficient to recover the unamortized software costs the Company will write-down the investment to its estimated fair value based on future discounted cash flows. The excess of any unamortized computer software costs over the related net realizable value is written down and charged to operations. Significant changes in the sales projections could result in an impairment with respect to the capitalized software that is reported on the Company's consolidated balance sheet.

**Valuation of Contingent Consideration for Business Acquisitions.** Acquisitions may include contingent consideration payments based on future financial measures of an acquired company. Contingent consideration is required to be recognized at fair value as of the acquisition date. We estimate the fair value of these liabilities based on financial projections of the acquired companies and estimated probabilities of achievement. We believe our estimates and assumptions are reasonable; however, there is significant judgment involved. At each reporting date, the contingent consideration obligation will be revalued to estimated fair value and changes in fair value subsequent to the acquisition will be reflected in income or expense in the consolidated statements of operations, and could cause a material impact to our operating results. Changes in the fair value of contingent consideration obligations may result from changes in discount periods and rates, changes in the timing and amount of revenue and/or earnings estimates and changes in probability assumptions with respect to the likelihood of achieving the various earn-out criteria.

**Deferred Income Tax Valuation Allowance.** Deferred income taxes arise from temporary differences between the tax basis of assets and liabilities and their reported amounts in the financial statements. Management makes a regular assessment of the realizability of the Company's deferred tax assets. In making this assessment, management considers whether it is more likely than not that some or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities and projected future taxable income of the Company in making this assessment. A valuation allowance is recorded to reduce the total deferred income tax asset to its realizable value. As of December 31, 2011, the Company's largest deferred tax asset of \$4.9 million primarily relates to a U.S. net operating loss carryforward of \$13.2 million which expires in various amounts between 2017 and 2030. The amount of U.S. loss carryforward which can be used by the Company each year is limited due to changes in the Company's ownership which occurred in 2003. Thus, a portion of the Company's loss carryforward may expire unutilized. We believe that the Company will achieve profitable operations in future years that will enable the Company to recover the benefit of its net deferred tax assets. However, other than a portion of the net deferred tax assets that are related to the Company's Indian subsidiary, the recovery of the net deferred tax assets could not be substantiated by currently available objective evidence. Accordingly, the Company has established an \$6.9 million valuation allowance for its net deferred tax assets.

## Results of Operations.

The following table sets forth the results of operations for the periods presented expressed in thousands of dollars and as a percentage of contract revenue.

(\$ in thousands)	Years ended December 31,											
	2011		%		2010		%		2009		%	
Contract revenue	\$	51,126	100.0	%	\$	47,213	100.0	%	\$	40,060	100.0	%
Cost of revenue		34,781	68.0	%		36,081	76.4	%		29,736	74.2	%
Gross profit		16,345	32.0	%		11,132	23.6	%		10,324	25.8	%
Operating expenses:												
Selling, general and administrative		12,672	24.8	%		11,683	24.7	%		7,749	19.3	%
ESA related charges		-	0.0	%		-	0.0	%		1,508	3.8	%
Depreciation		497	1.0	%		579	1.2	%		504	1.3	%
Amortization of definite-lived intangible assets		948	1.9	%		102	0.2	%		-	0.0	%
Total operating expenses		14,117	27.7	%		12,364	26.1	%		9,761	24.4	%
Operating income (loss)		2,228	4.3	%		(1,232 )	(2.6 )	%		563	1.4	%
Interest income, net		131	0.3	%		19	0.0	%		56	0.1	%
ESA related charges		-	0.0	%		-	0.0	%		(865 )	(2.2 )	%
Gain (loss) on derivative instruments		(68 )	(0.1 )	%		(913 )	(1.9 )	%		763	1.9	%
Other income (expense), net		72	0.1	%		83	0.3	%		(397 )	(0.9 )	%
Income (loss) before income taxes		2,362	4.6	%		(2,043 )	(4.3 )	%		120	0.3	%
Provision (benefit) for income taxes		(438 )	(0.9 )	%		206	0.4	%		917	2.3	%
Net income (loss)	\$	2,801	5.5	%	\$	(2,249 )	(4.8 )	%	\$	(797 )	(2.0 )	%

## Comparison of the Years Ended December 31, 2011 to December 31, 2010.

**Contract Revenue.** Contract revenue for the year ended December 31, 2011 totaled \$51.1 million, which was 8.3% higher than the \$47.2 million of revenue for the year ended December 31, 2010. The Company recorded total orders of \$44.4 million in the year ended December 31, 2011 versus \$47.4 million in the year ended December 31, 2010. Included in the 2011 orders was \$3.0 million in change orders for a contract to build a new nuclear power plant simulator for a two unit reactor plant in Slovakia which increased the total contract value from \$23.8 million to \$26.8 million. In the years ended December 31, 2011 and 2010, the Company recognized \$5.0 million and \$10.4 million of contract revenue, respectively, on this project using the percentage-of-completion method, which accounted for 10.0% and 22.0% of the Company's consolidated revenue, respectively. The decrease in revenue generated from the Slovak utility order was partially offset by the additional revenue generated due to the acquisitions of EnVision and TAS Engineering Consultants Ltd. ("TAS"). EnVision, which was acquired by the



Company on January 4, 2011, generated approximately \$2.5 million of revenue for the year ended December 31, 2011. TAS, which was acquired by the Company on April 26, 2010, generated revenue of \$3.7 million and \$2.4 million, for the year ended December 31, 2011, and for the period commencing on the closing date of the acquisition and ending on December 31, 2010, respectively. In addition, revenue generated from various contracts that the Company has received from a German customer increased by approximately \$2.1 million for the year ended December 31, 2011 as compared December 31, 2010. Furthermore, in 2011, the Company received a \$2.9 million change order on its contract to provide a full scope AGR replacement simulator with a British utility which increased the total contract value from \$4.7 million to \$7.6 million. This change order order resulted in a \$2.5 million increase in revenue recognized on this contract from the year ended December 31, 2010, as compared to the year ended December 31, 2011.

At December 31, 2011, the Company's backlog was \$51.5 million, of which \$5.8 million related to the Slovakia contract. The Company's backlog decreased 7.9% from December 31, 2010 when the Company's backlog totaled \$55.9 million.

**Gross Profit.** Gross profit totaled \$16.3 million for the year ended December 31, 2011 versus \$11.1 million for the year ended December 31, 2010. As a percentage of revenue, gross profit increased from 23.6% for the twelve months ended December 31, 2010 to 32.0% for the twelve months ended December 31, 2011. The increase in gross margin reflects the following items.

The Company has a contract to provide a full scope AGR replacement simulator with a British utility. In 2010, disagreements arose with the customer over the extent and composition of the simulator testing procedures, the scope of certain plant systems being included in the simulator and the project schedule. These issues were resolved with the customer in early 2011; however, the resolution significantly increased the Company's costs to complete the contract. In the fourth quarter 2010, the Company revised its estimates to complete the project and recorded a \$1.2 million loss on the project. Negotiations with the customer for additional funding on the project were completed in the fourth quarter 2011, and the Company received a change order which increased the total contract value from \$4.7 million to \$7.6 million.

The lower-margined \$26.8 million full scope simulator and digital control system order received in 2009 from a Slovak utility made up 10% of the Company's total revenue in 2011 versus 22% of revenue in 2010. The \$3.0 million change order that was received on this contract in 2011 increased the overall gross margin on the project by approximately \$585,000 in 2011.

In 2011, the Company's newly acquired subsidiary, EnVision, generated revenue of \$2.5 million. EnVision's gross margins are higher than the Company's normal gross margin.

**Selling, General and Administrative Expenses.** Selling, general and administrative ("SG&A") expenses totaled \$12.7 million and \$11.7 million for the years ended December 31, 2011 and 2010, respectively. Fluctuations in the components of SG&A spending were as follows:

- ◆ Business development and marketing costs increased from \$4.2 million for the year ended December 31, 2010 to \$5.6 million in the year ended December 31, 2011. During the first quarter of 2011, the Company underwent an internal reorganization whereby a number of operational personnel were reallocated to business development activities on a full time basis. TAS and EnVision incurred approximately \$764,000 of business development and marketing costs for the twelve months ended December 31, 2011, compared to \$216,000 incurred by TAS for the twelve months ended December 31, 2010. Also contributing to the increase in business development costs in 2011 was the hiring of a business development manager in the United Kingdom in May 2010. Bidding and proposal costs, which are the costs of operations personnel assisting with the preparation of contract proposals totaled \$1.5 million for the year ended December 31, 2011, an \$84,000 increase from the prior year.
- ◆ The Company's general and administrative expenses totaled \$6.0 million and \$6.8 million for the years ended December 31, 2011 and 2010, respectively. The decrease of \$800,000 is primarily attributable to the following:
  - The change in the fair value of contingent consideration related to the TAS and EnVision acquisitions resulted in a gain of \$322,000 for the year ended December 31, 2011, as compared to a loss of \$147,000 for the year ended December 31, 2010.
  - The Company incurred approximately \$206,000 of expenses related to acquisition efforts for the year ended December 31, 2011. These acquisition costs were composed of legal, travel, due diligence, valuation and audit expenses. The Company incurred \$710,000 of acquisition related costs in 2010.



- ◆ Gross spending on software product development (“development”) expenses, for the twelve months ended December 31, 2011 totaled \$1.8 million, as compared to \$1.6 million for the twelve months ended December 31, 2010. The Company capitalized \$838,000 and \$903,000 for the twelve months ended December 31, 2011 and 2010, respectively. Net development spending increased from \$663,000 for the twelve months ended December 31, 2010 to \$1.0 million for the twelve months ended December 31, 2011.
- o The Company created a 3D visualization team in January 2011 to develop 3D technology to add to our training programs. The Company incurred \$300,000 of costs related to this effort for the twelve months ended December 31, 2011.
  - o Spending on other software product development totaled \$1.5 million for the twelve months ended December 31, 2011. For the twelve months ended December 31, 2010, development expense totaled \$1.6 million. The Company’s development expenses were mainly related to advancements on a new configuration management system which is a central data warehouse that supports various forms of data on a simulator, new feature enhancements to our JADE platform and advancements to our MAAP HD severe accident platform. EnVision incurred \$90,000 of development expense for the twelve months ended December 31, 2011.

Depreciation. Depreciation expense totaled \$497,000 and \$579,000 for the years ended December 31, 2011 and 2010, respectively. In 2007, the Company had purchased approximately \$400,000 of computers and furniture for a training center at Strathclyde University in the UK and a demonstration center at its Sykesville headquarters. These items were fully depreciated at the end of 2010.

Amortization of definite-lived intangible assets. Amortization expense related to definite-lived intangible assets totaled \$948,000 and \$102,000 for the years ended December 31, 2011 and 2010, respectively. Amortization is recognized on a straight-line basis over the estimated useful life of the intangible assets, except for contractual customer relationships and contract backlog, which are recognized in proportion to the related projected revenue streams. As part of the Company’s acquisition of TAS in 2010, the Company recorded intangible assets totaling approximately \$740,000 with estimated lives of one to ten years. The Company also recorded intangible assets of \$1.5 million with estimated lives of three to eight years as part of the EnVision acquisition.

Operating Income (Loss). The Company had operating income of \$2.2 million (4.3% of revenue) in the year ended December 31, 2011, as compared with an operating loss of \$1.2 million (2.6% of revenue) for the year ended December 31, 2010. The variances were due to the factors outlined above.

Interest Income, Net. The Company's interest income, net totaled \$131,000 and \$19,000 for the years ended December 31, 2011 and 2010, respectively.

At December 31, 2011, the Company had a revolving credit agreement for a revolving line of credit with Susquehanna which is scheduled to expire on November 1, 2013. The credit facility enables the Company to borrow funds to support working capital needs and to collateralize letters of credit which will be issued as performance bonds. The line of credit, which is in the principal amount of up to \$7.5 million, bears interest at a rate equal to the Wall Street Journal Prime Rate of Interest, floating with a floor of 4 ½%.

The deferred financing costs incurred when the Susquehanna line of credit was first established in 2011 are amortized over the two-year term of the line of credit. Amortization began in November 2011. The deferred financing costs incurred in conjunction with the Company's terminated Bank of America ("BOA") lines of credit were fully amortized as of December 31, 2010. Amortization of deferred financing costs totaled \$2,000 and \$92,000 for the twelve months ended December 31, 2011 and 2010, respectively.

At December 31, 2011 and 2010, the Company had approximately \$4.2 million and \$179,000, respectively, of cash in Certificates of Deposit with BOA that were being used as collateral for various bid and performance bonds. An additional \$1.8 million and \$600,000 was held in other Certificates of Deposit as of December 31, 2011, and 2010, respectively. The Company recorded interest income of \$27,000 and \$18,000 from the Certificates of Deposit in the years ended December 31, 2011 and 2010, respectively.

The Company had \$8.2 million deposited in a money market account with Susquehanna on December 31, 2011. The Company had \$17.0 million deposited in a money market account with BOA on December 31, 2010. Interest income earned on the money market accounts totaled \$35,000 and \$84,000 for the years ended 2011 and 2010, respectively.

In May 2007, the Company deposited \$1.2 million into a restricted, interest-bearing account at the Union National Bank in the United Arab Emirates as a partial guarantee for the \$11.8 million credit facility that UNB has extended to ESA. GSE recorded no interest income in the years ended December 31, 2011 and 2010, respectively. In 2009, the Company determined that its investment in ESA was impaired. As such, the Company established a full reserve for the amount in restricted cash amount as of December 31, 2009. In 2011 and 2010, Union National Bank withdrew a total of \$78,000 and \$294,000, respectively from the cash GSE had on deposit with them as a partial guarantee against ESA's line of credit; at December 31, 2011 the Company had \$926,000 remaining in the restricted UNB account.

Interest income on deposits held by the Company's Swedish subsidiary increased from \$8,000 in the year ended December 31, 2010 to \$65,000 for the year ended December 31, 2011. The increase was primarily attributable to the higher cash balance held by the subsidiary during 2011.

The Company had other interest income in the year ended December 31, 2011 of \$6,000 and \$1,000 for the years ended December 31, 2011 and 2010, respectively. The increase was primarily driven by the acquisition of EnVision in January 2011.

Gain (Loss) on Derivative Instruments. The Company periodically enters into forward foreign exchange contracts to manage market risks associated with the fluctuations in foreign currency exchange rates on foreign-denominated trade receivables. As of December 31, 2011, the Company had foreign exchange contracts outstanding of approximately 3.1 million Pounds Sterling, 12.0 million Euro, and 383.5 million Japanese Yen at fixed rates. The contracts expire on various dates through May 2016. The Company had not designated the contracts as hedges and has recognized a gain on the change in the estimated fair value of the contracts of \$73,000 for the twelve months ended December 31, 2011.

At December 31, 2010, the Company had foreign exchange contracts outstanding of approximately 1.6 million Pounds Sterling, 10.6 million Euro, and 865.2 million Japanese Yen at fixed rates. The contracts expire on various

dates through February 2014. The Company had not designated the contracts as hedges and had recognized a loss on the change in the estimated fair value of the contracts of \$745,000 for the twelve months ended December 31, 2010.

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The estimated net fair values of the contracts at December 31, 2011 and 2010 were a net asset of \$169,000 and \$81,000, respectively, and were recorded on the balance sheets as follows:

(in thousands)	December 31,	
	2011	2010
Asset derivatives		
Prepaid expenses and other current assets	\$ 393	\$ 208
Other assets	90	117
	483	325
Liability derivatives		
Other current liabilities	(258 )	(204 )
Other liabilities	(56 )	(40 )
	(314 )	(244 )
Net fair value	\$ 169	\$ 81

The foreign currency denominated trade receivables and unbilled receivables that are related to the outstanding foreign exchange contracts at December 31, 2011 are remeasured at the end of each period into the functional currency using the current exchange rate at the end of the period. For the years ended December 31, 2011 and 2010, the Company incurred a loss of \$141,000 and \$168,000, respectively, from the remeasurement of such trade and unbilled receivables.

Other Income (Expense), Net. The Company recognized \$72,000 of other income, net for the year ended December 31, 2011 versus \$83,000 of other income, net for the year ended December 31, 2010.

Provision for Income Taxes.

The Company files in the United States federal jurisdiction and in several state and foreign jurisdictions. Because of the net operating loss carryforwards, the Company is subject to U.S. federal and state income tax examinations from years 1997 and forward and is subject to foreign tax examinations by tax authorities for years 2006 and forward. Open tax years related to state and foreign jurisdictions remain subject to examination but are not considered material to our financial position, results of operations or cash flows.

An uncertain tax position taken or expected to be taken in a tax return is recognized in the financial statements when it is more likely than not (i.e., a likelihood of more than fifty percent) that the position would be sustained upon examination by tax authorities that have full knowledge of all relevant information. A recognized tax position is then measured at the largest amount of benefit that is greater than fifty percent likely of being realized upon ultimate settlement. Interest and penalties related to income taxes are accounted for as income tax expense.

The Company, through its acquisition of EnVision on January 4, 2011, recognized deferred tax liabilities of \$1.0 million resulting in a reduction of the Company's U.S. net deferred tax asset by the same amount. As a result of this acquisition, in accordance with ASC-805 Business Combinations, the Company reduced the valuation allowance on its U.S. net deferred tax assets and recognized the change in the valuation allowance (\$1.0 million) through the income tax provision.

The Company, through its acquisition of EnVision on January 4, 2011, recorded \$320,000 of unrecognized tax benefits as well as a receivable from the EnVision shareholders for the same amount as indemnity for this tax position. During 2011, the Company also recorded \$126,000 of unrecognized tax benefits in 2011 for certain foreign tax contingencies.

The Company's tax benefit in 2011 was \$438,000 and consisted of \$181,000 state income taxes, \$108,000 foreign income taxes incurred by the Company's foreign subsidiaries, \$62,000 U.S. alternative minimum tax, \$85,000 for foreign income tax withholding on several non-U.S. contracts, \$126,000 of foreign income tax contingency, and \$1.0 million valuation allowance adjustment due to the EnVision acquisition, previously discussed.

The Company's tax provision in 2010 was \$206,000 and consisted of \$9,000 state income taxes, \$382,000 foreign income taxes incurred by the Company's foreign subsidiaries, and a \$185,000 net credit for foreign income tax withholding on several non-U.S. contracts. In the first quarter 2010, the Company reversed a \$400,000 accrual for foreign income tax withholding on a contract that it completed in China. Partially offsetting this credit were withholding taxes totaling approximately \$215,000 on various contracts completed in Mexico, South Korea and Canada.

The Company has a full valuation allowance on its U.S. and Scottish net deferred tax assets at December 31, 2011.



Comparison of the Years Ended December 31, 2010 to December 31, 2009.

**Contract Revenue.** Contract revenue for the year ended December 31, 2010 totaled \$47.2 million, which was 17.9% higher than the \$40.1 million total revenue for the year ended December 31, 2009. The Company recorded total orders of \$47.4 million in the year ended December 31, 2010 versus \$54.4 million in the year ended December 31, 2009. Included in the 2009 orders was an \$18.4 million contract to build a new nuclear power plant simulator for a two unit reactor plant in Slovakia. The contract included approximately \$12.0 million for hardware, the largest portion being a distributed control system from Siemens that the customer requested be a part of the contract in addition to approximately \$6.0 million related specifically to the simulator. In 2010, the Company received three change orders totaling \$5.4 million for this contract which included approximately \$4.4 million for revisions to the Siemens digital control system. Due to the significant hardware portion of the project, the overall margin on the project is lower than the Company's normal gross margin. In the years ended December 31, 2010 and 2009, the Company recognized \$10.4 million and \$5.4 million of contract revenue, respectively, on this project using the percentage-of-completion method, which accounted for 22.0% and 13.5% of the Company's consolidated revenue, respectively. In 2010, the Company's newly acquired subsidiary, TAS Engineering Consulting Ltd, had total revenue of \$2.4 million. At December 31, 2010, the Company's backlog was \$55.9 million, of which \$7.9 million related to the Slovakia contract. The Company's backlog increased 3.7% from December 31, 2009 when the Company's backlog totaled \$53.9 million.

**Gross Profit.** Gross profit totaled \$11.1 million for the year ended December 31, 2010 versus \$10.3 million for the year ended December 31, 2009. As a percentage of revenue, gross profit decreased from 25.8% for the twelve months ended December 31, 2009 to 23.6% for the twelve months ended December 31, 2010. The decrease in gross margin reflects the following items:

- ◆ The Company had a \$4.7 million contract to provide a full scope AGR replacement simulator with a British utility. In 2010, disagreements arose with the customer over the extent and composition of the simulator testing procedures, the scope of certain plant systems being included in the simulator and the project schedule. These issues were resolved with the customer in early 2011; however, the resolution had significantly increased the Company's costs to complete the contract. Although the Company is currently in negotiations with the customer for additional funding, the Company revised its estimates to complete the project in the fourth quarter 2010 and recorded a \$1.2 million loss.
- ◆ The lower-margined \$23.8 million full scope simulator and digital control system order received in 2009 from a Slovak utility made up 22.1% of the Company's total revenue in 2010 versus only 13.5% of revenue in 2009.

Selling, General and Administrative Expenses. Selling, general and administrative (“SG&A”) expenses totaled \$11.7 million and \$7.7 million for the years ended December 31, 2010 and 2009, respectively. Fluctuations in the components of SG&A spending were as follows:

- ◆ Business development and marketing costs increased from \$3.2 million for the year ended December 31, 2009 to \$4.2 million in the year ended December 31, 2010. Bidding and proposal costs, which are the costs of operations personnel assisting with the preparation of contract proposals totaled \$1.4 million for the year ended December 31, 2010, a \$432,000 increase from the prior year. TAS, which was acquired on April 26, 2010, incurred \$216,000 of business development expenses for the period commencing on the date of acquisition and ending on December 31, 2010. During 2010, the Company hired both a business development manager in the United Kingdom and a business development manager in the United States for its 3D visualization program. During 2009, the Company hired business development managers for both its process simulation business and its education and training business and a marketing specialist for the nuclear simulation business. Additionally, the Company incurred costs of approximately \$200,000 for hosting the Company’s September 2010 Simworld user’s conference in Stockholm, Sweden. The Company did not host a Simworld conference in 2009.
- ◆ The Company’s general and administrative expenses increased from \$4.2 million for the year ended December 31, 2009 to \$6.9 million in the year ended December 31, 2010. The increase of \$2.7 million is primarily attributable to the following:
  - TAS, which was acquired on April 26, 2010, incurred \$549,000 of G&A expenses for the period commencing on the closing date of the acquisition and ending on December 31, 2010.
  - The change in the fair value of contingent consideration (accretion expense) related to the TAS acquisition was \$147,000 for the year ended December 31, 2010.
  - The Company incurred approximately \$710,000 of expenses related to its acquisition efforts for the year ended December 31, 2010. These acquisition costs were composed of legal, travel, due diligence, valuation and audit expenses. The Company incurred no acquisition related costs in 2009.
  - The Company recognized approximately \$297,000 of foreign currency losses for the year ended December 31, 2010. The losses were mainly related to the Company’s BOA Euro denominated operating account, intercompany receivable/payable accounts, and a euro-denominated value added tax receivable. For the year ended December 31, 2009, the Company had recognized foreign currency gains of \$130,000.
    - The Company incurred bad debt expense of approximately \$249,000 in 2010 versus none in 2009.
  - The Company incurred approximately \$197,000 of costs related to changes in the Company’s executive management in 2010. Mr. Jim Eberle started with the Company on June 1, 2010 as Chief Operating Officer and was promoted to Chief Executive Officer on November 1, 2010 upon the retirement of Mr. John Moran as Chief Executive Officer.
- ◆ Gross spending on software product development (“development”) totaled \$1.6 million in the year ended December 31, 2010 as compared to \$1.3 million in 2009. For the year ended December 31, 2010, the Company expensed \$663,000 and capitalized \$903,000 of its development spending. For the year ended December 31, 2009, the Company expensed \$425,000 and capitalized \$861,000. The Company’s capitalized development expenditures in 2010 were mainly related to the customization of RELAP5-HD software (which simulates transient fluid dynamics, neutronics and heat transfer in nuclear power plants) to run on the Company’s real-time executive software; the replacement of the current Graphic User Interface of SimSuite Pro with JADE Designer; and feature enhancements to Jtopmeret, a modeling tool that generates two phase network dynamic models. The Company anticipates that its total gross development spending in 2011 will approximate \$1.5 million.



ESA Related Charges. GSE is a 10% owner of the Emirates Simulation Academy, LLC in the United Arab Emirates.

Based upon various events which occurred in late 2009, the Company determined that its remaining investment in ESA had been impaired and established reserves for the trade receivable due from ESA at December 31, 2009 and the cash that GSE had on deposit with Union National Bank as a partial guarantee for ESA's credit facility. Partially offsetting these charges was the reversal of the remaining deferred profit related to the Company's sale of five simulators to ESA in prior years and the remaining agent fee that was due upon payment of the final outstanding receivable. The charges recorded and the presentation in the statement of operations for the year ended December 31, 2009 were as follows:

(in thousands)	Year ended December 31, 2009
Trade receivable	\$ 1,604
Accrued agent fee	(96 )
Operating expense	1,508
Restricted cash- bank guarantee and accrued interest income	1,291
Investment in ESA	117
Deferred profit	(543 )
Other expense, net	865
Total	\$ 2,373

In 2010, Union National Bank withdrew a total of \$294,000 from the cash GSE had on deposit with them as a partial guarantee against ESA's line of credit.

Depreciation. Depreciation expense totaled \$579,000 and \$504,000 for the years ended December 31, 2010 and 2009, respectively. The higher 2010 depreciation expense is primarily the result of the Company's capital purchases of new computers for new hires and upgraded servers.

Amortization of definite-lived intangible assets. Amortization expense related to definite-lived intangible assets totaled \$102,000 and \$0 for the years ended December 31, 2010 and 2009, respectively. As part of the Company's acquisition of TAS in 2010, the Company recorded intangible assets totaling approximately \$740,000 with estimated lives of one to ten years.

Operating Income (Loss). The Company had an operating loss of \$1.2 million (2.6% of revenue) in the year ended December 31, 2010, as compared with operating income of \$563,000 (1.4% of revenue) for the year ended December 31, 2009. The variances were due to the factors outlined above.

Interest Income, Net. The Company's interest income, net totaled \$19,000 and \$56,000 for the years ended December 31, 2010 and 2009, respectively.

At December 31, 2010, the Company had two separate revolving credit agreements for revolving lines of credit with BOA which were scheduled to expire on May 31, 2012. The first line of credit was in the principal amount of up to \$5.0 million and was guaranteed by the U.S. Export-Import Bank. The second line of credit was in the principal amount of up to \$2.5 million. The Company did not borrow any funds against either BOA line of credit, although the lines had been utilized to collateralize letters of credit which had been issued as performance bonds.

The deferred financing costs incurred when the BOA lines of credit were first established in 2008 were amortized over the original two-year term of the lines of credit. Amortization began in April 2008 and ended March 31, 2010. The deferred financing costs incurred in conjunction with the extension of the BOA lines of credit until May 31, 2012 were being amortized over the 25 month period of the lines of credit beginning as of April 1, 2010. However, in conjunction with the revisions to the Company's revolving credit agreements discussed below in the liquidity section, we expensed the remaining balance as of December 31, 2010. Amortization totaled \$92,000 and \$46,000 for the twelve months ended December 31, 2010 and 2009, respectively.

At December 31, 2010 and 2009, the Company had approximately \$179,000 and \$336,000, respectively, of cash in Certificates of Deposit with BOA that were being used as collateral for various performance bonds. The Company recorded interest income of \$18,000 and \$61,000 from the Certificates of Deposit in for the twelve months ended December 31, 2010 and 2009, respectively.

The Company had \$17.0 million and \$150,000 deposited in a money market account with BOA on December 31, 2010, and 2009, respectively. Interest income earned on the BOA money market account totaled \$84,000 and \$0 for the years ended 2010 and 2009, respectively.

In May 2007, the Company deposited \$1.2 million into a restricted, interest-bearing account at the Union National Bank in the United Arab Emirates as a partial guarantee for the \$11.8 million credit facility that UNB had extended to ESA. GSE recorded approximately \$0 and \$26,000 interest income in the years ended December 31, 2010 and 2009, respectively. In 2009, the Company determined that its investment in ESA was impaired. As such, the Company established a full reserve for the amount in restricted cash amount as of December 31, 2009. Any interest income earned from this account in 2010 was not recorded in interest income but was credited to the reserve balance. In 2010, Union National Bank withdrew a total of \$294,000 from the cash GSE had on deposit with them as a partial guarantee against ESA's line of credit; at December 31, 2010 the Company had \$1.0 million remaining in the UNB account.

The Company had other interest income in the year ended December 31, 2010 of \$9,000 and \$11,000 in the year ended December 31, 2009.

Gain (Loss) on Derivative Instruments. The Company periodically enters into forward foreign exchange contracts to manage market risks associated with the fluctuations in foreign currency exchange rates on foreign-denominated trade receivables. As of December 31, 2010, the Company had foreign exchange contracts outstanding of approximately 1.6 million Pounds Sterling, 10.6 million Euro, and 865.2 million Japanese Yen at fixed rates. The contracts expire on various dates through February 2014. The Company had not designated the contracts as hedges and had recognized a loss on the change in the estimated fair value of the contracts of \$745,000 for the twelve months ended December 31, 2010.



At December 31, 2009, the Company had foreign exchange contracts outstanding of approximately 2 million Pounds Sterling, 3 million Euro, and 759 million Japanese Yen at fixed rates. The contracts expire on various dates through February 2014. The Company had not designated the contracts as hedges and had recognized a gain on the change in the estimated fair value of the contracts of \$851,000 for the twelve months ended December 31, 2009.

The estimated fair values of the contracts at December 31, 2010 and 2009 were a net asset of \$81,000 and \$812,000, respectively, and were recorded on the balance sheets as follows:

(in thousands)	December 31,	
	2010	2009
Asset derivatives		
Prepaid expenses and other current assets	\$ 208	\$ 515
Other assets	117	396
	325	911
Liability derivatives		
Other current liabilities	(204 )	(34 )
Other liabilities	(40 )	(65 )
	(244 )	(99 )
Net fair value	\$ 81	\$ 812

The foreign currency denominated trade receivables and unbilled receivables that are related to the outstanding foreign exchange contracts at December 31, 2010 are remeasured at the end of each period into the functional currency using the current exchange rate at the end of the period. For the years ended December 31, 2010 and 2009, the Company incurred a \$168,000 loss and \$88,000 loss, respectively, from the remeasurement of such trade and unbilled receivables.

Other Income (Expense), Net. The Company recognized \$83,000 of other income, net for the year ended December 31, 2010. In contrast, the Company recognized \$397,000 of other expense, net for the same period in 2009. The major components of other income (expense), net include the following items:

The Company accounted for its investment in ESA using the equity method. In accordance with the equity method, the Company eliminated 10% of the profit from this contract as the training simulators are assets that have been recorded on the books of ESA, and the Company was thus required to eliminate its proportionate share of the profit included in the asset value. ESA began to amortize the training simulators effective January 1, 2009 over a four year life; accordingly, GSE began to amortize the deferred profit in January 2009 and recognized income of \$181,000 for the year ended December 31, 2009. However, in conjunction with the Company's determination that its investment in ESA was impaired as of December 31, 2009, GSE wrote off the balance of the deferred profit, recognizing additional income of \$543,000. See the discussion above in ESA related charges.

For the year ended December 31, 2009, the Company recognized a \$615,000 equity loss on its investment in ESA. However, in conjunction with the Company's determination that its investment in ESA was impaired as of December 31, 2009, it wrote off the balance of its investment in ESA, recognizing an additional equity loss of \$117,000. See the discussion above in ESA related charges.

The Company had other miscellaneous income in the years ended December 31, 2010 and 2009 of \$83,000 and of \$37,000, respectively.

#### Provision for Income Taxes.

The Company files in the United States federal jurisdiction and in several state and foreign jurisdictions. Because of the net operating loss carryforwards, the Company is subject to U.S. federal and state income tax examinations from years 1997 and forward and is subject to foreign tax examinations by tax authorities for years 2005 and forward. Open tax years related to state and foreign jurisdictions remain subject to examination but are not considered material to our financial position, results of operations or cash flows.

As of December 31, 2010, there have been no material changes to the liability for uncertain tax positions. Furthermore, the Company is not aware of any tax positions for which it is reasonably possible that the total amounts of unrecognized tax benefits would significantly decrease or increase within the next twelve months.

The Company's tax provision in 2010 was \$206,000 and consisted of \$9,000 state income taxes, \$382,000 foreign income taxes incurred by the Company's foreign subsidiaries, and a \$185,000 net credit for foreign income tax withholding on several non-U.S. contracts. In the first quarter 2010, the Company reversed a \$400,000 accrual for foreign income tax withholding on a contract that it completed in China. Partially offsetting this credit were withholding taxes totaling approximately \$215,000 on various contracts completed in Mexico, South Korea and Canada.

The Company's tax provision in 2009 was \$917,000 and consisted of \$29,000 U.S. federal income taxes, \$80,000 state income taxes, \$569,000 foreign income taxes incurred by the Company's foreign subsidiaries, and \$239,000 foreign income tax withholding on several non-U.S. contracts.

The Company had a full valuation allowance on its U.S. and Scottish net deferred tax assets at December 31, 2010.

#### Liquidity and Capital Resources.

As of December 31, 2011, GSE had cash and cash equivalents of \$20.3 million versus \$26.6 million at December 31, 2010.

**Cash From Operating Activities.** For the year ended December 31, 2011, net cash provided by operating activities totaled \$1.6 million which was an decrease of \$864,000 as compared to the year ended December 31, 2010.

Significant changes in the Company's assets and liabilities in the year ended December 31, 2011 included:

- ◆ A \$2.1 million increase in the Company's contracts receivable. The Company's trade receivables, net of the allowance for doubtful accounts, increased from \$5.7 million at December 31, 2010 to \$8.1 million at December 31, 2011. Through February 29, 2012, the Company collected 72% of the gross trade receivable outstanding as of December 31, 2011. The Company's unbilled receivables increased by \$726,000 to \$12.2 million at December 31, 2011. The increase in the unbilled receivables is due to the timing of contracted billing



milestones of the Company's current projects. In January and February 2012, the Company invoiced \$784,000 of the unbilled amounts; the balance of the unbilled amounts is expected to be invoiced and collected within one year. At December 31, 2011, trade receivables outstanding for more than 90 days totaled \$278,000 versus \$318,000 at December 31, 2010, excluding the \$1.6 million due from ESA which had been fully reserved at December 31, 2010 and completely written off at December 31, 2011.

- ◆ A \$1.5 million increase in prepaid expenses and other assets. The increase is primarily attributable to the reclassifications of Certificates of Deposit from restricted cash to other current assets totaling \$1.8 million. The reclassifications represent the expiration of performance bonds and the release of collateral restrictions associated with the Company's terminated BOA line of credit. This increase was offset by a reduction in the Company's Value Added Tax ("VAT") receivable of \$298,000 at December 31, 2011 as compared to the prior year. VAT is included in payments the Company makes to Siemens for the DCS system being provided to a Slovak utility.
- ◆ A \$855,000 decrease in accounts payable, accrued compensation and accrued expenses. The Company's December 31, 2011 subcontractor accrual decreased \$750,000 as the Company made several large payments to subcontractors during 2011 which had been accrued at December 31, 2010. In addition, the Company's accounts payable, and accrued liabilities also decreased \$650,000 of which \$358,000 was accrued at December 31, 2010 related to the Company's acquisition efforts. At December 31, 2011, the Company had \$0 accrued related to its acquisition efforts. Offsetting the decreases above, accrued compensation increased \$600,000 primarily due to an increase in the Company's headcount and incentive compensation targets from December 31, 2010 to December 31, 2011.
- ◆ A \$856,000 increase in billings in excess of revenue earned. The increase is due to the timing of contracted billing milestones of the Company's current projects.

For the year ended December 31, 2010, net cash provided by operating activities totaled \$2.4 million which was an increase of \$2.1 million as compared to the year ended December 31, 2009. Significant changes in the Company's assets and liabilities in the year ended December 31, 2010 included:

- ◆ A \$903,000 increase in the Company's contracts receivable. The Company's trade receivables, net of the allowance for doubtful accounts, decreased from \$6.4 million at December 31, 2009 to \$5.7 million at December 31, 2010. The Company's unbilled receivables increased by \$2.0 million to \$11.5 million at December 31, 2010. The increase in the unbilled receivables was due to the timing of contracted billing milestones of the Company's projects. In January and February 2011, the Company invoiced \$2.9 million of the unbilled amounts; the balance of the unbilled amounts was invoiced and collected within one year. At December 31, 2010, trade receivables outstanding for more than 90 days totaled \$318,000 versus \$1.4 million at December 31, 2009, excluding the \$1.6 million due from ESA which had been fully reserved at both dates. In January 2011, the Company received a stop work order from NuScale Power ("NuScale"). NuScale's primary investor was a defendant in a lawsuit brought by the Securities and Exchange Commission and has ceased funding NuScale's current operations. As such, the Company increased its bad debt reserve approximately \$400,000 as of December 31, 2010.
- ◆ A \$922,000 increase in prepaid expenses and other assets. The Company's Value Added Tax ("VAT") receivable increased \$250,000 at December 31, 2010 as compared to the prior year. VAT is included in payments the Company makes to Siemens for the DCS system being provided to a Slovak utility. GSE has filed for a refund of the VAT paid. In addition, prepaid foreign income taxes and employee advances have increased a combined \$400,000 from 2009.
- ◆ A \$932,000 increase in accounts payable, accrued compensation and accrued expenses. The Company's accounts payable and accrued liabilities had increased \$358,000 due to the costs accrued related to the Company's acquisition efforts as of December 31, 2010. Additionally, accrued compensation increased \$305,000 primarily due to an increase in the Company's headcount from December 31, 2009 to December 31, 2010.
- ◆ A \$1.7 million increase in billings in excess of revenue earned. The increase was due to the timing of contracted billing milestones of the Company's projects.

For the year ended December 31, 2009, net cash provided by operating activities totaled \$326,000 and increased \$1.9 million as compared to 2008. Significant changes in the Company's assets and liabilities in 2009 included:

- ◆ A \$5.1 million increase in the Company's contracts receivable. The Company's trade receivables increased from \$7.3 million (including \$1.6 million due from ESA) at December 31, 2008 to \$8.2 million at December 31, 2009 (including the same \$1.6 million due from ESA). The Company's unbilled receivables increased by \$5.5 million to \$9.5 million at December 31, 2009. The increase in the unbilled receivables is due to the timing of contracted billing milestones of the Company's current projects. In January and February 2010, the Company invoiced \$1.3 million of the unbilled amounts. At December 31, 2009, trade receivables outstanding for more than 90 days totaled \$3.0 million versus \$2.3 million at December 31, 2008; \$1.6 million of the overdue amount was due from ESA at both dates. Approximately \$300,000 of the over 90 day balance at December 31, 2009 had been received as of the end of February 2010. At a meeting of the three ESA shareholders held at ESA on February 17, 2010, the shareholders reached agreement to significantly reduce costs and begin to explore options up to and including the selling of ESA. Accordingly, the Company increased its bad debt reserve from \$2,000 at December 31, 2008 to \$1.7 million at December 31, 2009 mainly to reserve the overdue receivable from ESA.
- ◆ A \$4.1 million increase in accounts payable, accrued compensation and accrued expenses. The Company's accounts payable and accrued liabilities had increased due to material purchases and the utilization of subcontractors on several of the Company's current projects.
- ◆ A \$1.4 million decrease in billings in excess of revenue earned. The decrease was due to the timing of contracted billing milestones of the Company's projects.

Cash Provided by (Used in) Investing Activities. For the year ended December 31, 2011, net cash used in investing activities was \$6.7 million.

The increase is primarily the result of BOA's amendments to the Company's revolving credit agreements effective March 14, 2011, which required the Company to cash collateralize all existing and future letters of credit. At December 31, 2011, the Company had \$4.4 million of restricted cash. This balance represents a \$4.1 million increase from December 31, 2010.

The Company made capital expenditures of \$520,000 and capitalized software development costs of \$838,000. Cash used as collateral for standby letters of credit, bank guarantees and foreign currency contracts increased by \$4.0 million.

Effective January 4, 2011, GSE Systems Inc., completed the acquisition of EnVision Systems, Inc. ("EnVision). The purchase price totaled \$4.0 million with \$1.2 million paid in cash at closing. The balance is deferred until the first, second, and third anniversaries of the closing date. In the second quarter of 2011, the Company made payments of \$74,000 to EnVision's shareholders related to billed receivables included on the Closing Date balance sheet. An additional payment of \$109,000 to the EnVision shareholders was made during the second quarter of 2011 related to the working capital true-up provisions of the purchase agreement. GSE acquired approximately \$550,000 in cash through the acquisition of EnVision.

During the year ended December 31, 2011, the Company made an additional equity contribution totaling \$456,000 to GSE-UNIS Simulation Technology Co., Ltd. ("GSE-UNIS"). GSE-UNIS is 51% owned by Beijing UNIS Investment Co., Ltd. and 49% owned by GSE. Per the joint venture agreement, the Company will make an additional contribution to GSE-UNIS of approximately \$450,000 in January 2012.

For the year ended December 31, 2010, net cash used in investing activities was \$1.3 million. The Company made capital expenditures of \$519,000 and capitalized software development costs of \$903,000. Cash used as collateral for standby letters of credit, bank guarantees and foreign currency contracts decreased by \$841,000.



Effective April 26, 2010, GSE Systems Inc., through its wholly owned subsidiary GSE Systems, Ltd. (GSE UK), completed the acquisition of TAS Holdings Ltd. The purchase price totaled approximately \$2.3 million with approximately \$500,000 paid in cash at closing, \$683,000 paid post-closing in GSE common stock, approximately \$100,000 was paid during September 2010, and the balance deferred until the first and second anniversary of the closing date. TAS had approximately \$68,000 cash on their balance sheet as of the acquisition date.

On the closing date, TAS entered into a sale and leaseback agreement with the former TAS shareholders. Under the terms of the agreement, the TAS shareholders purchased the building occupied by TAS for approximately \$377,000 in cash and TAS entered into a five-year lease for approximately \$31,000 per year, payable in equal monthly installments. TAS may terminate the lease after April 26, 2013 upon six months written notice.

On July 28, 2010, GSE-UNIS Simulation Technology Co., Ltd. ("GSE-UNIS"), a limited liability company, received a formal business license from the Chinese government. GSE-UNIS is 51% owned by Beijing UNIS Investment Co., Ltd. ("UNIS") and 49% owned by GSE. On October 1, 2010, the Company contributed \$587,000 in cash, as its initial investment to GSE-UNIS. In September 2010, UNIS contributed approximately \$600,000 in cash as its initial investment to GSE-UNIS.

For the year ended December 31, 2009, net cash provided by investing activities was \$1.2 million. The Company made capital expenditures of \$361,000, increased its investment in ESA by \$14,000, and capitalized software development costs of \$861,000. \$2.5 million of cash used as collateral for letters of credit, bank guarantees and foreign currency contracts was released in 2009, \$2.1 million of which related to a performance bond for ESA which expired in October 2009.

Cash Provided by (Used in) Financing Activities. For the year ended December 31, 2011, net cash used in financing activities totaled \$1.1 million. The Company repurchased 824,374 shares of the Company's common stock at an aggregate cost of \$1.6 million for the year ended December 31, 2011.

In 2011, the Company released \$600,000 held in a restricted certificate of deposit, in conjunction with the termination of the Company's BOA lines of credit. In December 2011, the company made a \$167,000 payment in relation to the liability classified contingent-consideration associated with the acquisition of TAS. Additionally, the Company received \$143,000 from the issuance of common stock from the exercise of warrants and employee stock options and spent \$24,000 on deferred financing costs in conjunction with the Susquehanna line of credit agreement.

For the year ended December 31, 2010, net cash provided by financing activities totaled \$94,000. The Company received \$176,000 from the issuance of common stock from the exercise of warrants and employee stock options and spent \$82,000 on deferred financing costs in conjunction with the Bank of America lines of credit.

For the year ended December 31, 2009, net cash provided by financing activities totaled \$15.4 million. On September 4, 2009, the Company raised \$15.0 million through the sale of 2.5 million shares of its common stock, \$.01 par value per share. The shares were sold under a shelf registration statement which was declared effective by the Securities and Exchange Commission on August 21, 2009. On September 23, 2009, the Company raised an additional \$2,250,000 when the Company's underwriter exercised an over-allotment option in full to purchase an additional 375,000 shares of the Company's common stock at the public offering price of \$6.00 per share. The aggregate net proceeds received by the Company from the two transactions was approximately \$15.9 million. The Company received \$121,000 from the issuance of common stock for employee stock options and warrants exercised during the year ended December 31, 2009. In accordance with the amendment to the Company's terminated \$2.5 million BOA line of credit effective May 5, 2009, the Company placed \$600,000 in a restricted certificate of deposit. The certificate of deposit was included in the borrowing base calculation to determine the amount of funds that the Company can utilize under its terminated \$2.5 million line of credit. In the year ended December 31, 2009, the

Company spent \$20,000 on deferred financing costs in conjunction with the terminated Bank of America lines of credit.

## Credit Facilities

At December 31, 2011, the Company had a Master Loan and Security Agreement and Revolving Credit Note with Susquehanna. The Company and its subsidiaries, GSE Power Systems, Inc., and GSE EnVision Inc., were jointly and severally liable as co-borrowers. The Loan Agreement provides a \$7.5 million revolving line of credit for the purpose of (i) issuing stand-by letters of credit and (ii) providing working capital. Working capital advances bear interest at a rate equal to the Wall Street Journal Prime Rate of Interest, floating with a floor of 4 ½%. The two-year agreement is to expire on November 1, 2013.

As collateral for the Company's obligations, the Company granted a first lien and security interest in all of the assets of the Company, including but not limited to, accounts receivable, inventory, proceeds and products, intangibles, trademarks, patents, intellectual property, machinery and equipment.

Initially, all (i) issuances of stand-by letters of credit and (ii) advances of working capital (collectively referred to as the "Advances") required that the Company maintain cash balances (the "Cash Balance Requirement") at the Bank in an amount equal to the Advances, with a minimum of \$3.0 million at all times. The Cash Balance Requirement was to be reduced to the minimum amount if the Company's consolidated net income after taxes (exclusive of (a) gains and losses on derivatives and (b) stock option expense), as defined ("Net Income"), was positive for the year ending December 31, 2011. Thereafter, the Cash Balance Requirement will remain at the minimum amount as long as the Company's quarterly Net Income commencing for the quarter ending March 31, 2012, remains positive and the Company is in compliance with the covenants. If the Company's quarterly Net Income, is negative or the Company is not in compliance with the covenants, the Cash Balance Requirement will revert to the amount of the Advances, until the Company attains positive Net Income for two consecutive quarters. The credit agreements contained certain restrictive covenants regarding future acquisitions, and incurrence of debt. In addition, the credit agreements contained financial covenants with respect to the Company's cash flow coverage ratio, minimum tangible capital base, quick ratio, and tangible capital base ratio. At December 31, 2011 and throughout all of 2011, the Company had not paid any interest or principal payments related to any borrowings for over one year. As such the cash flow coverage ratio is not applicable at December 31, 2011.

	Covenant	As of December 31, 2011
Minimum tangible capital base	Must Exceed \$26.0 million	\$31.3 million
Quick ratio	Must Exceed 2.00 : 1.00	2.71 : 1.00
Tangible capital base ratio	Not to Exceed .75 : 1.00	.64 : 1.00

As the Company's Net Income for the year ended December 31, 2011 was positive, the Company currently will only be required to maintain cash balances of \$3.0 million at the Bank. At December 31, 2011, the Company had \$200,000 in Advances, all of which consisted of outstanding stand-by letters of credit.

## Common Stock Offering

On September 4, 2009, the Company raised \$15.0 million through the sale of 2.5 million shares of its common stock, \$.01 par value per share. The shares were sold under a shelf registration statement which was declared effective by the Securities and Exchange Commission on August 21, 2009. On September 23, 2009, the Company raised an

additional \$2,250,000 when the Company's underwriter, exercised an over-allotment option in full to purchase an additional 375,000 shares of the Company's common stock at the public offering price of \$6.00 per share. The aggregate net proceeds received by the Company from the two transactions was approximately \$15.9 million. The Company paid the underwriter a fee in the amount of 6% of the gross proceeds received by the Company from the offering (\$1,035,000) and paid 339,000 in other transaction fees.

#### Contractual Cash Commitments

The following summarizes the Company's contractual cash obligations as of December 31, 2011, and the effect these obligations are expected to have on its liquidity and cash flow in future periods:



	Payments Due by Period				
	Total	(in thousands)			
		Less than 1	1-3 Years	4-5 Years	After 5
Contractual Cash Obligations		year			Years
Long Term Debt	\$ -	\$ -	\$ -	\$ -	\$ -
Subcontractor and Purchase					
Commitments	\$ 7,480	\$ 7,214	\$ 266	\$ -	\$ -
Net Future Minimum Lease					
Payments	\$ 4,145	\$ 917	\$ 1,301	\$ 987	\$ 940
Total	\$ 11,625	\$ 8,131	\$ 1,567	\$ 987	\$ 940

As of December 31, 2011, the Company was contingently liable for ten standby letters of credit and three surety bonds totaling \$5.6 million which represent bid and performance bonds on eight contracts. The Company has deposited the full value of eight standby letters of credit, \$4.2 million, in Certificates of Deposit, which have been restricted in that the Company does not have access to these funds until the related letter of credit has expired. The cash has been recorded on the Company's balance sheet at December 31, 2011 as restricted cash. An additional two letters of credit have been collateralized using the Company's line of credit.

At December 31, 2011, the Company has \$926,000 in a restricted, interest-bearing account at the Union National Bank ("UNB") in the United Arab Emirates as a partial guarantee for the \$11.8 million credit facility that UNB has extended to ESA. The Company established a full reserve against the restricted cash account as of December 31, 2010. Any interest income earned from this account in 2011 and 2010 was not recorded in interest income but was credited to the reserve balance. In 2011 and 2010, Union National Bank withdrew a total of \$78,000 and \$294,000, respectively from the account.

## 2012 Liquidity Outlook

At December 31, 2011, the Company had cash and cash equivalents of \$20.3 million and \$7.3 million available under its line of credit. In addition, the Company has \$4.4 million of restricted cash, and \$1.8 million of unrestricted certificates of deposit. The Company expects \$5.3 million of these certificates of deposit to mature and convert to cash during 2012. In November 2011 the Company entered into a Master Loan and Security Agreement and Revolving Credit Note with Susquehanna Bank ("Susquehanna"). The Loan Agreement provides a \$7.5 million revolving line of credit for the purpose of (i) issuing stand-by letters of credit and (ii) providing working capital. Working capital advances bear interest at a rate equal to the Wall Street Journal Prime Rate of Interest, floating with a floor of 4 ½%. The two year agreement is to expire on November 1, 2013. As the Company's Net Income for the year ended December 31, 2011 was positive, the Company currently will only be required to maintain cash balances of \$3.0 million at the Bank. At December 31, 2011, the Company had \$200,000 in Advances, all of which consisted of outstanding stand-by letters of credit.

The Company has entered into 2011 with \$51.5 million of backlog; \$35.3 million of which is expected to convert to revenue in 2012. The Company anticipates that its normal operations will generate all of the funds necessary to fund its consolidated operations during the next twelve months. The Company believes that it will have sufficient liquidity and working capital without additional financing. However, notwithstanding the foregoing, the Company may be required to look for additional capital to fund its operations if the Company is unable to operate profitably and generate sufficient cash from operations. There can be no assurance that the Company would be successful in raising such additional funds.



#### Foreign Exchange.

A portion of the Company's international sales revenue has been and may be received in a currency other than the currency in which the expenses relating to such revenue are paid. Accordingly, the Company periodically enters into forward foreign exchange contracts to manage the market risks associated with the fluctuations in foreign currency exchange rates.

#### Off-balance Sheet Obligations.

The Company has no off-balance sheet obligations as of December 31, 2011, except for its operating lease commitments and outstanding letters of credit and surety bonds. See Contractual Cash Commitments above.

#### New Accounting Standards.

In September 2011, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update No. 2011-08, Intangibles — Goodwill and Other (Topic 350) — Testing Goodwill for Impairment (“ASU 2011-08”), to allow entities to use a qualitative approach to test goodwill for impairment. ASU 2011-08 permits an entity to first perform a qualitative assessment to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. If it is concluded this is the case, it is necessary to perform the currently prescribed two-step goodwill impairment test. Otherwise, the two-step goodwill impairment test is not required. ASU 2011-08 is effective for the Company for interim and annual periods ended during 2012, with earlier application permitted. The Company does not expect its pending adoption of this guidance to have a material impact on the Company’s consolidated financial statements.

In May 2011, the FASB issued Accounting Standards Update No. 2011-04, Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and International Financial Reporting Standards (Topic 820) — Fair Value Measurement (“ASU 2011-04”), to provide a consistent definition of fair value and ensure that the fair value measurement and disclosure requirements are similar between U.S. generally accepted accounting principles and International Financial Reporting Standards. ASU 2011-04 changes certain fair value measurement principles and enhances the disclosure requirements particularly for Level 3 fair value measurements. ASU 2011-04 is effective for the Company for interim and annual periods ended during 2012 and will be applied prospectively. The Company does not expect its pending adoption of this guidance to have a material impact on the Company’s consolidated financial statements.

#### Other Matters.

Management believes inflation has not had a material impact on the Company's operations.

ITEM  
7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The Company's market risk is principally confined to changes in foreign currency exchange rates. During the year ended December 31, 2011, 44% of the Company's revenue was from contracts which required payments in a currency other than U.S. Dollars, principally Euros (13%), Japanese Yen (12%), British Pounds Sterling (12%), Chinese Renminbi (5%) and Swedish Krona (2%). For the years ended December 31, 2010 and 2008, 44% and 33%, respectively, of the Company's revenue was from contracts which required payments in a currency other than U.S. Dollars, principally Euros, Swedish Krona, British Pounds Sterling and Japanese Yen.

In addition, during the years ended December 31, 2011, 2010 and 2009, 18%, 13% and 13%, respectively, of the Company's expenses were incurred in Swedish Krona. The Company's exposure to foreign exchange rate fluctuations arises in part from inter-company accounts in which costs incurred in one entity are charged to other entities in different foreign jurisdictions. The Company is also exposed to foreign exchange rate fluctuations as the financial results of all foreign subsidiaries are translated into U.S. dollars in consolidation. As exchange rates vary, those results when translated may vary from expectations and adversely impact overall expected profitability.

The Company utilizes forward foreign currency exchange contracts to manage market risks associated with the fluctuations in foreign currency exchange rates. The principal currencies for which such forward exchange contracts are entered into are the Pound Sterling, the Euro and the Japanese Yen. It is the Company's policy to use such derivative financial instruments to protect against market risk arising in the normal course of business in order to reduce the impact of these exposures. The Company minimizes credit exposure by limiting counterparties to nationally recognized financial institutions.

As of December 31, 2011, the Company had foreign exchange contracts outstanding of approximately 3.1 million Pounds Sterling, 12.0 million Euro, and 383.5 million Japanese Yen at fixed rates. The contracts expire on various dates through May 2016. The Company had not designated the contracts as hedges and has recorded a gain on the change in the estimated fair value of the contracts of \$73,000 for the year ended December 31, 2011. The estimated fair value of the contracts was a net asset of \$169,000 at December 31, 2011. The Company recognized a loss of \$745,000 for the year ended December 31, 2010, and a gain of approximately \$851,000 for the year ended December 31, 2009, on the changes in fair value of its forward currency exchange contracts. A 10% fluctuation in the foreign currency exchange rates up or down as of December 31, 2011 would have increased/decreased the change in estimated fair value of the contracts by \$16,900.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.

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Report of Independent Registered Public Accounting Firm – Internal Control over Financial Reporting

The Board of Directors and Stockholders  
GSE Systems, Inc.:

We have audited GSE Systems, Inc. and subsidiaries' (the "Company") internal control over financial reporting as of December 31, 2011, based on criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting Item 9A(b). Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2011, based on criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of the Company as of December 31, 2011 and 2010 and the related consolidated statements of operations, comprehensive income (loss), changes in stockholders' equity and cash flows for each of the years in the three-year

period ended December 31, 2011, and our report dated March 8, 2012 expressed an unqualified opinion on those consolidated financial statements.

/s/ KPMG LLP

Baltimore, Maryland  
March 8, 2012

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Report of Independent Registered Public Accounting Firm – Consolidated Financial Statements

The Board of Directors and Stockholders  
GSE Systems, Inc.:

We have audited the accompanying consolidated balance sheets of GSE Systems, Inc. and subsidiaries as of December 31, 2011 and 2010, and the related consolidated statements of operations, comprehensive income (loss), changes in stockholders' equity and cash flows for each of the years in the three-year period ended December 31, 2011. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of GSE Systems, Inc. and subsidiaries as of December 31, 2011 and 2010, and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 2011 in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the Company's internal control over financial reporting as of December 31, 2011, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), and our report dated March 8, 2012 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

/s/ KPMG LLP

Baltimore, Maryland  
March 8, 2012



GSE SYSTEMS, INC. AND SUBSIDIARIES  
 CONSOLIDATED BALANCE SHEETS  
 (in thousands, except share data)

	December 31,	
ASSETS	2011	2010
Current assets:		
Cash and cash equivalents	\$ 20,326	\$ 26,577
Restricted cash	3,505	179
Contract receivables, net	20,356	17,201
Prepaid expenses and other current assets	3,733	1,992
Total current assets	47,920	45,949
Equipment and leasehold improvements	5,206	4,727
Accumulated depreciation	(4,105 )	(3,667 )
Equipment and leasehold improvements, net	1,101	1,060
Software development costs, net	1,815	1,790
Goodwill	4,462	2,609
Intangible assets, net	1,207	637
Long-term restricted cash	897	794
Other assets	1,413	775
Total assets	\$ 58,815	\$ 53,614
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
Current liabilities:		
Accounts payable	\$ 4,077	\$ 4,945
Accrued expenses	1,581	1,753
Accrued compensation and payroll taxes	2,754	2,053
Billings in excess of revenue earned	5,261	4,268
Accrued warranty	2,300	1,680
Other current liabilities	1,707	1,210
Total current liabilities	17,680	15,909
Other liabilities	2,352	799
Total liabilities	20,032	16,708
Commitments and contingencies		
	-	-
Stockholders' equity:		
Preferred stock \$.01 par value, 2,000,000 shares authorized, shares issued		
and outstanding none in 2011 and 2010	-	-
Common stock \$.01 par value, 30,000,000 shares authorized, shares issued		
19,254,681 in 2011 and 19,171,855 in 2010	193	192
Additional paid-in capital	70,167	69,298
Accumulated deficit	(29,063 )	(31,864 )
Accumulated other comprehensive loss	(865 )	(720 )

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Treasury stock at cost, 824,374 shares in 2011, none in 2010	(1,649 )	-
Total stockholders' equity	38,783	36,906
Total liabilities and stockholders' equity	\$ 58,815	\$ 53,614

The accompanying notes are an integral part of these consolidated financial statements.

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GSE SYSTEMS, INC. AND SUBSIDIARIES  
CONSOLIDATED STATEMENTS OF OPERATIONS  
(in thousands, except per share data)

	Years ended December 31,		
	2011	2010	2009
Contract revenue	\$51,126	\$47,213	\$40,060
Cost of revenue	34,781	36,081	29,736
Gross profit	16,345	11,132	10,324
Operating expenses			
Selling, general and administrative	12,672	11,683	7,749
ESA related charges	-	-	1,508
Depreciation	497	579	504
Amortization of definite-lived intangible assets	948	102	-
Total operating expenses	14,117	12,364	9,761
Operating income (loss)	2,228	(1,232 )	563
Interest income, net	131	19	56
ESA related charges	-	-	(865 )
Gain (loss) on derivative instruments, net	(68 )	(913 )	763
Other income (expense) , net	72	83	(397 )
Income (loss) before income taxes	2,363	(2,043 )	120
Provision (benefit) for income taxes	(438 )	206	917
Net income (loss)	\$2,801	\$(2,249 )	\$(797 )
Basic income (loss) per common share	\$0.15	\$(0.12 )	\$(0.05 )
Diluted income (loss) per common share	\$0.15	\$(0.12 )	\$(0.05 )

The accompanying notes are an integral part of these consolidated financial statements.

GSE SYSTEMS, INC. AND SUBSIDIARIES  
 CONSOLIDATED STATEMENTS OF COMPREHENSIVE  
 INCOME (LOSS)  
 (in thousands)

	Years ended December 31,		
	2011	2010	2009
Net income (loss)	\$ 2,801	\$ (2,249)	\$ (797 )
Foreign currency translation adjustment	(145 )	270	224
Comprehensive income (loss)	\$ 2,656	\$ (1,979)	\$ (573 )

The accompanying notes are an integral part of these consolidated financial statements.

GSE SYSTEMS, INC, AND SUBSIDIARIES  
CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY  
(in thousands)

	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Treasury Stock		Total
	Shares	Amount				Shares	Amount	
Balance, December 31, 2008	15,968	\$ 160	\$ 50,572	\$ (28,818)	\$ (1,214 )	-	\$ -	\$ 20,700
Stock-based compensation expense	-	-	906	-	-	-	-	906
Issuance of common stock	2,875	29	15,847	-	-	-	-	15,876
Common stock issued for options exercised	58	-	103	-	-	-	-	103
Common stock issued for warrants exercised	10	-	18	-	-	-	-	18
Common stock issued for services provided	19	-	113	-	-	-	-	113
Foreign currency translation adjustment	-	-	-	-	224	-	-	224
Net loss	-	-	-	(797 )	-	-	-	(797 )
Balance, December 31, 2009	18,930	\$ 189	\$ 67,559	\$ (29,615)	\$ (990 )	-	\$ -	\$ 37,143
Stock-based compensation expense	-	-	807	-	-	-	-	807
Common stock issued for options exercised	57	2	95	-	-	-	-	97
Common stock issued for warrants exercised	45	-	79	-	-	-	-	79
	17	-	76	-	-	-	-	76

Common stock issued for services provided								
Common stock issued for TAS acquisition	123	1	682	-	-	-	-	683
Foreign currency translation adjustment	-	-	-	-	270	-	-	270
Net loss	-	-	-	(2,249 )	-	-	-	(2,249 )
Balance, December 31, 2010	19,172	\$ 192	\$ 69,298	\$ (31,864)	\$ (720 )	-	\$ -	\$ 36,906
Stock-based compensation expense	-	-	727	-	-	-	-	727
Common stock issued for options exercised	77	1	132	-	-	-	-	133
Common stock issued for warrants exercised	6	-	10	-	-	-	-	10
Foreign currency translation adjustment	-	-	-	-	(145 )	-	-	(145 )
Treasury stock at cost	-	-	-	-	-	(824 )	(1,649)	(1,649)
Net income	-	-	-	2,801	-	-	-	2,801
Balance, December 31, 2011	19,255	\$ 193	\$ 70,167	\$ (29,063)	\$ (865 )	(824 )	\$ (1,649)	\$ 38,783

The accompanying notes are an integral part of these consolidated financial statements.

GSE SYSTEMS, INC. AND SUBSIDIARIES  
CONSOLIDATED STATEMENTS OF CASH FLOWS  
(in thousands)

	Years ended December 31,		
	2011	2010	2009
Cash flows from operating activities:			
Net income (loss)	\$ 2,801	\$ (2,249 )	\$ (797 )
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation	497	579	504
Amortization of definite-lived intangible assets	948	102	-
Capitalized software amortization	813	978	483
Amortization of deferred financing costs	2	92	46
Change in fair value of contingent consideration	(322 )	147	-
Stock-based compensation expense	727	883	1,019
Equity loss on investment in GSE-UNIS Simulation Technology Co. Ltd.	41	13	-
Amortization of deferred profit on Emirates Simulation Academy, LLC contract	-	-	(724 )
Equity loss on investment in Emirates Simulation Academy, LLC	-	-	732
Reserve on cash collateral for Emirates Simulation Academy, LLC line of credit	-	-	1,291
(Gain)/loss on derivative instruments	68	913	(763 )
Changes in assets and liabilities:			
Contract receivables	(2,099 )	(903 )	(5,100 )
Prepaid expenses and other assets	(1,494 )	(922 )	155
Accounts payable, accrued compensation and accrued expenses	(855 )	932	4,148
Billings in excess of revenues earned	856	1,669	(1,421 )
Accrued warranty reserves	620	407	207
Other liabilities	(1,035 )	(209 )	546
Net cash provided by operating activities	1,568	2,432	326
Cash flows from investing activities:			
Capital expenditures	(520 )	(519 )	(361 )
Capitalized software development costs	(838 )	(903 )	(861 )
Investment in GSE-UNIS Simulation Technology Co. Ltd.	(456 )	(587 )	-
Acquisitions, net of cash acquired	(830 )	(549 )	-
Restrictions of cash as collateral under letters of credit	(5,668 )	-	(2,542 )
Release of cash as collateral under letters of credit	1,717	1,135	5,026
Drawdown of cash collateral on Emirates Simulation Academy, LLC line of credit	(78 )	(294 )	-

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Proceeds from sale/leaseback transaction	-	377	-
Investment in Emirates Simulation Academy, LLC	-	-	(14 )
Net cash provided by (used in) investing activities	(6,673 )	(1,340 )	1,248
Cash flows from financing activities:			
Proceeds from issuance of common stock	143	176	15,997
Treasury stock purchases	(1,649 )	-	-
Payments of the liability-classified contingent consideration arrangements	(167 )	-	-
Release (restriction) of cash for credit facility collateral	600	-	(600 )
Deferred financing costs	(24 )	(82 )	(20 )
Net cash provided by (used in) financing activities	(1,097 )	94	15,377
Effect of exchange rate changes on cash	(49 )	121	45
Net increase (decrease) in cash and cash equivalents	(6,251 )	1,307	16,996
Cash and cash equivalents at beginning of year	26,577	25,270	8,274
Cash and cash equivalents at end of period	\$ 20,326	\$ 26,577	\$ 25,270
Supplemental cash flow disclosures			
Non-cash financing activities			
Issuance of 122,617 shares of common stock to acquire TAS Holdings Ltd.	\$ -	\$ 683	\$ -

The accompanying notes are an integral part of these consolidated financial statements.



GSE SYSTEMS, INC. AND SUBSIDIARIES  
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS  
December 31, 2011, 2010, and 2009

1. Business and Basis of Presentation

GSE Systems, Inc. ("GSE Systems", "GSE" or the "Company") provides training simulators and educational solutions to the energy, process, manufacturing and government sectors.

The Company's operations are subject to certain risks and uncertainties including, among others, rapid technological changes, success of the Company's product development, marketing and distribution strategies, the need to manage growth, the need to retain key personnel and protect intellectual property, and the availability of additional financing on terms acceptable to the Company.

2. Summary of Significant Accounting Policies

Principles of consolidation

The accompanying consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries. All intercompany balances and transactions have been eliminated.

Accounting estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. On an ongoing basis, the Company evaluates the estimates used, including but not limited to those related to revenue recognition, the allowance for doubtful accounts receivable, estimates of future warranty costs, impairments of goodwill and other intangible assets, valuation of intangible assets acquired and contingent consideration to be paid in business acquisitions, and income taxes. Actual results could differ from these estimates.

## Revenue recognition

The majority of the Company's revenue is derived through the sale of uniquely designed systems containing hardware, software and other materials under fixed-price contracts. In accordance with U.S. generally accepted accounting principles, the revenue under these fixed-price contracts is accounted for on the percentage-of-completion method. This methodology recognizes revenue and earnings as work progresses on the contract and is based on an estimate of the revenue and earnings earned to date, less amounts recognized in prior periods. The Company bases its estimate of the degree of completion of the contract by reviewing the relationship of costs incurred to date to the expected total costs that will be incurred on the project. Estimated contract earnings are reviewed and revised periodically as the work progresses, and the cumulative effect of any change in estimate is recognized in the period in which the change is identified. Estimated losses are charged against earnings in the period such losses are identified. The Company recognizes revenue arising from contract claims either as income or as an offset against a potential loss only when the amount of the claim can be estimated reliably and realization is probable and there is a legal basis of the claim.

As the Company recognizes revenue under the percentage-of-completion method, it provides an accrual for estimated future warranty costs based on historical and projected claims experience. The Company's long-term contracts generally provide for a one-year warranty on parts, labor and any bug fixes as it relates to software embedded in the systems.

The Company's system design contracts do not normally provide for "post customer support service" (PCS) in terms of software upgrades, software enhancements or telephone support. In order to obtain PCS, the customers must normally purchase a separate contract. Such PCS arrangements are generally for a one-year period renewable annually and include customer support, unspecified software upgrades, and maintenance releases. The Company recognizes revenue from these contracts ratably over the life of the agreements.

Revenue from the sale of software licenses which do not require significant modifications or customization for the Company's modeling tools are recognized when the license agreement is signed, the license fee is fixed and determinable, delivery has occurred, and collection is considered probable.

Revenue for contracts with multiple elements is recognized in accordance with ASC 605-25 Revenue Recognition-Multiple Element Arrangements.

Revenues from certain consulting contracts are recognized on a time-and-material basis. For time-and-material type contracts, revenue is recognized based on hours incurred at a contracted labor rate plus expenses.

## Cash and cash equivalents

Cash and cash equivalents consist of cash on hand and highly liquid investments with maturities of three months or less at the date of purchase.

The Company had \$8.2 million deposited in a money market account with Susquehanna Bank on December 31, 2011. The Company had \$17.0 million deposited in a money market account with Bank of America on December 31, 2010. There were no other cash equivalents.

## Contract receivables

Contract receivables include recoverable costs and accrued profit not billed which represents revenue recognized in excess of amounts billed. The liability "Billings in excess of revenue earned" represents billings in excess of revenue

recognized.

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Billed receivables are recorded at invoiced amounts. The allowance for doubtful accounts is based on historical trends of past due accounts, write-offs, and specific identification and review of past due accounts. The activity in the allowance for doubtful accounts is as follows:

(in thousands)	As of and for the		
	Years ended December 31,		
	2011	2010	2009
Beginning balance	\$ 2,040	\$ 1,746	\$ 2
Current year provision	(230)	294	1,744
Current year write-offs	(1,674)	-	-
Ending balance	\$ 136	\$ 2,040	\$ 1,746

At a meeting of Emirates Simulation Academy, LLC's ("ESA") three shareholders held at ESA on February 17, 2010, in response to ESA's deteriorating financial condition, the shareholders reached agreement to significantly reduce costs and begin to explore options up to and including the selling of ESA. Accordingly, the Company increased its allowance for doubtful accounts by \$1.6 million for the outstanding trade receivable from ESA as of December 31, 2010. In 2011, the balance related to ESA was written off.

#### Equipment and leasehold improvements, net

Equipment is recorded at cost and depreciated using the straight-line method with estimated useful lives ranging from three to ten years. Leasehold improvements are amortized over the life of the lease or the estimated useful life, whichever is shorter, using the straight-line method. Upon sale or retirement, the cost and related depreciation are eliminated from the respective accounts and any resulting gain or loss is included in operations. Maintenance and repairs are charged to expense as incurred.

#### Software development costs

Certain computer software development costs are capitalized in the accompanying consolidated balance sheets in accordance with U.S. generally accepted accounting principles. Capitalization of computer software development costs begins upon the establishment of technological feasibility. Capitalization ceases and amortization of capitalized costs begins when the software product is commercially available for general release to customers. Amortization of capitalized computer software development costs is included in cost of revenue and is determined using the straight-line method over the remaining estimated economic life of the product, not to exceed three years.



#### Development expenditures

Development expenditures incurred to meet customer specifications under contracts are charged to contract costs. Company sponsored development expenditures are charged to operations as incurred and are included in selling, general and administrative expenses. The amounts incurred for Company sponsored development activities relating to the development of new products and services or the improvement of existing products and services, were approximately \$1.8 million, \$1.6 million, and \$1.3 million, for the years ended December 31, 2011, 2010, and 2009, respectively. Certain of these expenditures were capitalized as software development costs. See Note 8, Software development costs.

#### Impairment of long-lived assets

Long-lived assets, such as property, plant, and equipment, capitalized computer software costs subject to amortization, and intangibles subject to amortization, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, an impairment charge is recognized at the amount by which the carrying amount of the asset exceeds the fair value of the asset. Assets to be disposed of would be separately presented in the balance sheet and reported at the lower of the carrying amount or fair value less costs to sell, and would no longer be depreciated.

#### Goodwill and Intangible Assets

The Company's intangible assets include amounts recognized in connection with business acquisitions, including customer relationships, contract backlog and software. Intangible assets are initially valued at fair market value using generally accepted valuation methods appropriate for the type of intangible asset. Amortization is recognized on a straight-line basis over the estimated useful life of the intangible assets, except for contract backlog and contractual customer relationships which are recognized in proportion to the related projected revenue streams. Intangible assets with definite lives are reviewed for impairment if indicators of impairment arise. Except for goodwill, the Company does not have any intangible assets with indefinite useful lives.

Goodwill represents the excess of costs over fair value of assets of businesses acquired. The Company reviews its goodwill annually, on November 30, for impairment, or more frequently if events and circumstances indicate that the asset might be impaired. An impairment loss is recognized to the extent that the carrying amount exceeds the asset's fair value. For goodwill, the impairment determination is made at the reporting unit level and consists of two steps. First, the Company determines the fair value of a reporting unit and compares it to its carrying amount. Second, if the carrying amount of a reporting unit exceeds its fair value, an impairment loss is recognized for any excess of the carrying amount of the reporting unit's goodwill over the implied fair value of that goodwill. The implied fair value of goodwill is determined by allocating the fair value of the reporting unit in a manner similar to a purchase price allocation. The residual fair value after this allocation is the implied fair value of the reporting unit goodwill. No impairment losses were recognized in 2011, 2010 or 2009.

## Foreign currency translation

Balance sheet accounts for foreign operations are translated at the exchange rate as of the balance sheet date, and income statement accounts are translated at the average exchange rate for the period. The resulting translation adjustments are included in accumulated other comprehensive income (loss). Transaction gains and losses, resulting from changes in exchange rates, are recorded in operating income in the period in which they occur. For the years ended December 31, 2011, 2010, and 2009, foreign currency transaction gains (losses) were approximately \$(136,000), \$(297,000), and \$130,000, respectively.

## Warranty

As the Company recognizes revenue under the percentage-of-completion method, it provides an accrual for estimated future warranty costs based on historical experience and projected claims. The activity in the warranty accounts is as follows:

(in thousands)	As of and for the		
	Years ended December 31,		
	2011	2010	2009
Beginning balance	\$ 1,680	\$ 1,273	\$ 1,065
Current year provision	987	718	605
Current year claims	(352 )	(330 )	(407 )
Currency adjustment	(15 )	19	10
Ending balance	\$ 2,300	\$ 1,680	\$ 1,273

## Income taxes

Income taxes are provided under the asset and liability method. Under this method, deferred income taxes are determined based on the differences between the financial statement and tax bases of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. Valuation allowances are established, when necessary, to reduce deferred tax assets to the amounts expected to be realized. A provision is made for the Company's current liability for federal, state and foreign income taxes and the change in the Company's deferred income tax assets and liabilities.

## Stock-based compensation

Compensation expense related to share based awards is recognized on a pro rata straight-line basis based on the value of share awards that are scheduled to vest during the requisite service period. During the twelve months ended December 31, 2011, 2010, and 2009 the Company recognized \$727,000, \$807,000 and \$906,000, respectively, of pre-tax stock-based compensation expense under the fair value method. As of December 31, 2011, the Company had \$1.7 million of unrecognized compensation expense related to the unvested portion of outstanding stock option

awards expected to be recognized through November 2016.

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## Income (Loss) per share

Basic income (loss) per share is based on the weighted average number of outstanding common shares for the period. Diluted income (loss) per share adjusts the weighted average shares outstanding for the potential dilution that could occur if stock options, or warrants were exercised. The number of common shares and common share equivalents used in the determination of basic and diluted income (loss) per share was as follows:

(in thousands, except for share and per share amounts)

	2011	Years ended December 31,	
		2010	2009
Numerator:			
Net income (loss) attributed to common stockholders	\$ 2,801	\$ (2,249 )	\$ (797 )
Denominator:			
Weighted-average shares outstanding for basic earnings per share	18,952,401	18,975,007	16,938,392
Effect of dilutive securities:			
Employee stock options and warrants	170,502	-	-
Adjusted weighted-average shares outstanding and assumed conversions for diluted earnings per share	19,122,903	18,975,007	16,938,392
Shares related to dilutive securities excluded because inclusion would be anti-dilutive	1,701,794	1,679,907	1,791,757

[ Conversion of outstanding stock options and warrants was not assumed for the years ended December 31, 2010 and 2009 because the impact was anti-dilutive. Included in the shares related to dilutive securities excluded from the diluted earnings per share calculation for the years ended December 31, 2010 and 2009, respectively, were in the money options and warrants totaling 518,546 shares and 641,631 shares, respectively.

## Concentration of credit risk

The Company is subject to concentration of credit risk with respect to contract receivables. Credit risk on contract receivables is mitigated by the nature of the Company's worldwide customer base and its credit policies. The Company's customers are not concentrated in any specific geographic region, but are concentrated in the energy industry. The following customers have provided more than 10% of the Company's revenue for the indicated period:

	Years ended December 31,		
	2011	2010	2009
Slovenské elektrárne, a.s.	10.0 %	22.0 %	13.5 %
Emerson Process Management	6.8 %	11.1 %	12.1 %
Titan-2 Concern	0.6 %	5.0 %	10.7 %

## Fair values of financial instruments

The carrying amounts of current assets and current liabilities reported in the consolidated balance sheets approximate fair value due to their short term duration.

## Deferred financing fees

The Company amortizes the cost incurred to obtain debt financing using the straight-line method over the term of the underlying obligations. The amortization of deferred financing costs is included in interest expense. Deferred financing costs are classified within other assets in the consolidated balance sheets.

Derivative instruments

The Company utilizes forward foreign currency exchange contracts to manage market risks associated with the fluctuations in foreign currency exchange rates. It is the Company's policy to use such derivative financial instruments to protect against market risk arising in the normal course of business in order to reduce the impact of these exposures. The Company minimizes credit exposure by limiting counterparties to nationally recognized financial institutions.

As of December 31, 2011, the Company had foreign exchange contracts outstanding of approximately 3.1 million Pounds Sterling, 12.0 million Euro, and 383.5 million Japanese Yen at fixed rates. At December 31, 2010, the Company had foreign exchange contracts outstanding of approximately 1.6 million Pounds Sterling, 10.6 million Euro, and 865.2 million Japanese Yen at fixed rates. The contracts expire on various dates through May 2016. The Company had not designated the foreign exchange contracts as hedges and had recorded the estimated fair value of the contracts in the consolidated balance sheet as follows:

(in thousands)	December 31,	
	2011	2010
Asset derivatives		
Prepaid expenses and other current assets	\$ 393	\$ 208
Other assets	90	117
	483	325
Liability derivatives		
Other current liabilities	(258 )	(204 )
Other liabilities	(56 )	(40 )
	(314 )	(244 )
Net fair value	\$ 169	\$ 81

The changes in the fair value of the foreign exchange contracts are included in gain (loss) on derivative instruments in the consolidated statement of operations.

The foreign currency denominated trade receivables, unbilled receivables, billings in excess of revenue earned and subcontractor accruals that are related to the outstanding foreign exchange contracts are remeasured at the end of each period into the functional currency using the current exchange rate at the end of the period. The gain or loss resulting from such remeasurement is also included in gain (loss) on derivative instruments in the consolidated statement of operations.

For the years ended December 31, 2011, 2010 and 2009, the Company recognized a net gain (loss) on its derivative instruments as outlined below:

(in thousands)	Years ended December 31,		
	2011	2010	2009
Foreign exchange contracts- change in fair value	\$ 73	\$ (745 )	\$ 851

Remeasurement of related contract receivables and billings in excess of revenue earned	(141 )	(168 )	(88 )
	\$ (68 )	\$ (913 )	\$ 763

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### New accounting standards

In September 2011, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update No. 2011-08, Intangibles — Goodwill and Other (Topic 350) — Testing Goodwill for Impairment (“ASU 2011-08”), to allow entities to use a qualitative approach to test goodwill for impairment. ASU 2011-08 permits an entity to first perform a qualitative assessment to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. If it is concluded this is the case, it is necessary to perform the currently prescribed two-step goodwill impairment test. Otherwise, the two-step goodwill impairment test is not required. ASU 2011-08 is effective for the Company for interim and annual periods ended during 2012, with earlier application permitted. The Company does not expect its pending adoption of this guidance to have a material impact on the Company’s consolidated financial statements.

In May 2011, the FASB issued Accounting Standards Update No. 2011-04, Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and International Financial Reporting Standards (Topic 820) — Fair Value Measurement (“ASU 2011-04”), to provide a consistent definition of fair value and ensure that the fair value measurement and disclosure requirements are similar between U.S. generally accepted accounting principles (“GAAP”) and International Financial Reporting Standards. ASU 2011-04 changes certain fair value measurement principles and enhances the disclosure requirements particularly for Level 3 fair value measurements. ASU 2011-04 is effective for the Company for interim and annual periods ended during 2012 and will be applied prospectively. The Company does not expect its pending adoption of this guidance to have a material impact on the Company’s consolidated financial statements.

### 3. Acquisition

#### EnVision Systems, Inc.

On January 4, 2011, (the “Closing Date”) the Company completed the acquisition of all outstanding common stock of EnVision Systems, Inc. (“EnVision”), acquiring 100% ownership in EnVision. EnVision is headquartered in Madison, NJ and has an Indian subsidiary based in Chennai, India. EnVision’s tutorials and simulation models serve the entry-level training market for the oil & gas, refining, and specialty chemicals industries. EnVision operates as a wholly-owned subsidiary of GSE and has been re-named GSE Envision, Inc. On the Closing Date, GSE paid \$1.2 million in cash to the shareholders of EnVision. In addition, if EnVision attains certain revenue targets for the four year period ending December 31, 2014, the shareholders of EnVision could receive up to an additional \$3.0 million payable over four years.

On the first anniversary of the Closing Date, the EnVision shareholders are entitled to receive \$550,000. On the second, third and fourth anniversaries, EnVision shareholders are entitled to receive \$500,000. These payments are contingent upon EnVision meeting or exceeding certain revenue targets during those periods, as defined in the purchase agreement. The EnVision shareholders are also entitled to the amount by which the aggregate payments received by the Company from Shell Global Solutions International, B.V. (“Shell”) after the Closing Date and prior to March 31, 2014 exceed \$3.0 million, provided that the amount payable to the EnVision shareholders will not exceed \$1.0 million. At December 31, 2011, the Company has accrued approximately \$310,000 and \$2.0 million of short term and long term contingent consideration, respectively, based on its estimate of the fair value of the potential contingent consideration payable to the EnVision shareholders.

EnVision’s shareholders are entitled to receive an amount equal to 30% of the cash collected prior to March 31, 2013 from the billed receivables which were included on the Closing Date balance sheet related to Shell. Seventy percent of the cash collected prior to March 31, 2013 relating to the recoverable costs and accrued profit not billed amounts which appeared on the Closing Date balance sheet will be paid to the EnVision shareholders. Payments to the EnVision shareholders for cash collections relating to the billed receivables and recoverable costs and accrued profit

not billed amounts will occur in three yearly payments ending in 2013. EnVision shareholders could receive up to approximately \$687,000 of the trade receivables and recoverable costs and accrued profit not billed amounts included on the Closing Date balance sheet, contingent on the collection of cash. In the second quarter of 2011, the Company made payments of \$74,000 to EnVision's shareholders related to billed receivables included on the Closing Date balance sheet.

At Closing, the EnVision shareholders were entitled to receive all the cash of the business except for \$400,000. Additionally, the EnVision shareholders were credited for any prepaid expenses and assumed any existing liabilities from the Closing Date balance sheet. Based on the Closing Date balance sheet, a \$109,000 payment was made to the EnVision shareholders in the second quarter of 2011.

Of the \$4.0 million gross purchase price, the Company accrued approximately \$2.0 million of contingent consideration based on its estimate of the fair value of the potential contingent consideration payable to the EnVision shareholders for the four year period ending December 31, 2014. The Company will estimate the fair value of the recorded amount of contingent consideration on a quarterly basis and any subsequent adjustments based on actual payments or revised estimates are recognized in the selling, general, and administrative expenses of the consolidated statement of operations during the period of adjustment. The contingent consideration is valued using significant inputs that are not observable in the market which are defined as Level 3 inputs pursuant to fair value measurement accounting.

The estimated fair value of the purchase price recorded by the Company consisted of the following (in thousands):

Cash paid at closing	\$ 1,200
Present value of estimated future payments	1,998
Payable to EnVision Shareholders - contracts receivable	687
Working capital retained by EnVision Shareholders - cash	109
Total estimated purchase price	\$ 3,994

The Company's purchase price allocation for the net assets acquired was as follows (in thousands):

January 4, 2011 (unaudited)	
Cash	\$ 553
Contract receivables	1,124
Prepaid expenses and other current assets	62
Property, plant and equipment, net	22
Receivable from EnVision shareholders	321
Intangible assets	1,509
Goodwill	1,854
Total assets acquired	5,445
Accounts payable, accrued expenses and other liabilities	429
Billings in excess of revenue earned	46
Deferred tax liability	976
Total liabilities assumed	1,451
Net assets acquired	\$ 3,994

The Company recorded intangible assets as a result of the acquisition. Contractual customer relationships acquired totaled \$438,000 and are being amortized in proportion to the projected revenue streams of the related contracts over three years. Non-contractual customer relationships acquired totaled \$433,000 and are being amortized in proportion to the projected revenue streams of the related relationships over eight years. The Company acquired intangible assets of \$471,000 related to developed technology which are being amortized using the straight line method over an eight year period. The Company also acquired \$152,000 of in-process research and development intangible assets which are being amortized over eight years in proportion to the projected revenue streams of the related in-process research and development. Additionally, \$15,000 related to domain names and other marketing related intangibles were obtained and are being amortized using the straight line method over an estimated useful life of three years. The intangible assets and accrued contingent consideration for EnVision were recorded at estimated fair value.

EnVision's results of operations are included in the consolidated financial statements for the period beginning January 4, 2011.

Pro forma results. Our consolidated financial statements include the operating results of EnVision as of the date of acquisition. For the twelve months ended December 31, 2011 and 2010, the unaudited pro forma financial information below assumes that our material business acquisition of EnVision occurred on January 1, 2010.

(in thousands except per share data)	(unaudited)	
	Twelve Months ended December 31,	
Pro forma financial information including the acquisition of EnVision	2011	2010
Revenue	\$ 51,126	\$ 50,410
Operating income (loss)	2,590	(708)
Net income (loss)	3,163	(1,711)
Earnings (loss) per common share — basic	\$ 0.17	\$ (0.09)
Earnings (loss) per common share — basic	\$ 0.17	\$ (0.09)

#### TAS Holdings Ltd.

Effective April 26, 2010, GSE Systems Inc., through its wholly owned subsidiary GSE Systems, Ltd. ("GSE UK"), completed the acquisition of TAS Holdings Ltd. ("TAS"), a provider of engineering consulting, specializing in electrical system design, instrumentation and controls engineering and automation engineering. GSE UK acquired 100% of the outstanding common stock of TAS. The purchase price for the common stock of TAS was equal to (i) the consolidated net asset value of TAS as of April 26, 2010, approximately \$600,000, and (ii) four times the adjusted consolidated pre-tax income of TAS for the year ended September 30, 2009, approximately \$1.7 million (the "Adjusted Profit Consideration"), for a total of approximately \$2.3 million in cash, GSE Systems, Inc. common stock and contingent consideration.

Approximately \$500,000 of the consolidated net asset value was paid on the closing date and the remaining \$100,000 of the consolidated net asset value was paid during the third quarter 2010. On the closing date, the TAS Shareholders were entitled to receive approximately \$683,000 (40% of the Adjusted Profit Consideration) payable in GSE common stock. Based upon the formula agreed to by the parties, the TAS Shareholders received 122,617 shares of GSE common stock.

During 2011, the Company paid the TAS Shareholders \$167,000 based on the results of TAS for the nine month period ending December 31, 2010. The Company has accrued approximately \$70,000 at December 31, 2011 to satisfy all remaining obligations under the purchase agreement. The Company recorded a \$677,000 reduction in the fair value of the contingent consideration related to the TAS purchase agreement during 2011. This adjustment is recognized in the selling, general, and administrative expenses of the consolidated statement of operations.



On April 26, 2010, the Company recorded intangible assets as a result of the acquisition, totaling \$735,000. These intangible assets included contractual and non-contractual customer relationships, customer backlog, trademarks, domain names, and other marketing related intangibles. These assets are being amortized over an estimated useful life of one to ten years. In 2011, the Company accelerated the amortization related to one of their contractual customer relationships due to the completion of TAS's contract with the customer. The Company recognized approximately \$116,000 of additional amortization as a result of this acceleration during 2011.

TAS' results of operations are included in the consolidated financial statements for the period beginning April 26, 2010.

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## 4. Goodwill and Other Intangible Assets

## Goodwill

Changes in the carrying amount of goodwill for the years ended December 31, 2011 and 2010 were as follows (in thousands):

Net book value at December 31, 2009	\$	1,739
2010 Activity		
Acquisitions		865
Foreign currency translation		5
Net book value at December 31, 2010		2,609
2011 Activity		
Acquisitions		1,854
Foreign currency translation		(1)
Net book value at December 31, 2011	\$	4,462

## Intangible Assets Subject to Amortization

As part of the Company's acquisition of TAS in 2010, the Company recorded intangible assets totaling approximately \$735,000 with estimated lives of one to ten years. The Company also recorded intangible assets of \$1.5 million with estimated lives of three to eight years as part of the EnVision acquisition in 2011.

The following table shows the gross carrying amount and accumulated amortization of definite-lived intangibles related to continuing operations:

(in thousands)	As of December 31, 2011		
	Gross Carrying Amount	Accumulated Amortization	Net
Amortized intangible assets:			
Customer relationships	\$ 646	\$ (545 )	\$ 102
Non-contractual customer relationships	911	(305 )	609
Developed technology	471	(59 )	412
In process research and development	152	(84 )	68
Contract backlog	36	(36 )	-
Trade names and other	29	(13 )	16
Foreign currency translation	12	(8 )	-
Total	\$ 2,257	\$ (1,050 )	\$ 1,207

	As of December 31, 2010		
	Gross Carrying Amount	Accumulated Amortization	Net
Amortized intangible assets:			
Customer relationships	208	(43 )	\$ 166
Non-contractual customer relationships	478	(32 )	449
Contract backlog	35	(24 )	12
Trade names and other	14	(3 )	10
Foreign currency translation	4	-	(4 )
Total	\$ 739	\$ (102 )	\$ 637

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Amortization is recognized on a straight-line basis over the estimated useful life of the intangible assets, except for contractual customer relationships and contract backlog, which is recognized in proportion to the related projected revenue streams. In 2011, the Company accelerated the amortization expense related to one of TAS' customer relationships due to the completion of TAS' contract with the customer. The acceleration resulted in an additional \$116,000 of amortization expense in 2011. The Company reviews specific definite-lived intangibles for impairment when events occur that may impact their value in accordance with the respective accounting guidance for long-lived assets. There were no impairment charges recorded for the years ended December 31, 2011, 2010, and 2009.

Amortization expense related to definite-lived intangible assets totaled \$948,000 and \$102,000 for the years ended December 31, 2011 and 2010, respectively. The following table shows the estimated amortization expense of the definite-lived intangible assets for the next five years and thereafter:

(in thousands)		
Fiscal year ending:		
2012	\$	(312)
2013		(207)
2014		(140)
2015		(128)
2016		(121)
Thereafter		(299)
	\$	(1,207)

## 5. Contract Receivables

Contract receivables represent balances due from a broad base of both domestic and international customers. All contract receivables are considered to be collectible within twelve months. Recoverable costs and accrued profit not billed represent costs incurred and associated profit accrued on contracts that will become billable upon future milestones or completion of contracts. The components of contract receivables are as follows:

(in thousands)		December 31,	
		2011	2010
Billed receivables	\$	8,258	\$ 7,733
Recoverable costs and accrued profit not billed		12,234	11,508
Allowance for doubtful accounts		(136 )	(2,040 )
Total contract receivables, net	\$	20,356	\$ 17,201

## 6. Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets consist of the following:

(in thousands)	December 31,	
	2011	2010
Prepaid expenses	\$ 671	\$ 416
Employee advances	50	96
Deferred income taxes- current	127	35
Value added tax receivable	-	718
Unrestricted certificates of deposit	1,768	-
Other current assets	1,117	727
Total	\$ 3,733	\$ 1,992

## 7. Equipment and Leasehold Improvements

Equipment and leasehold improvements consist of the following:

(in thousands)	December 31,	
	2011	2010
Computer equipment	\$ 3,835	\$ 3,446
Leasehold improvements	181	533
Furniture and fixtures	1,190	748
	5,206	4,727
Accumulated depreciation	(4,105 )	(3,667)
Equipment and leasehold improvements, net	\$ 1,101	\$ 1,060

Depreciation expense was \$497,000, \$597,000, and \$504,000 for the years ended December 31, 2011, 2010, and 2009, respectively.

## 8. Software Development Costs

Software development costs, net, consist of the following:

(in thousands)	December 31,	
	2011	2010
Capitalized software development costs	\$ 3,226	\$ 2,594
Accumulated amortization	(1,411 )	(804 )
Software development costs, net	\$ 1,815	\$ 1,790

Software development costs capitalized were \$838,000, \$903,000, and \$861,000 for the years ended December 31, 2011, 2010, and 2009, respectively. Amortization of software development costs capitalized was \$813,000, \$978,000, and \$483,000, for the years ended December 31, 2011, 2010, and 2009, respectively, and was

included in cost of revenue. In the fourth quarter of 2010, the Company wrote off the remaining capitalized value of four generic training simulators totaling \$317,000.

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#### 9. Investment in Emirates Simulation Academy, LLC

On November 8, 2005, the Emirates Simulation Academy, LLC (“ESA”), headquartered in Abu Dhabi, United Arab Emirates, was formed to build and operate simulation training academies in the Arab Gulf Region. The members of the limited liability company include Al Qudra Holding PJSC of the United Arab Emirates (60% ownership), the Centre of Excellence for Applied Research and Training of the United Arab Emirates (30% ownership) and GSE (10% ownership). The Company accounted for its investment in ESA using the equity method. For the year ended December 31, 2009, the Company recognized a \$615,000 equity loss on its investment in ESA. The equity loss was recorded in other income (expense), net.

In January 2006, GSE received a \$15.1 million contract from ESA (the “ESA Contract”) to supply five simulators and an integrated training program. The Company received change orders totaling \$1.8 million from ESA which increased the total order value to \$16.9 million. In accordance with the equity method of accounting, the Company eliminated 10% of the profit from the ESA Contract as the training simulators were assets that had been recorded on the books of ESA, and the Company was thus required to eliminate its proportionate share of the profit included in the asset value. ESA assigned a four year life to the simulators and began to amortize the training simulators on their books effective January 1, 2009. Accordingly, on January 1, 2009, GSE began to amortize the deferred profit to other income over a four year period, recognizing income of \$181,000 in the year ended December 31, 2009.

The Company has provided a partial guarantee of 10% of ESA’s credit facility with Union National Bank (“UNB”); \$1.2 million was deposited into a restricted interest-bearing account with UNB in 2006. The interest earned on the restricted cash is part of the pledged deposit.

At December 31, 2010, ESA had borrowed a total of AED 36.4 million (\$9.9 million) from its credit facility with UNB, including accrued interest payable. ESA was delinquent in paying both principal and interest (a total of AED 5.3 million or \$1.5 million) and in January 2010, UNB drew upon the guarantees of the three partners to pay off the delinquency, withdrawing \$145,000 from GSE’s restricted cash account. In February 2010, GSE was notified that ESA had missed another loan payment and that 10% of the amount due (\$24,000) would be withdrawn from the Company’s restricted cash account.

At a meeting of ESA’s three shareholders held at ESA on February 17, 2010, the shareholders reached agreement to significantly reduce costs and begin to explore options up to and including the selling of ESA.

Accordingly, based upon these events, the Company determined that its remaining investment in ESA at December 31, 2009 was impaired and established reserves for the \$1.6 million trade receivable due from ESA at December 31, 2009 and for the cash that GSE has on deposit with UNB as a partial guarantee for ESA's credit facility. Partially offsetting these charges was the reversal of the remaining deferred profit related to the Company's sale of five simulators to ESA in prior years and the remaining agent fee that was due upon payment of the final outstanding receivable. The charges recorded and the presentation in the statement of operations for the year ended December 31, 2009 were as follows:

(in thousands)	Year ended December 31, 2009
Trade receivable	\$ 1,604
Accrued agent fee	(96 )
Operating expense	1,508
Restricted cash- bank guarantee and accrued interest income	1,291
Investment in ESA	117
Deferred profit	(543 )
Other expense, net	865
Total	\$ 2,373

In 2011 and 2010, Union National Bank withdrew a total of \$78,000 and \$294,000, respectively, from the cash GSE had on deposit with them as a partial guarantee against ESA's line of credit. Any interest income earned from this account in 2011 and 2010 was not recorded in interest income but was credited to the reserve balance. At December 31, 2011 the Company had \$926,000 remaining in the restricted UNB account which was fully reserved.

#### 10. Fair Value of Financial Instruments

ASC 820 Fair Value Measurements and Disclosures defines fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principle or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. ASC 820 also establishes a fair value hierarchy which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value.

The levels of the fair value hierarchy established by ASC 820 are:

Level 1: inputs are quoted prices, unadjusted, in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date.

Level 2: inputs are other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly. A Level 2 input must be observable for substantially the full term of the asset or liability.

Level 3: inputs are unobservable and reflect the reporting entity's own assumptions about the assumptions that market participants would use in pricing the asset or liability.





The Company considers the recorded value of certain of its financial assets and liabilities, which consist primarily of cash and cash equivalents, accounts receivable and accounts payable, to approximate the fair value of the respective assets and liabilities at December 31, 2011 and December 31, 2010 based upon the short-term nature of the assets and liabilities.

The Company had \$8.2 million deposited in a money market account with Susquehanna Bank on December 31, 2011. The Company had \$17.0 million deposited in a money market account with BOA on December 31, 2010.

As of December 31, 2011, the Company was contingently liable for ten standby letters of credit and three surety bonds totaling \$5.6 million which represent bid and performance bonds on eight contracts. The Company has deposited the full value of eight standby letters of credit in certificates of deposit, \$4.2 million, which have been restricted in that the Company does not have access to these funds until the related letters of credit have expired. The cash has been recorded on the Company's balance sheet at December 31, 2011 as restricted cash and long-term restricted cash depending on the expiration date of the certificate of deposit. An additional two letters of credit have been collateralized using the Company's line of credit.

The following table presents assets and liabilities measured at fair value at December 31, 2011:

(in thousands)	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Money market fund	\$ 8,163	\$ -	\$ -	8,163
Certificates of deposit	5,976	-	-	5,976
Foreign exchange contracts	-	483	-	483
Total assets	\$ 14,139	\$ 483	\$ -	\$ 14,622
Foreign exchange contracts	\$ -	\$ (314 )	\$ -	\$ (314 )
Total liabilities	\$ -	\$ (314 )	\$ -	\$ (314 )

The following table presents assets and liabilities measured at fair value at December 31, 2010:

(in thousands)	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Money market fund	\$ 17,017	\$ -	\$ -	17,017
Certificates of deposit	779	-	-	779
Foreign exchange contracts	-	325	-	325
Total assets	\$ 17,796	\$ 325	\$ -	\$ 18,121
Foreign exchange contracts	\$ -	\$ (244 )	\$ -	\$ (244 )
Total liabilities	\$ -	\$ (244 )	\$ -	\$ (244 )

For the years ended December 31, 2011 and 2010, the Company did not have any transfers between fair value Level 1 and Level 2.

#### 11. Long-Term Debt

At December 31, 2011 and 2010, the Company had no long-term debt.

#### Line of Credit

At December 31, 2011, the Company had a Master Loan and Security Agreement and Revolving Credit Note with Susquehanna Bank (“Susquehanna”). The Company and its subsidiaries, GSE Power Systems, Inc., and GSE EnVision Inc., were jointly and severally liable as co-borrowers. The Loan Agreement provides a \$7.5 million revolving line of credit for the purpose of (i) issuing stand-by letters of credit and (ii) providing working capital. Working capital advances bear interest at a rate equal to the Wall Street Journal Prime Rate of Interest, floating with a floor of 4 ½%. The two-year agreement is to expire on November 1, 2013.

As collateral for the Company’s obligations, the Company granted a first lien and security interest in all of the assets of the Company, including but not limited to, accounts receivable, inventory, proceeds and products, intangibles, trademarks, patents, intellectual property, machinery and equipment.

Initially, all (i) issuances of stand-by letters of credit and (ii) advances of working capital (collectively referred to as the “Advances”) required that the Company maintain cash balances (the “Cash Balance Requirement”) at the Bank in an amount equal to the Advances, with a minimum of \$3.0 million at all times. The Cash Balance Requirement was to be reduced to the minimum amount if the Company’s consolidated net income after taxes (exclusive of (a) gains and losses on derivatives and (b) stock option expense), as defined (“Net Income”), was positive for the year ending December 31, 2011. Thereafter, the Cash Balance Requirement will remain at the minimum amount as long as the Company’s quarterly Net Income commencing for the quarter ending March 31, 2012, remains positive and the Company is in compliance with the covenants. If the Company’s quarterly Net Income, is negative or the Company is not in compliance with the covenants, the Cash Balance Requirement will revert to the amount of the Advances, until the Company attains positive Net Income for two consecutive quarters. The credit agreements contained certain restrictive covenants regarding future acquisitions, and incurrence of debt. In addition, the credit agreements contained financial covenants with respect to the Company’s cash flow coverage ratio, minimum tangible capital base, quick ratio, and tangible capital base ratio. At December 31, 2011 and throughout all of 2011, the Company had not paid any interest or principal payments related to any borrowings for over one year. As such the cash flow coverage ratio is not applicable at December 31, 2011.

	Covenant	As of December 31, 2011
Minimum tangible capital base	Must Exceed \$26.0 million	\$31.3 million
Quick ratio	Must Exceed 2.00 : 1.00	2.71 : 1.00
Tangible capital base ratio	Not to Exceed .75 : 1.00	.64 : 1.00

As the Company’s Net Income for the year ended December 31, 2011 was positive, the Company currently will only be required to maintain cash balances of \$3.0 million at Susquehanna. At December 31, 2011, the Company had \$200,000 in Advances, all of which consisted of outstanding stand-by letters of credit.

## 12. Income Taxes

The consolidated income (loss) before income taxes, by domestic and foreign sources, is as follows:

(in thousands)	Years ended December 31,		
	2011	2010	2009
Domestic	\$ 1,204	\$ (3,114)	\$ (2,115)
Foreign	1,159	1,071	2,235
Total	\$ 2,363	\$ (2,043)	\$ 120

The provision for income taxes is as follows:

(in thousands)	Years ended December 31,		
	2011	2010	2009
<b>Current:</b>			
Federal	\$ 62	\$ -	\$ 29
State	181	9	80
Foreign	336	233	512
Subtotal	579	242	621
<b>Deferred:</b>			
Federal	(1,002 )	0	0
Foreign	(141 )	(36 )	296
Subtotal	(1,143 )	(36 )	296
<b>Total</b>	<b>\$ (564 )</b>	<b>\$ 206</b>	<b>\$ 917</b>

The Company is entitled to a deduction for federal and state tax purposes with respect to employees' stock option activity. As of December 31, 2011, the Company had \$5.7 million of unrecognized excess tax deductions related to compensation for stock option exercises which will be recognized when the net operating loss carryforwards are fully utilized and those excess tax benefits result in a reduction to income taxes payable.

The effective income tax rate differed from the statutory federal income tax rate due to the following:

	Effective Tax Rate Percentage (%)		
	Years ended December 31,		
	2011	2010	2009
Statutory federal income tax rate	34.0 %	34.0 %	34.0 %
State income taxes, net of federal tax benefit	5.0	(0.5 )	44.1
Effect of foreign operations	(12.0 )	(4.6 )	(157.2)
Change in valuation allowance	(68.3 )	(38.8 )	669.6
Other, principally permanent differences	17.4	(0.2 )	173.7
Effective tax rate	(23.9 )%	(10.1 )%	764.2 %

Deferred income taxes arise from temporary differences between the tax bases of assets and liabilities and their reported amounts in the financial statements. A summary of the tax effect of the significant components of the deferred income tax assets (liabilities) is as follows:

(in thousands)	December 31,		
	2011	2010	2009
Deferred tax assets:			
Net operating loss carryforwards	\$ 4,850	\$ 5,893	\$ 5,650
Capital loss carryforwards	2,351	2,472	2,443
Accruals and reserves	135	126	251
Expenses not currently deductible for tax purposes	1,494	1,358	1,153
Alternative minimum tax credit carryforwards	166	166	166
Other	1,449	1,163	660
Total deferred tax asset	10,445	11,178	10,323
Valuation allowance	(6,869 )	(8,662 )	(8,375 )
Total deferred tax asset less valuation allowance	3,756	2,516	1,948
Deferred tax liabilities:			
Undistributed earnings of foreign subsidiary	(1,950 )	(1,790 )	(1,313 )
Software development costs	(690 )	(677 )	(724 )
Other	(1,145 )	(421 )	(87 )
Total deferred tax liability	(3,785 )	(2,888 )	(2,124 )
Net deferred tax asset (liability)	\$ (209 )	\$ (372 )	\$ (176 )

In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities and projected future income in making this assessment.

Management believes that the Company will achieve profitable operations in future years that will enable the Company to recover the benefit of its deferred tax assets. However, other than for a portion of the deferred tax assets that are related to the Company's Indian subsidiary, the Company presently does not have sufficient objective evidence to substantiate the recovery of the deferred tax assets. Accordingly, the Company has established a full \$6.9 million valuation allowance on its U.S. and Scottish deferred tax assets at December 31, 2011. The valuation allowance for deferred tax assets decreased by \$1.8 million in 2011, increased by \$287,000 in 2010 and increased by \$116,000 in 2009.

At December 31, 2011, the Company's largest deferred tax asset of \$4.9 million primarily relates to a U.S. net operating loss carryforward of \$13.2 million which expires in various amounts between 2017 and 2030. The amount of U.S. loss carryforward which can be used by the Company each year is limited due to changes in the Company's ownership which occurred in 2003. Thus, a portion of the Company's loss carryforward may expire unutilized.

#### Uncertain Tax Positions

The Company, through its acquisition of EnVision on January 4, 2011, recorded \$320,000 of unrecognized tax benefits as well as a receivable from the EnVision shareholders for the same amount as indemnity for this tax position. During 2011, the Company also recorded \$126,000 of unrecognized tax benefits in 2011 for certain foreign tax contingencies. These liabilities are included in other current liabilities in the consolidated balance sheet. The Company records interest and penalties associated with uncertain tax positions as a component of income tax

expense. As of December 31, 2011, the Company has accrued \$10,000 of interest and penalties.

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### 13. Capital Stock

The Company's Board of Directors has authorized 32,000,000 total shares of capital stock, of which 30,000,000 are designated as common stock and 2,000,000 are designated as preferred stock. The Board of Directors has the authority to establish one or more classes of preferred stock and to determine, within any class of preferred stock, the preferences, rights and other terms of such class.

On September 4, 2009, the Company raised \$15.0 million through the sale of 2.5 million shares of its common stock, \$.01 par value per share. The shares were sold under a shelf registration statement which was declared effective by the Securities and Exchange Commission on August 21, 2009. On September 23, 2009, the Company raised an additional \$2,250,000 when the Company's underwriter, exercised an over-allotment option in full to purchase an additional 375,000 shares of the Company's common stock at the public offering price of \$6.00 per share. The aggregate net proceeds received by the Company from the two transactions was approximately \$15.9 million. The Company paid the underwriter a fee in the amount of 6% of the gross proceeds received by the Company from the offering (\$1,035,000) and paid \$339,000 in other transaction fees.

As of December 31, 2011, the Company has reserved 4,393,863 shares of common stock for issuance: 3,340,583 shares upon exercise of outstanding stock options; 138,867 shares upon exercise of outstanding warrants; 747,746 shares for future grants under the Company's 1995 Long-Term Incentive Plan; and 166,667 shares upon exercise of warrants that the Company is obligated to issue in the event of a default under its June 2007 common stock sale.

#### Share Repurchase Plan

On March 21, 2011, the Board of Directors authorized the purchase of up to \$3.0 million of the Company's common stock in accordance with the safe harbor provisions of Rule 10b-18 of the Securities Exchange Act of 1934. During the year ended December 31, 2011 the Company repurchased 824,374 shares at an aggregate cost of \$1.6 million.

#### Preferred Stock Rights

On March 21, 2011, the Board of Directors of the Company declared a dividend, payable to holders of record as of the close of business on April 1, 2011, of one preferred stock purchase right (a "Right") for each outstanding share of common stock, par value \$0.01 per share, of the Company (the "Common Stock"). In addition, the Company will issue one Right with each new share of Common Stock issued. In connection therewith, on March 21, 2011, the Company entered into a Stockholder Protection Rights Agreement (as amended from time to time, the Rights Agreement) with Continental Stock Transfer & Trust Company, as Rights Agent, which has a term of three years, unless amended by the Board of Directors in accordance with the terms of the Rights Agreement. Upon approval of both an independent committee of the Board of Directors and the Board of Directors, the Rights Plan can be extended for up to three years. The Rights will initially trade with and be inseparable from the Common Stock and will not be evidenced by separate certificates unless they become exercisable. Each Right entitles its holder to purchase from the Company one-hundredth of a share of participating preferred stock having economic and voting terms similar to the Common Stock at an exercise price of \$8.00 per Right, subject to adjustment in accordance with the terms of the Rights Agreement, once the Rights become exercisable. Under the Rights Agreement, the Rights become exercisable if any person or group acquires 20% or more of the Common Stock or, in the case of any person or group that owned 20% or more of the Common Stock as of March 21, 2011, upon the acquisition of any additional shares by such person or group. The Company, its subsidiaries, employee benefit plans of the Company or any of its subsidiaries and any entity holding Common Stock for or pursuant to the terms of any such plan are excepted. Upon exercise of the Right in accordance with the Rights Agreement, the holder would be able to purchase a number of shares of Common Stock from the Company having an aggregate market price (as defined in the Rights Agreement) equal to twice the then-current exercise price for an amount in cash equal to the then-current exercise price. In addition, the Company may, in certain circumstances and pursuant to the terms of the



Rights Agreement, exchange the Rights for one share of Common Stock or an equivalent security for each Right or, alternatively, redeem the Rights for \$0.001 per Right. The Rights will not prevent a takeover of our Company, but may cause substantial dilution to a person that acquires 20% or more of the Company's Common Stock.

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## 14. Stock-Based Compensation

## Long-term incentive plan

During 1995, the Company established the 1995 Long-Term Incentive Stock Option Plan (the “Plan”), which permits the granting of stock options (including incentive stock options and nonqualified stock options) stock appreciation rights, restricted or unrestricted stock awards, phantom stock, performance awards or any combination of these to employees, directors or consultants. Options to purchase shares of the Company’s common stock under the Plan expire in either seven or ten years from the date of grant and become exercisable in three, five, or seven installments with a certain percentage of options vesting on the first anniversary of the grant date and additional options vesting on each of the subsequent anniversaries of the grant date, subject to acceleration under certain circumstances. The Plan expires on June 30, 2018; the total number of shares that could be issued under the Plan is 5,500,000. As of December 31, 2011, 3,340,583 stock options were outstanding under the Plan, while 747,746 stock options remained to be granted under the Plan.

The Company recognizes compensation expense on a pro rata straight-line basis over the requisite service period for stock-based compensation awards with both graded and cliff vesting terms. The Company recognizes the cumulative effect of a change in the number of awards expected to vest in compensation expense in the period of change. The Company has not capitalized any portion of its stock-based compensation.

During the years ended December 31, 2011, 2010, and 2009, the Company recognized \$727,000, \$807,000 and \$906,000, respectively, of pre-tax stock-based compensation expense under the fair value method.

## Stock option and warrant activity

During the year ended December 31, 2011, the Company granted stock options to purchase 1,463,000 shares of common stock to GSE directors, officers, and employees. No warrants to purchase shares of common stock were issued in 2011.

Information with respect to stock option and warrant activity as of and for the year ended December 31, 2011 is as follows:

	Number of Shares	Weighted Average Exercise Price	Aggregate Intrinsic Value (in thousands)	Weighted Average Remaining Contractual Life (Years)
Shares under option and warrant, December 31, 2010	2,274,128	\$ 4.35		
Options granted	1,463,000	1.91		
Options exercised	(77,176)	1.73		
Warrants exercised	(5,650)	1.77		
	(61,858)	4.99		

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Options forfeited					
Warrants expired	(112,994)	1.77			
Shares under option and warrant, December 31, 2011	3,479,450	3.46	\$	292	4.93
Options expected to vest	2,040,690	2.91	\$	136	6.47
Options and warrants exercisable at December 31, 2011	1,438,760	\$ 4.24	\$	156	2.75

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A summary of the status of the Company's nonvested options as of and for the year ended December 31, 2011 is presented below. All outstanding warrants were vested prior to 2011.

	Number of Shares	Weighted Average Fair Value
Nonvested options at December 31, 2010	902,294	\$ 3.19
Options granted	1,463,000	0.91
Options vested during the period	(262,746)	3.06
Options forfeited	(61,858)	3.47
Nonvested options at December 31, 2011	2,040,690	\$ 1.57

The fair value of the options granted in 2011, 2010 and 2009 were estimated on the date of grant using a Black-Scholes option-pricing model with the following assumptions:

	Years ended December 31,		
	2011	2010	2009
Risk-free interest rates	1.06-2.28%	.57% - 2.93%	1.71% - 3.04%
Dividend yield	0%	0%	0%
Expected life	3.75 - 6.98 years	2.5 - 6.5 years	5.5 - 7.0 years
Volatility	49.49 - 60.24%	37.2 - 63.8%	65.9% - 78.22%
Weighted average volatility	55.04%	55.38%	67.85%

As of December 31, 2011, the Company had \$1.7 million of unrecognized compensation expense related to the unvested portion of outstanding stock options expected to be recognized on a pro-rata straight line basis over a weighted average remaining service period of approximately 6.5 years.

The Company received cash for the exercise price associated with stock options exercised of \$132,000, \$95,000, and \$103,000 during the years ended December 31, 2011, 2010, and 2009, respectively. The total intrinsic value realized by participants on stock options exercised was \$103,000, \$159,000 and \$213,000 during the years ended December 31, 2011, 2010, and 2009, respectively.

## 15. Commitments and Contingencies

## Leases

The Company is obligated under certain noncancelable operating leases for office facilities and equipment. Future minimum lease payments under noncancelable operating leases as of December 31, 2011 are as follows:

(in thousands)	Gross Future Minimum Lease Payments
2012	\$ 917
2013	781
2014	520
2015	487
2016	500
Thereafter	844
Total	\$ 4,049

Total rent expense under operating leases for the years ended December 31, 2011, 2010, and 2009 was approximately \$1.1 million, \$942,000, and \$867,000, respectively.

## Standby Letters of credit, bank guarantees, surety bonds and performance bonds

As of December 31, 2011, the Company was contingently liable for ten standby letters of credit and three surety bonds totaling \$5.6 million which represent bid and performance bonds on eight contracts. The Company has deposited the full value of eight standby letters of credit, \$4.2 million, in certificates of deposit, which have been restricted in that the Company does not have access to these funds until the related letters of credit have expired. The cash has been recorded on the Company's balance sheet at December 31, 2011 as restricted cash. An additional two letters of credit have been collateralized using the Company's line of credit.

The Company has provided a partial guarantee of 10% of ESA's credit facility with Union National Bank; \$1.2 million was deposited into a restricted interest-bearing account with UNB in 2006. The interest earned on the restricted cash is part of the pledged deposit. In January 2010, the Company was notified by UNB that ESA was delinquent in making principal and interest payments on the outstanding borrowings from their credit facility and that UNB had drawn upon the guarantees of the three partners to pay off the delinquency. The Company established a full reserve against the \$1.3 million restricted cash account as of December 31, 2010. In 2011 and 2010, Union National Bank withdrew a total of \$78,000 and \$294,000, respectively, from the cash GSE had on deposit with them as a partial guarantee against ESA's line of credit. Any interest income earned from this account in 2011 and 2010 was not recorded in interest income but was credited to the reserve balance. At December 31, 2011 the Company had \$926,000 remaining in the restricted UNB account which was fully reserved.

## Contingencies

Various actions and proceedings are presently pending to which the Company is a party. In the opinion of management, the aggregate liabilities, if any, arising from such actions are not expected to have a material adverse effect on the financial position, results of operations or cash flows of the Company.

In 2009, the Company entered into a contract with Slovenské elektrárne, a.s. (“SE”) to provide a full scope simulator for a two unit reactor plant in Slovakia. To date, the Company has recognized \$21.0 million of revenue under the terms of the contract. In September 2011, the Company received a \$3.0 million change order for this contract which increased its total contractual value to \$26.8 million. \$2.1 million of the \$3.0 million change order related to compensation provided by SE to the Company for a nine and half month delay caused by SE.

In November and December 2011 and January 2012, SE notified the Company of various alleged breaches of the contract. In the notification, SE claimed a contractual penalty for delay in the amount of \$1.0 million related to the Company’s failure to complete Factory Acceptance Testing (“FAT”) for the simulator and unspecified potential damages for other alleged breaches of the contract.

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Based upon the schedule for the completion of FAT contained in the contract, which currently does not take into account the acknowledged nine and a half month delay caused by SE, the Company does not believe that it was responsible for the delay in FAT completion. After engaging in discussions with SE, the Company formally responded to all of the claims in January 2012. The Company and SE are currently discussing a resolution of all of their outstanding issues. However, at December 31, 2011, the Company has \$5.0 million of recoverable costs and accrued profit not billed, and a \$2.9 million performance bond in place to secure completion of the contract.

## 16. Employee Benefits

The Company has a qualified defined contribution plan that covers substantially all U.S. employees under Section 401(k) of the Internal Revenue Code. Under this plan, the Company's stipulated basic contribution matches a portion of the participants' contributions based upon a defined schedule. The Company's contributions to the plan were approximately \$271,000, \$245,000, and \$197,000 for the years ended December 31, 2011, 2010, and 2009, respectively.

## 17. Segment Information

The Company has one reportable business segment that provides simulation solutions and services to the nuclear and fossil fuel power industry, and to the chemical and petrochemical industries. Contracts typically range from 10 months to three years.

For the years ended December 31, 2011, 2010, and 2009, 67%, 72%, and 73%, respectively, of the Company's consolidated revenue was from customers in the nuclear power industry, respectively. The Company designs, develops and delivers business and technology solutions to the energy industry worldwide. Revenue, operating income (loss) and total assets for the Company's United States, European, and Asian subsidiaries as of and for the years ended December 31, 2011, 2010, and 2009 are as follows:

(in thousands)	Year ended December 31, 2011				
	United States	Europe	Asia	Eliminations	Consolidated
Contract revenue	\$ 37,587	\$ 12,443	\$ 1,096	\$ -	\$ 51,126
Transfers between geographic locations	1,379	-	416	(1,795 )	-
Total contract revenue	\$ 38,966	\$ 12,443	\$ 1,512	\$ (1,795 )	\$ 51,126
Operating income	\$ 745	\$ 1,293	\$ 190	\$ -	\$ 2,228
Total assets, at December 31	\$ 78,900	\$ 13,429	\$ 1,002	\$ (34,516 )	\$ 58,815

(in thousands)	Year ended December 31, 2010				
	United States	Europe	Asia	Eliminations	Consolidated
Contract revenue	\$ 37,197	\$ 9,699	\$ 317	\$ -	\$ 47,213
Transfers between geographic locations	352	-	798	(1,150 )	-
Total contract revenue	\$ 37,549	\$ 9,699	\$ 1,115	\$ -	\$ 47,213
Operating income (loss)	\$ (2,397 )	\$ 1,157	\$ 8	\$ -	\$ (1,232 )
Total assets, at December 31	\$ 70,783	\$ 12,689	\$ 353	\$ (30,211 )	\$ 53,614

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(in thousands)

Year ended December 31, 2009

	United States	Europe	Asia	Eliminations	Consolidated
Contract revenue	\$ 34,056	\$ 6,004	\$ -	\$ -	\$ 40,060
Transfers between geographic locations	323	30	604	(957 )	-
Total contract revenue	\$ 34,379	\$ 6,034	\$ 604	\$ (957 )	\$ 40,060
Operating income (loss)	\$ (536 )	\$ 1,018	\$ 81	\$ -	\$ 563

Approximately 66%, 71%, and 65% of the Company's 2011, 2010, and 2009 revenue, respectively, was derived from international sales of its products and services from all of its subsidiaries.

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## 18. Supplemental Disclosure of Cash Flow Information

(in thousands)		Year ended December 31,		
		2011	2010	2009
Cash paid:				
Interest	\$	-	-	1
Income taxes	\$	813	545	206

## 19. Quarterly Financial Data (Unaudited)

The Company's quarterly financial information has not been audited but, in management's opinion, includes all adjustments necessary for a fair presentation.

(in thousands, except per share data)

	Year ended December 31, 2011 Quarterly Data			
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Contract revenue	\$ 12,322	\$ 11,257	\$ 12,549	\$ 14,998
Operating income (loss)	(287 )	248	975	1,292
Net income (loss)	1,013	(244 )	858	1,174
Basic income (loss) per common share	\$ 0.05	\$ (0.01 )	\$ 0.05	\$ 0.06
Diluted income (loss) per common share	\$ 0.05	\$ (0.01 )	\$ 0.05	\$ 0.06

	Year ended December 31, 2010 Quarterly Data			
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Contract revenue	\$ 11,208	\$ 11,773	\$ 11,904	\$ 12,328
Operating income (loss)	453	751	(328 )	(2,108 )
Net income (loss)	449	370	(548 )	(2,520 )
Basic income (loss) per common share	\$ 0.02	\$ 0.02	\$ (0.03 )	\$ (0.13 )
Diluted income (loss) per common share	\$ 0.02	\$ 0.02	\$ (0.03 )	\$ (0.13 )

## 20. Subsequent Events

During the period January 1, 2012 through March 6, 2012, the Company repurchased an additional 150,287 shares of its common stock at an aggregate cost of \$280,102. These purchases were made in accordance with the provisions of the share repurchase plan as authorized by the Board of Directors on March 21, 2011. As of March 6, 2012 the Company has repurchased a total of 974,661 shares at an aggregate cost of \$1.9 million. Subsequent events have been

evaluated through the date of the independent auditor's report.

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GSE SYSTEMS, INC.  
FORM 10-K  
For the Year Ended December 31, 2011

ITEM CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL  
9. DISCLOSURE.

None.

ITEM CONTROLS AND PROCEDURES.  
9A.

(a) Evaluation of Disclosure Controls and Procedures

The Company maintains disclosure controls and procedures that are designed to ensure that information required to be disclosed by it in its reports filed or submitted pursuant to the Securities Exchange Act of 1934, as amended (the “Exchange Act”), is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission’s rules and forms and that information required to be disclosed by the Company in its Exchange Act reports is accumulated and communicated to management, including the Company’s Chief Executive Officer (“CEO”), who is its principal executive officer, and Chief Financial Officer (“CFO”), who is its principal financial officer, to allow timely decisions regarding required disclosure. At the end of the period covered by this report, an evaluation was performed under the supervision and with the participation of our management including our CEO and our CFO, of the effectiveness of the design and operation of our disclosure controls and procedures pursuant to Rule 13-15(e) of the Exchange Act. Based on the evaluation of our disclosure controls and procedures as of December 31, 2011, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective.

(b) Management’s Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Exchange Act Rule 13a-15(f). Our internal control processes and procedures are designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our consolidated financial statements in accordance with United States generally accepted accounting principles.

Under the supervision and with the participation of management, including our CEO and CFO, we conducted an evaluation of internal control over financial reporting as of December 31, 2011 based on the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in Internal Control—Integrated Framework. Based upon our evaluation, we concluded that our internal control over financial reporting was effective as of December 31, 2011.

The effectiveness of the Company’s internal control over financial reporting as of December 31, 2011 has been audited by KPMG LLP, an independent registered public accounting firm, whose report appears in Item 8 of this Annual Report on Form 10-K.



(c) Changes in Internal Control over Financial Reporting

The Company has made no changes in its internal controls over financial reporting during the quarter ended December 31, 2011 that have materially affected or are reasonably likely to materially affect our internal control over financial reporting.

(d) Limitation of Effectiveness of Controls

Internal control over financial reporting has inherent limitations. Internal control over financial reporting is a process that involves human diligence and compliance and is subject to lapses in judgment and breakdowns resulting from human failures. Internal control over financial reporting also can be circumvented by collusion or improper management override. Because of such limitations, there is a risk that material misstatements will not be prevented or detected on a timely basis by internal control over financial reporting. However, these inherent limitations are known features of the financial reporting process. Therefore, it is possible to design into the process safeguards to reduce, though not eliminate this risk.

ITEM  
9B. OTHER INFORMATION.

None.

PART III

ITEM DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE.

10.

The information required by this item, including items 401, 405 406 and 407 of Regulation S-K, is incorporated by reference to the section captioned "Directors and Executive Officers" in the definitive Proxy Statement for the Company's 2012 Annual Meeting of Shareholders and incorporated herein by reference or will be provided in an amendment to this Annual Report on Form 10-K.

The Company has adopted a Conduct of Business Policy that applies to its directors, officers and employees, including its principal executive officer, and principal financial officer. The Conduct of Business Policy is available on the Company's website at [www.gses.com](http://www.gses.com). In addition, the Company has adopted a Code of Ethics for its principal executive officer and senior financial officers which is also available on the Company's website. The Company will post on its website information about any amendment to, or waiver from, any provision of the Code of Ethics that applies to its principal executive officer, principal financial officer, or principal accounting officer.

ITEM  
11. EXECUTIVE COMPENSATION.

The information required by this item will either be set forth under the “Executive Compensation” section in the definitive Proxy Statement for the 2012 Annual Meeting of Shareholders and incorporated herein by reference or will be provided in an amendment to this Annual Report on Form 10-K.

ITEM  
12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS.

The information required by this item will be either set forth under the sections captioned “Voting Securities and Principal Holders Thereof,” and “Executive Compensation” in the definitive Proxy Statement for the 2012 Annual Meeting of Shareholders and incorporated herein by reference or will be provided in an amendment to this Annual Report on Form 10-K.

ITEM  
13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE.

The information required by this item will be either set forth under the “Directors and Executive Officers” section in the definitive Proxy Statement for the 2012 Annual Meeting of Shareholders and incorporated herein by reference or will be provided in an amendment to this Annual Report on Form 10-K.

ITEM  
14. PRINCIPAL ACCOUNTANT FEES AND SERVICES.

The information required by this item will be either set forth under the “Audit Committee Pre-Approval of Audit and Non-Audit Services” section in the definitive Proxy Statement for the 2012 Annual Meeting of Shareholders and incorporated herein by reference or will be provided in an amendment to this Annual Report on Form 10-K.

PART IV

ITEM  
15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) (1) List of Financial Statements

The following financial statements are included in Item 8:

GSE Systems, Inc. and Subsidiaries

Report of Independent Registered Public Accounting Firm – Internal Control over Financial Reporting

Report of Independent Registered Public Accounting Firm – Consolidated Financial Statements

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Consolidated Balance Sheets as of December 31, 2011 and 2010

Consolidated Statements of Operations for the years ended December 31, 2011, 2010, and 2009

Consolidated Statements of Comprehensive Income (Loss) for the years ended December 31, 2011, 2010, and 2009

Consolidated Statements of Changes in Stockholders' Equity for the years ended December 31, 2011, 2010, and 2009

Consolidated Statements of Cash Flows for the years ended December 31, 2011, 2010, and 2009

Notes to Consolidated Financial Statements

(a) (2) List of Schedules

All other schedules to the consolidated financial statements are omitted as the required information is either inapplicable or presented in the consolidated financial statements or related notes.

(a) (3) List of Exhibits

The Exhibits which are filed with this report or which are incorporated by reference are set forth in the Exhibit Index hereto.



SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

GSE Systems, Inc.

By: /s/ JAMES A. EBERLE  
James A. Eberle  
Chief Executive Officer

Pursuant to the requirements of the Securities Act, this report has been signed by the following persons in the capacities and on the dates indicated.

Date: March 8, 2012 /s/ JAMES A. EBERLE  
James A. Eberle, Chief Executive  
Officer  
(Principal Executive Officer)

Date: March 8, 2012 /s/ JEFFERY G. HOUGH  
Jeffery G. Hough, Senior Vice  
President  
and Chief Financial Officer  
(Principal Financial and Accounting  
Officer)

Date: March 8, 2012 (Jerome I. Feldman, Chairman of ) By: /s/ JEFFERY G. HOUGH  
the Board  
(Dr. Sheldon L. Glashow, Director )  
(Jane Bryant Quinn, Director ) Jeffery G. Hough  
(Dr. Roger Hagengruber, Director ) Attorney-in-Fact  
(Joseph W. Lewis, Director )  
(Orrie Lee Tawes III, Director )

A Power of Attorney, dated February 29, 2012 authorizing Jeffery G. Hough to sign this Annual Report on Form 10-K for the fiscal year ended December 31, 2011 on behalf of certain of the directors of the Registrant is filed as Exhibit 24.1 to this Annual Report.

Exhibit	Description of Exhibit
1	Underwriting Agreement
1.1	Underwriting Agreement, dated August 31, 2009 between the Company and Roth Capital Partners, LLC. Previously filed in connection with Form 8-K as filed with the Securities and Exchange Commission on September 1, 2009 and incorporated herein by reference.
2	Plan of acquisition, reorganization, arrangement, liquidation, or succession
2.1	Share Purchase Agreement relating to TAS Holdings, Ltd. dated April 26, 2010, by and between John Maplesden, Anthony Maplesden, and John Easton and GSE Systems, Ltd and GSE Systems, Inc. previously filed with Form 8-K as filed with the Securities and Exchange Commission on April 30, 2010.
2.2	Contract for the Sale and Leaseback of Land and Buildings at 37-39 Norton Road, Stockton-on-Tees TS18 2BU between TAS Holdings Ltd. and John Maplesden, Anthony Maplesden and John Easton, dated April 26, 2010, previously filed with Form 8-K as filed with the Securities and Exchange Commission on April 30, 2010.
2.3	Stock Purchase Agreement, dated as of January 1, 2011 among GSE Systems, Inc., Toshi Shinohara, Santosh Joshi, Hideo Shinohara, and EnVision Systems, Inc. Previously filed with Form 8-K as filed with the Securities and Exchange Commission on January 10, 2011.
2.4	Employment Agreement, dated as of January 1, 2011 between Santosh Joshi and EnVision Systems, Inc. Previously filed with Form 8-K as filed with the Securities and Exchange Commission on January 10, 2011.

3 Articles of Incorporation and Bylaws

3(i) Fourth Amended and Restated Certificate of Incorporation of the Company. Previously filed in connection with the GSE Systems, Inc. Form DEF 14A as filed with the Securities and Exchange Commission on November 20, 2007 and incorporated herein by reference.

3(ii) Amended and Restated Bylaws of the Company. Previously filed in connection with Form DEF 4A as filed with the Securities and Exchange Commission on November 20, 2007 and incorporated herein by reference.

4. Instruments Defining Rights of Security Holders, including Indenture.

4.1 Specimen Common Stock Certificate of the Company. Previously filed in connection with Amendment No. 3 to the GSE Systems, Inc. Form S-1 Registration Statement as filed with the Securities and Exchange Commission on July 24, 1995 and incorporated herein by reference.

4.2 Form of Warrant to Purchase 166,667 shares of Common Stock of GSE Systems, Inc. dated as of June 15, 2007. Previously filed in connection with the GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on June 18, 2007 and incorporated herein by reference.

4.3 Securities Purchase Agreement, dated as of June 15, 2007 by and between GSE Systems, Inc. and each of the Investors to sell a total of 1,666,667 shares of GSE Common Stock. Previously filed in connection with the GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on June 18, 2007 and incorporated herein by reference.

4.4 Registration Rights Agreement, dated as of June 15, 2007 by and between GSE Systems, Inc. and each of the Investors. Previously filed in connection with the GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on June 18, 2007 and incorporated herein by reference.

4.5 Stockholder Protection Rights Agreement, dated as of March 21, 2011, by and between GSE Systems, Inc. and Continental Stock Transfer & Trust Company, as Rights Agent; Form of Rights Certificate and Form of Election to Exercise, included in Exhibit A to the Stockholder Protection Rights Agreement and incorporated herein by reference.

10. Material Contracts

- 10.1 Agreement among ManTech International Corporation, National Patent Development Corporation, GPS Technologies, Inc., General Physics Corporation, Vattenfall Engineering AB and GSE Systems, Inc. (dated as of April 13, 1994). Previously filed in connection with the GSE Systems, Inc. Form S-1 Registration Statement as filed with the Securities and Exchange Commission on April 24, 1995 and incorporated herein by reference.
- 10.2 GSE Systems, Inc. 1995 Long-Term Incentive Plan, amended as of June 1, 2011. Previously filed in connection with the GSE Systems, Inc. Form 8-K as filed with the Securities and Exchange Commission on June 1, 2011 and incorporated herein by reference. \*
- 10.3 Form of Option Agreement Under the GSE Systems, Inc. 1995 Long-Term Incentive Plan. Previously filed in connection with the GSE Systems, Inc. Form 10-K as filed with the Securities and Exchange Commission on March 22, 1996 and incorporated herein by reference. \*
- 10.4 Memorandum of Association of Limited Liability Company dated November 8, 2005 by and between Al Qudra Holding PJSC, Centre of Excellence for Applied Research and Training, and GSE Systems, Inc. Previously filed in connection with the GSE Systems, Inc. Form 10-Q/A filed with the Securities and Exchange Commission on October 4, 2006 and incorporated herein by reference.
- 10.5 Supply Agreement Contract by and between Emirates Simulation Academy, LLC and GSE Power Systems, Inc. dated January 3, 2006. Previously filed in connection with the GSE Systems, Inc. Form 10-Q/A filed with the Securities and Exchange Commission on October 4, 2006 and incorporated herein by reference.
- 10.6 License and Technology Transfer Agreement by and Between GSE Power Systems, Inc. and Emirates Simulation Academy, LLC dated January 3, 2006. Previously filed in connection with the GSE Systems, Inc. Form 10-Q/A filed with the Securities and Exchange Commission on October 4, 2006 and incorporated herein by reference.
- 10.7 Office Lease Agreement between 1332 Londontown, LLC and GSE Systems, Inc. (dated as of February 27, 2008). Previously filed in connection with the GSE Systems, Inc. Form 8-K as filed with the Securities and Exchange Commission on March 11, 2008 and incorporated herein by reference.
- 10.8 \$3,500,000 Ex-Im Bank-Guaranteed Transaction Specific Revolving Line of Credit, dated as of March 28, 2008. Previously filed in connection with the GSE Systems, Inc. Form 8-K as filed with the Securities and Exchange Commission on April 3, 2008 and incorporated herein by reference.
- 10.9 Security Agreement by and among GSE Systems, Inc., GSE Power Systems, Inc and Bank of America, N.A. dated March 28, 2008. Previously filed in connection with the GSE Systems, Inc. Form 8-K as filed with the Securities and Exchange Commission on April 3, 2008 and incorporated herein by reference.

- 10.10 Borrower Agreement by and among GSE Systems, Inc., GSE Power Systems, Inc. and Bank of America, N.A. dated March 28, 2008. Previously filed in connection with the GSE Systems, Inc. Form 8-K as filed with the Securities and Exchange Commission on April 3, 2008 and incorporated herein by reference.
- 10.11 \$1,500,000 Domestic Revolving Line of Credit dated as of March 28, 2008. Previously filed in connection with the GSE Systems, Inc. Form 8-K as filed with the Securities and Exchange Commission on April 3, 2008 and incorporated herein by reference.
- 10.12 Security Agreement by and among GSE Systems, Inc., GSE Power Systems, Inc. and Bank of America, N.A. dated as of March 28, 2008 (Domestic Revolving Line of Credit). Previously filed in connection with the GSE Systems, Inc. Form 8-K as filed with the Securities and Exchange Commission on April 3, 2008 and incorporated herein by reference.
- 10.13 Continuing and Unconditional Guaranty by GSE Process Solutions, Inc. and Bank of America, N.A. dated as of March 28, 2008. Previously filed in connection with the GSE Systems, Inc. Form 8-K as filed with the Securities and Exchange Commission on April 3, 2008 and incorporated herein by reference.
- 10.14 Continuing and Unconditional Guaranty by MSHI, Inc. and Bank of America, N.A. dated as of March 28, 2008. Previously filed in connection with the GSE Systems, Inc. Form 8-K as filed with the Securities and Exchange Commission on April 3, 2008 and incorporated herein by reference.
- 10.15 Pledge Agreement by and among the Company, MSHI, Inc., GSE Power Systems, Inc., GSE Process Solutions, Inc. and Bank of America, N.A. dated as of March 28, 2008. Previously filed in connection with the GSE Systems, Inc. Form 8-K as filed with the Securities and Exchange Commission on April 3, 2008 and incorporated herein by reference.
- 10.16 First Amendment to \$1,500,000 Domestic Revolving Line of Credit, dated May 5, 2009. Previously filed in connection with the GSE Systems, Inc. Form 10-Q as filed with the Securities and Exchange Commission on May 11, 2009 and incorporated herein by reference.

- 10.17 First Amendment to Security Agreement by and among GSE Systems, Inc., GSE Power Systems, Inc. and Bank of America N.A (Domestic Revolving Line of Credit), dated as of May 5, 2009. Previously filed in connection with the GSE Systems, Inc. Form 10-Q as filed with the Securities and Exchange Commission on May 11, 2009 and incorporated herein by reference.
- 10.18 Ratification of Guarantee by GSE Process Solutions, Inc. and MSHI, Inc. (Ex-Im Bank-Guaranteed Transaction Specific Revolving Line of Credit), dated May 5, 2009. Previously filed in connection with the GSE Systems, Inc. Form 10-Q as filed with the Securities and Exchange Commission on May 11, 2009 and incorporated herein by reference.
- 10.19 Second Amendment to Loan Agreement (Ex-Im Bank-Guaranteed Transaction Specific Revolving Line of Credit) dated March 29, 2010. Previously filed in connection with the GSE Systems, Inc. Form 8-K as filed with the Securities and Exchange Commission on April 2, 2010 and incorporated herein by reference.
- 10.20 Second Amendment to Loan Agreement (Domestic Revolving Line of Credit) dated March 29, 2010. Previously filed in connection with the GSE Systems, Inc. Form 8-K as filed with the Securities and Exchange Commission on April 2, 2010 and incorporated herein by reference.
- 10.21 Ratification of Guaranty (Ex-Im Bank-Guaranteed Transaction Specific Revolving Line of Credit) dated March 29, 2010. Previously filed in connection with the GSE Systems, Inc. Form 8-K as filed with the Securities and Exchange Commission on April 2, 2010 and incorporated herein by reference.
- 10.22 Ratification of Guaranty (Domestic Revolving Line of Credit) dated March 29, 2010. Previously filed in connection with the GSE Systems, Inc. Form 8-K as filed with the Securities and Exchange Commission on April 2, 2010 and incorporated herein by reference.
- 10.23 Consulting Agreement, dated as of April 30, 2010 between John V. Moran and GSE Systems, Inc. Previously filed in connection with the GSE Systems, Inc. Form 8-K as filed with the Securities and Exchange Commission on April 30, 2010 and incorporated herein by reference.
- 10.24 Employment Agreement dated as of November 1, 2010 between GSE Systems, Inc. and James Eberle. Previously filed in connection with the GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on November 1, 2010 and incorporated herein by reference.\*

- 10.25 Employment Agreement dated as of January 1, 2011 between GSE Systems, Inc. and Chin-our Jerry Jen. Previously filed in connection with the GSE Systems, Inc. Form 8-K as filed with the Securities and Exchange Commission on February 2, 2011 and incorporated herein by reference. \*
- 10.26 Employment Agreement dated as of January 1, 2011 between GSE Systems, Inc. and Jeffery G. Hough. Previously filed in connection with the GSE Systems, Inc. Form 8-K as filed with the Securities and Exchange Commission on February 2, 2011 and incorporated herein by reference. \*
- 10.27 Employment Agreement dated as of January 1, 2011 between GSE Systems, Inc. and Michael D. Feldman. Previously filed in connection with the GSE Systems, Inc. Form 10-K as filed with the Securities and Exchange Commission on March 14, 2011, and incorporated herein by reference. \*
- 10.28 Employment Agreement dated as of January 1, 2011 between GSE Systems, Inc. and Gill Grady. Previously filed in connection with the GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on February 11, 2011 and incorporated herein by reference.\*
- 10.29 Employment Agreement dated as of January 1, 2011 between GSE Systems, Inc. and Lawrence Gordon. Previously filed in connection with the GSE Systems, Inc. Form 10-K as filed with the Securities and Exchange Commission on March 14, 2011, and incorporated herein by reference. \*
- 10.30 Third Amendment to Loan Agreement (Ex-Im Bank-Guaranteed Transaction Specific Revolving Line of Credit) dated March 14, 2011. Previously filed in connection with the GSE Systems, Inc. Form 10-K as filed with the Securities and Exchange Commission on March 14, 2011, and incorporated herein by reference.
- 10.31 Third Amendment to Loan Agreement (Domestic Revolving Line of Credit) dated March 14, 2011. Previously filed in connection with the GSE Systems, Inc. Form 10-K as filed with the Securities and Exchange Commission on March 14, 2011, and incorporated herein by reference.
- 10.32 Ratification of Guaranty (Domestic Revolving Line of Credit) dated March 14, 2011. Previously filed in connection with the GSE Systems, Inc. Form 10-K as filed with the Securities and Exchange Commission on March 14, 2011, and incorporated herein by reference.
- 10.33 Employment Agreement dated as of January 1, 2011 between GSE Systems, Inc. and Jerome I. Feldman. Previously filed in connection with the GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on February 2, 2011 and incorporated herein by reference. \*
- 10.34 Employment Agreement dated as of October 12, 2011 between GSE Systems, Inc. and Phillip M. Polefrone. Previously filed in connection with the GSE Systems, Inc. Form 10-Q filed with the Securities and Exchange Commission on November 9, 2011 and incorporated herein by reference. \*
- 10.35 Master Loan and Security Agreement dated November 22, 2011, by and among GSE Systems, Inc., GSE EnVision Inc. and Susquehanna Bank. Previously filed in connection with the GSE Systems, Inc. Form 8-k filed with the Securities and Exchange Commission on November 29, 2011 and incorporated herein by reference.
- 10.36 \$7,500,000 Revolving Credit Note, dated November 22, 2011 incorporated herein by reference. Previously filed in connection with the GSE Systems, Inc. Form 8-K filed with the Securities and Exchange Commission on November 29, 2011 and incorporated herein by reference.

14. Code of Ethics

14.1 Code of Ethics for the Principal Executive Officer and Senior Financial Officers. Previously filed in connection with the GSE Systems, Inc. Form 10-K filed with the Securities and Exchange Commission on March 31, 2006 and incorporated herein by reference.



21. Subsidiaries.

21.1 List of Subsidiaries of Registrant at December 31, 2011, filed herewith.

23. Consents of Experts and Counsel

23.1 Consent of KPMG LLP, filed herewith.

24. Power of Attorney

24.1 Power of Attorney for Directors' and Officers' Signatures on SEC Form 10-K, filed herewith.

31. Certifications

31.1 Certification of Chief Executive Officer of the Company pursuant to Securities and Exchange Act Rule 13d-14(a)/15(d-14(a), as adopted pursuant to Section 302 and 404 of the Sarbanes-Oxley Act of 2002, filed herewith.

31.2 Certification of Chief Financial Officer of the Company pursuant to Securities and Exchange Act Rule 13d-14(a)/15(d-14(a), as adopted pursuant to Section 302 and 404 of the Sarbanes-Oxley Act of 2002, filed herewith.

32. Section 1350 Certifications

32.1 Certification of Chief Executive Officer and Chief Financial Officer of the Company pursuant to 18 U.S.C. Section 1350 as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, file herewith.

\* Management contracts or compensatory plans required to be filed as exhibits pursuant to Item 14 (c) of this report.

