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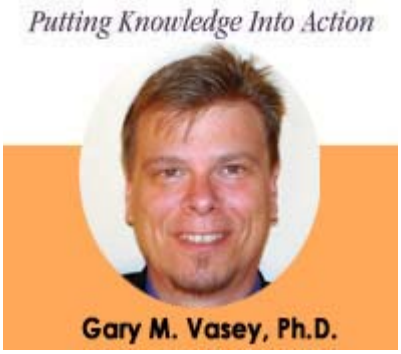

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Abacus Solutions Prepares to Roll Out "SATURN"—An Enterprise Integration and Risk Management Solution

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The Energy Trading, Transaction and Risk Management software space today has over 70 suppliers of various forms of software targeting different niches of the industry. Despite that, there are just half or dozen or so prominent software providers such as Allegro, Global Energy, New Energy, OpenLink, SunGard Energy and Triple Point. Over the last couple of years, the software category has started to mature as vendors scramble to deploy available new technologies including service-oriented architectures and Web-based solutions that can provide users new levels of much needed flexibility, scalability and configurability. However, the energy business is so complex, especially on the more physically oriented side of the business, that there always remain opportunities for new entries, especially if the new entry brings something unique to the table. This might be the case with the latest entrant, Abacus Solutions headed by Dr. Salim Jabbour.

I first met Dr. Jabbour several years ago. He had successfully built and sold a consulting and software business (BMC of San Jose, California). In a recent conversation with Dr. Jabbour I learned about his latest venture—Abacus Solutions—and its new software offering SATURN. He describes SATURN as an "Integration Framework" or an "environment where users can collect, structure and store data about energy markets, generation assets and deals" and set out to demonstrate the product to us. But I had to ask first why he invested his own money in building a new software product rather than sail into the sunset? "I saw an opportunity to solve a growing problem in the energy industry," he told me. "Lack of integration has become too costly and too painful."

So is SATURN another ETRM software product in an already overcrowded market? No. While there is certainly much overlap into the traditional ETRM software space, SATURN has its focus on "solving the Integration problem," according to Dr Jabbour. "True Integration goes beyond linking a bunch of systems; it involves removing unnecessary redundancies and offering a common scalable platform with broad analytical

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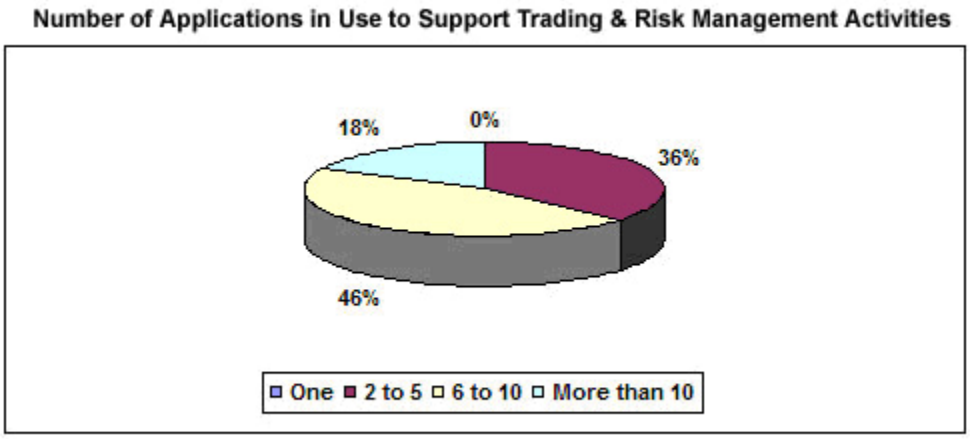
functionality," he adds. The focus on the physical side of the business puts SATURN in the "Asset ETRM" software space (an expression I coined last year in **Issue*Alert*** article to point out that for asset-heavy entities, many ETRM systems lacked certain functions such as asset optimization, bid to bill functionality, real-time trading and market modeling). The software was designed to analyze production, capabilities, requirements, revenues, costs, profits and risks for a portfolio of assets and contracts and to facilitate decision making, transaction management, data analysis, and compliance with regulatory requirements. That is a broad and comprehensive challenge.

Past UtiliPoint analysis suggests that a key challenge facing the energy industry is a legacy environment of multiple and poorly integrated software solutions. The number of systems in use by power marketing respondents to a 2004 UtiliPoint survey ranged from three to 13 separate applications. When systems used to support trading and risk management activities for additional energy commodities are also included, that range increased from three to 16 total applications.



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The volatility in the industry characterized by fundamental structural and regulation change has resulted in a series of dislocation events that have impacted both the industry and its software providers considerably. The IT function of energy companies is faced with addressing the heterogeneous legacy infrastructure while anticipating and responding to strategic and industry change. That is a considerable challenge. Part of the success of installing a software solution in today's power trading world is based on whether it can eliminate or reduce reliance on spreadsheets.

According to Dr. Jabbour SATURN is differentiated by "three fundamental features: an unparalleled focus on a set of core needs for energy companies with a balanced breadth/depth combination, a completely modern architecture that leverages recent advances in software and hardware technologies, and a breakthrough in ease of system deployment and use." As a newly developed piece of software, Abacus has been able to take full advantage of modern technologies including 64 bit architecture, grid computing, clustering, and multi-core/multi-CPU; the system is built around J2EE on an Oracle database and the Linux operating system, yet it is designed to be platform independent.

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SATURN is a web-enabled system that uses the latest web technologies; users can deploy it on their internal network behind their own firewall or they can license it as an ASP system from Abacus Solutions.

SATURN certainly seems to be very flexible and easily configurable. All current needs such as security of access, audit trailing, the need to deploy software across the entire Enterprise and business process automation are built in and in some respects go further than many systems I have seen. For example, security features include limits on the number of login attempts and notification to system administrators of failed login attempts. Setting up the system is straightforward and the user can personalize almost any feature in the system. In these features, SATURN shares, and perhaps exceeds, the capabilities of many of the systems on the market but its broad and deep functionality makes SATURN somewhat unique. This includes:

- **Generation Modeling:** The system includes detailed asset modeling (heat rates, O&M costs, startup costs, emissions, outages, consumables, ramp rates, min runtime, min downtime, special operations, inventory, ...), detailed fuel modeling (heat, sulfur, carbon, and ash Contents), optimized unit commitment and economic dispatch including limits and constrained optimization (on/off cycles, on hours, emissions, fuel Use), and storage and renewable asset modeling.
- **Markets Modeling:** The software covers power (energy, capacity, ancillary services, RECs), fuels (including coal, oil, gas, and nuclear), emission allowances (including NOx, SOx, Carbon, and Mercury), weather, interest rates, FX, and others including a detailed multivariate correlation structure for forward and spot markets. SATURN supports different types of stochastic simulators including GBM, autoregressive, mean reversion, jump diffusion, and hybrid models.
- **Trade Capture and Contracts Modeling:** Another area where SATURN seems to have the depth required for physical and financial players is in the contracts and valuation side of the software where power, fuels, weather, storage, loads, transportation, transmission are all included along with FX, Insurance, options, and other deal types. Users can choose between quick closed form valuation solutions and computationally intensive full simulations based on their needs and preferences.
- **Risk Management:** In terms of analysis and risk management, the system integrates the 3 fundamental sources of risk (market, credit, and operations) and features a wide variety of analytics, models, reports (VaR, PaR, EaR, CFaR), scenario analysis, and stress testing.
- **Financial Analysis:** SATURN includes financial analysis and reporting capabilities (balance sheet, income statement, financial ratios, and others) and supports back office needs.
- **Data Mining:** Historical market and generation data can be easily collected and stored for data mining and analysis. For example, markets simulation parameters can be readily derived from recent data and market quotes; generation outage rates can be easily calculated from actual operating records.
- **Integration:** SATURN's breadth and depth are carefully balanced to facilitate integration and elimination of redundancies. Dr Jabbour expects each SATURN deployment to "replace 2-3 major software systems and many EXCEL spreadsheets."

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Additionally, SATURN has been designed to cater to entities with operations in different countries, markets and regions. One key feature of the system is the ability to set up and define dashboards accessing SATURN data or data from other systems within and outside the Enterprise, again something that a few other ETRM solutions now offer. "SATURN is expected to have a broad and wide range of users within an organization including entry level analysts and executives across many functional areas," according to Dr. Jabbour.

So is SATURN the breakthrough that Dr. Jabbour set out to design and build? With its emphasis on integration and data mining (especially with the powerful graphical and user configurable user interface), it might well be. But what about system performance given SATURN's focus on data intensive businesses and physical assets? Abacus claims to have solved performance issues for data intensive modeling systems too with its reliance on all new, powerful technologies. While SATURN has not yet been released to the market and, in this business, the proof is in the pudding or deployment and use in a live business environment, SATURN is already in full trial with a number of "large" organizations, reports Dr. Jabbour. One of these organizations told me, "SATURN appears to be the next generation of modeling and analysis software; in tests on 10-year data sets it not only provided the 'right' answers but 20 times faster than our existing software." They are currently stress testing the software and have so far been impressed.

SATURN's most likely competitors will be those software vendors that are focused on entities operating in physical power markets such as Global Energy, The Structure Group, New Energy Associates and PCI. These vendors, together with Abacus Solutions, are now moving towards creating true Asset ETRM software solutions by virtue of their existing tools in areas such as market modeling, asset modeling and bid to bill solutions. Perhaps the advantage that Abacus Solutions has over its competitors is that this software is built bottom up on a new platform and is able to take advantage of Dr. Jabbour's extensive experience of what users are looking for. Its disadvantage is simply that it has not yet been deployed in a live environment. If SATURN performs in the real world as it seems to be doing in on-going trials, then Abacus will have delivered something innovative and unique to this software market.

Dr. Jabbour also chose the software's name rather carefully. "In many ancient sources SATURN is called the 'star of the Sun'; the Greeks called it ,'the shining one' or Phaenon," he told me. "I found the name fitting for a technology intended to shine in a space in need of fresh innovative ideas." Based on the demonstration and comments of various users currently testing SATURN, Dr. Jabbour and Abacus seem to just have succeeded.

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Dr. Salim J. Jabbour

Dr. Salim J. Jabbour, a 20-year veteran of the energy industry, is President and CEO of Abacus Solutions Inc, a software firm he founded in 2004. Previously, Dr. Jabbour had founded the consulting and software company BMC and sold it to Nexant in 2001. Prior to BMC, he was the managing director of the energy practice at DFI. Dr. Jabbour is the author of a book and several papers. He is a regular speaker at conferences and executive management meetings. Dr. Jabbour holds an MBA and a Ph.D. in Mechanical Engineering (Stanford University).

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