



*Putting Knowledge Into Action*



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## **The Rising Need for Environmental Software Solutions**

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As the U.S. government inches forward on Federal climate change information, the more apparent it is that corporations must start looking seriously at their IT budgets to measure, track and monitor their carbon (and other emissions) footprints. A compliance driven environmental market will sustain the need for more environmental software applications. Indeed, the software industry is already creating new software applications in anticipation of these impending changes.

### **Measuring the Carbon Footprint**

Outside of the energy industry, which has had to comply with environmental laws since 1993 in Southern California and 1995 under the Federal acid rain program, most companies have not been required to report their emissions footprint. Because of this lack of data sets, there is a huge market opportunity for software applications and consultants to offer services to Fortune 1000 companies in the United States. Large consulting firms like CH2M Hill and ICF consulting, as well as many software companies have stepped into this void. These software companies include IHS, Locus Technology, Zero Footprint, Vision Monitor, Sungard Energy Solutions and Navita to name a few.

### **Green Trading Takes Off**

Trading software application markets can only occur when those markets have reached a level of maturity where trading is active. That is about to occur in the United States and has already occurred in the EU Emissions Trading Scheme. The European Union (EU) market is a fairly simple power market compared to the larger scale U.S. market and its massive carbon footprint of six billion tons. A U.S. cap and trade program will be industry-wide and regulatory coverage is expected to be 80 percent of U.S. business. That means moving beyond the energy patch, and looking at industrial processes, transportation, buildings and possibly agriculture. This means Fortune 1000 companies must comply with emerging environmental laws across their supply chain.

The present environmental financial markets are being expanded from their existing infrastructure of 38 markets presently traded to a deeper economy wide program that will create many more markets in coming year. The U.S. carbon footprint is six billion tonnes, and if you add in Canada with its 1.3 billion tonnes, the North American carbon market is over 25 percent of global greenhouse emissions. There will also be

North American linkages to the EU Emissions Trading Scheme and other regions active in emissions trading in Asia and Latin America. This trend indicates that the resulting software systems will need to be both robust and modular. Since many of these applications will reside with the energy trading desk, we see environmental trading as an extension of energy trading to a large degree.

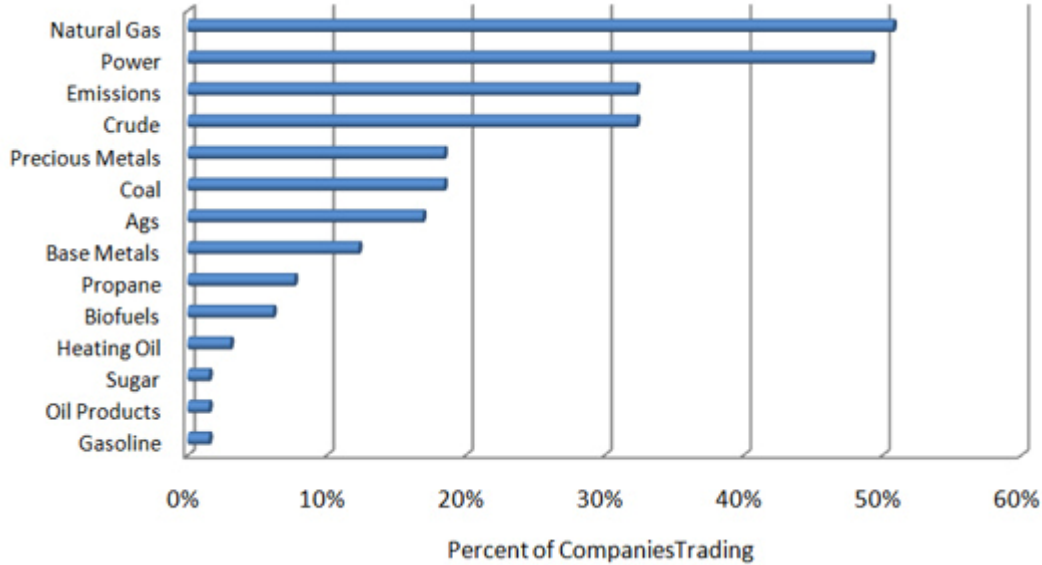
### **A Clash of Two Software Markets?**

In our book on ETRM software<sup>1</sup>, we discussed the coming clash of two software markets as vendors that produce emissions monitoring software and those that produce ETRM software both attempt to respond to these requirements. The environmental compliance software market is still a relatively immature category with numerous small vendors. Additionally, while many offer the ability to measure, monitor, forecast and report emissions, in reality they lack the true trading and risk management capabilities that are needed in today's commodity markets. More importantly, they lack the ability and the experience of integrating with other systems such as generation dispatch, generation optimization and energy commodities trading, scheduling and risk management systems. On the other hand, while the ETRM vendors may often lack emissions trading or tracking and risk management-specific functionality, they have both the framework and configurability to add this functionality in a relatively short timeframe. However, they fall very short when it comes to measuring, monitoring, forecasting and reporting emissions. Given the potential short fall of functionality of both groups of vendors, one can expect alliances and partnerships to develop initially between the players in both software markets.

A further issue to consider with these software vendors is whether their software is targeted at the physical or financial side of the energy business. This is a key consideration for a utility with generation assets. Many ETRM vendors originated in serving the financial markets. As a result already lack the ability to truly model the complex behavior of generation facilities (such as mixed fuels, variable efficiency rates, etc.) or retail customers correctly. This behavior is made more complex by the addition of emissions. What utilities dealing with EU ETS and similar schemes require is a trading and risk system that was designed to cater for the physical specifics and complexity of their business. Despite that, the experience of many utilities and trading firms in Europe has been to utilize their existing ETRM software to trade emissions.

Our recent “commodities study”<sup>2</sup> also highlights just how widespread the trading of emissions is today—and it isn't simply a European phenomena either. Emissions were the third most actively traded group of commodities amongst the North American respondents to the study with just over a quarter of all respondents actively trading emissions there as compared to 60 percent of all European respondents. What this demonstrates is that either the existing ETRM software solution employed is actively being used to support emissions trading already today or, spreadsheets or other solutions are being utilized. What remains unclear from any past UtiliPoint study is how widespread the use of emissions monitoring software is and what the nature of the linkage between the monitoring and trading side actually is. Indeed, this will be an area of investigation in our new study (see below).

**Figure 1**  
**Physical Commodities Traded by the Commodities Study Respondents**



**Summary**

As the United States now appears set to gear up for further regulations around emissions, it seems that trading firms are a step ahead in some respects in seeing the opportunity to profit from emissions trading. But we expect emissions trading to grow and as they do so so will the need for emissions trading software. However, the consequences do not stop there as many businesses need to monitor and report their emissions and to utilize emissions credits to manage their footprint effectively. This set of business imperatives should drive the emissions software markets and two types of software vendors (trading and monitoring) will start to potentially morph and merge. Our new study is designed to analyze the implications of this and to review the emissions software market and solution landscape generally to help utilities and energy companies better understand the lay of the land.

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<sup>1</sup> Trend in Energy Trading, Transaction & Risk Management Software—A Primer, Booksurge, 2006 by Dr. GM Vasey and Andrew Bruce  
<sup>2</sup> Changes in Commodity Markets—Impacts on Traders and Software, UtiliPoint Report, 2009

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*UtiliPoint International, Inc. and Global Change Associates have undertaken a sponsored environmental software study called “Emissions Trading and Monitoring Software Study.” The research will be conducted during the next three months with delivery of the report in May 2009. For further information contact with Gary M. Vasey, Ph.D. ([gvasey@utilipoint.com](mailto:gvasey@utilipoint.com)) or Peter C. Fusaro ([peterfusaro@global-change.com](mailto:peterfusaro@global-change.com)).*



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