

Energy

SO₂ Allowances Are a Strong Buy



Sulfur dioxide (SO₂) allowances, which are issued by the U.S. Environmental Protection Agency (EPA) to major electric power plant emitters are currently undervalued given energy-market fundamentals. That is the conclusion of John Blaney, a senior vice president with ICF Consulting's energy practice.

With EPA's market-based approach to controlling emissions, utility companies can trade these allowances among themselves instead of adopting other strategies to come into compliance with the Clean Air Act, such as installing SO₂ scrubbers in their coal-fired power plants. In 1996, ICF Consulting predicted that the SO₂-allowance price, which was \$75 at the time, would eventually rise to \$200 or higher. In June 1999, the price peaked at \$212, but has since settled at around \$150. On March 27, EPA conducted an auction to sell 250,000 additional allowances.

Blaney believes that SO₂ allowance prices have been driven lower by a misreading of recent EPA lawsuits. EPA has sued 10 utilities for non-compliance with the New Source Review requirements of the Clean Air Act. Market players apparently fear that these lawsuits will create a surplus of allowances, as these utilities are required to install scrubbers, which will decrease their reliance on allowances. But Blaney believes that if EPA prevails, it either will adopt a market-based solution in which the total allocation of SO₂ allowances is significantly reduced or will simply retire the allowances held by seven utilities as it has already done with the one utility with which it has already reached an agreement. Either scenario will lead to higher prices. Blaney still believes that buying SO₂ allowances now is a strong investment, and that their price will rise significantly above current levels over the next few years.

Information Management

Improving Web Content While Reducing Cost

Current, rich content attracts Web site visitors, but stale or irrelevant content can drive clients and customers away. Moreover, traditional content updating methods are costly and time consuming. Annual maintenance expenses for a Web site may run up to 90 percent of the development

cost. Part of the reason for high maintenance cost and updating bottlenecks is that content experts and communications professionals are not typically making Web site content changes. Instead, skilled Web developers make the changes, driving up cost and delaying updates.

Content management solutions that include the following critical elements will improve the quality and speed of updating Web site content, while reducing the cost:

- Dynamic, automated system that generates content "on the fly" from back-office systems
- Easily deployed, low-maintenance, and scalable content management system
- Multi-user infrastructure that allows geographically dispersed editors to update content
- Work flow and approval process to retain the quality of the content
- Common graphic and design elements to reduce customization

To address these needs, ICF Consulting developed its WebAssist™ to power a growing number of Web sites including the United Nations' award-winning Global Compact Web site (www.unglobalcompact.com).

Environment

Improving Efficiency by Integrating Environmental, Quality, and Health and Safety Management Systems

It is widely held that businesses can operate more efficiently if they properly integrate their environmental, quality, and health and safety management systems. Despite the clear benefits of integrating these systems, it is unusual to find businesses that have actually accomplished it, because the integration is often viewed as an overly complex and resource-intensive undertaking.

Recently, ICF Consulting's Toronto office supported the four hydroelectric facilities of Ontario Power Generation (OPG) in registering their Environmental Management Systems to the international standard, OPG was also engaged in the implementation of an ISO 9002 compliant quality management system and the adoption of BSI OHSAS 18001 for the design of its occupational health and safety management system. ICF Consulting was

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Consulting Insights (cont.)

engaged to ensure the effective development and implementation of these management tools and their efficient operation and alignment. OPG's three management systems were integrated by identifying the common elements—training, communication, records management, internal audits, and document control—and adapting or developing them into alignment with those of the other systems. Two other Canadian utilities have commissioned ICF Consulting to perform similar work, which suggests a growing interest among North American businesses in integrating these systems.

Economic and Community Development

Study Documents Connection between Lead Exposure in Children and Temporal Changes in IQ, Violent Crime, and Unwed Pregnancy

A recently released study, "How Lead Exposure Relates to Temporal Changes in IQ, Violent Crime, and Unwed Pregnancy," compares changes in children's blood lead levels in the United States with subsequent changes in IQ, based on norm comparisons for the Cognitive Abilities Test (CogAT) given to representative national samples of children in 1984 and 1992. The study was written by Rick Nevin, a vice president with ICF Consulting. The CogAT norm comparisons indicate shifts in IQ levels consistent with the blood-lead-to-IQ relationship reported by an earlier study and population shifts in average blood lead for children under age six between 1976 and 1991. The CogAT norm comparisons also support studies indicating that the IQ-to-blood-lead slope may increase at lower blood lead levels. Furthermore, long-term trends in population exposure to gasoline lead were found to be remarkably consistent with subsequent changes in violent crime and unwed pregnancy. Long-term trends in paint and gasoline lead exposure are also strongly associated with subsequent trends in murder rates going back to 1900. The findings on violent crime and unwed pregnancy are consistent with published data describing the relationship between IQ and social behavior. The findings with respect to violent crime are also consistent with studies indicating that children with higher bone lead tend to



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display more aggressive and delinquent behavior. This analysis demonstrates that widespread exposure to lead is likely to have profound implications for a wide array of socially undesirable outcomes.

For the full text of the study, click on "What's New" at www.icfconsulting.com.



ICF Consulting is one of the world's leading consulting firms advising clients on managing the world's natural, physical, economic, and community resources in a sustainable way. The firm's more than 750 employees help clients optimize energy resources, meet environmental challenges, foster economic and community development, enhance transportation policy and projects, and manage information technology resources. ICF Consulting's clients include firms in the energy and utility industries, all levels of government, and national and multilateral organizations throughout the world. Based in the Washington, D.C. area, ICF Consulting has 14 other offices around the globe, including offices in Bangkok, Chicago, London, Los Angeles, Melbourne, Moscow, New York City, and San Francisco.

On July 1, 2000, ICF Consulting celebrated its first anniversary as an independent company after separating from ICF Kaiser International, Inc.

For more information on ICF Consulting's services, please visit our Web site at www.icfconsulting.com.

For more information about any article, please contact us at 1.703.934.3659 or by e-mail at consult@icfconsulting.com.

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BP Amoco's Greenhouse Gas Audit Sets the Stage for Industrial Companies Worldwide

For its global operations, BP Amoco recently developed the first-ever, corporate greenhouse gas (GHG) emissions auditing protocol consistent with international financial and accounting standards. The study, performed by a three-company team that included ICF Consulting, is expected to lead the way for industrial companies seeking to develop auditing and internal trading practices in response to rising international concerns about GHG emissions—including CO₂ and methane—and their impact on climate change.

The audit was conducted to determine BP Amoco's progress toward its GHG emissions-reduction goals and to support its internal GHG trading system. BP Amoco currently collects and estimates direct and indirect GHG emissions at all upstream, downstream, and chemical business units. The team developed an audit process and institutionalized it through the preparation of internal audit manuals and checklists. The company's internal trading system works as most government-regulated air-quality trading systems—except that it includes only

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Developing Countries Can Capitalize on Global Economic Trends: Brazil's Pro-Northeast Initiative

Developing countries around the world look to the global economy to improve their economic lot. Despite the opening of global markets through trade agreements such as GATT and NAFTA, however, trade and capital flows remain concentrated in the industrialized countries, with the addition of a few newcomers. Many developing countries wonder whether they will ever see benefits from opening their

markets—especially if environmental and labor conditions on trade threaten to undercut the advantages of low-cost labor and materials.

ICF Consulting's economic strategy practice has been demonstrating that global economic trends truly hold promise for developing countries—but only if those countries understand how to capitalize on the trends.

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BP Amoco's Greenhouse Gas Audit (cont.)

BP Amoco facilities around the world and is voluntary, given that there are not yet any global GHG emissions standards. The improvement in GHG data gained from the audit findings also will prepare the company for external emissions trading if opportunities for that arise in the future. The audit evaluated GHG emissions data on the company's reported GHG emissions for 1990 and 1998 baselines. The team conducted more than 32 site audits of its largest

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emitting business units, which represented the vast majority of its corporate GHG emissions. An independent expert panel—which included members from government, non-governmental organizations, academia, and the United Nations—advised and challenged the project, ultimately improving the final outcome.

"BP Amoco has recognized for some years the importance of having accurate and transparent data relating to all of our emissions; ...we see a need for having an independent, robust and comprehensive audit of our reported emissions of greenhouse gases," said Bernie Bulkin, vice president and chairman of BP Amoco's climate change steering group. "This project forms an important part of BP Amoco's overall climate change program."

BP Amoco is a pioneer in GHG auditing and the first major multinational company to seek an independent GHG audit. Recently, Shell International also has developed its own internal GHG trading system for facilities in industrialized countries. Texaco and several other oil and gas companies are in the process of developing GHG emissions audit protocols and internal corporate baselines in preparation for developing internal trading systems. BP Amoco shares the insights it has gained in GHG auditing at industry conferences and on its Web site at www.bpamoco.com.

BP Amoco discovered that a key issue for its audit—which will likely be a problem for many other companies

conducting GHG audits of retrospective baselines—is that past data are not as complete as recent data. In the case of BP Amoco, emissions data from 1990 were used to establish a baseline by which improvement to the corporate target for emissions reduction could be judged. BP Amoco has cited several other areas in which data estimations and management processes need to be improved, including more unified guidance for methane estimation; more consistent methods of assigning

ownership of emissions at facilities shared with other companies; better data from facilities that are owned but not operated by BP Amoco, or that have been sold or closed; more uniform reporting from contracted services regarding the inclusion of sources, boundary definition, and the treatment of emissions; and improved quality assurance procedures, documentation, and management reviews for GHG reporting.

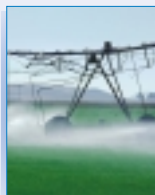
The audit determined that, despite uncertainties from retrospective data, uniformly applied protocols will make it possible to report GHG emissions without material misstatement.

ICF Consulting, KPMG, and Det Norske Veritas joined with BP Amoco to form the team that conducted the audit. ICF Consulting's global environmental issues practice is one of the largest sources of expertise on climate change-related issues in the private sector with more than 230 climate-change and communications specialists across its offices worldwide. The company has received a number of international and domestic awards in recognition of its work on climate change issues. ICF Consulting supports public- and private-sector clients on a range of environmental problems and has been actively involved since 1987 in the implementation of global climate change solutions and efforts to establish GHG assessment, monitoring, and verification standards.

Brazil's Pro-Northeast Initiative (cont.)

Too often, industry and governments in developing countries (and frequently in industrialized countries) overlook the real sources of long-term competitive advantage in today's global economy. They fear exposure to global concerns, such as environmental protection, that in reality need not impede their growth.

The nine-state northeastern region of Brazil is the latest illustration of how, with a bit of reorientation in its development strategy, an economy can begin to capitalize on global market trends. ICF Consulting has just completed a year-long engagement to support the first three phases of Brazil's Pro-Northeast Initiative. With financial support from the World Bank, nine states in northeastern Brazil launched the initiative in April 1998 to elevate their economies to the same level as the traditionally more prosperous states of the South, where Brazil's economic growth has continued to center. ICF Consulting was brought on board to devise a new economic development strategy for the Northeast and to help turn that strategy into concrete action. Using the "industry cluster" approach that they have been developing for more than two decades, ICF Consulting's specialists focused on four industries in three states with hidden promise: fruits, grains, tourism, and informatics.



Although the Northeast has good growing conditions for fruits in increasing demand in North America and Europe, such as mango and melon, it had been exporting little of its fruit production. The potential for a major export industry was there, but untapped. The Northeast's fruit producers needed to understand which varieties of those fruits were in

greatest demand, during what weeks they were in demand, and in what regions; producers needed to adjust production accordingly. With help from ICF Consulting and its subcontractor Agland, the Northeast's fruit producers are moving to organize themselves effectively, build the facilities they need, tap new sources of financing, and are beginning to expand sales to North American markets.

Soybeans are the product of the Northeast's grains industry with the greatest export potential, and in fact, northeastern states are already substantial soybean exporters.

But analysis showed that productivity in this sector, while competitive in export markets, left room for improvement. The causes were inadequate roads to ports and overly high costs for inputs such as fertilizer and chemicals because of the lack of local suppliers.



Tourism is one of the fastest growing industries worldwide, and the Northeast has all the makings of a tourism destination: natural beauty, beaches, historical cities, and culture.

The local tourism industry was growing at a good rate, but it was failing to attract international visitors and other high-end market segments. This industry needed to bring its hotels up to world standards; develop a brand identity for marketing; improve local infrastructure; and gain access to the financing required to make these improvements. The actions now being taken in response to the study include training hotel staff, renovating historical districts, and improving local infrastructure in targeted areas.

That the Northeast already has a sizeable informatics industry might come as a bit of a surprise. It is a "cottage industry" of some 500 generally small, but highly entrepreneurial, firms with visions of becoming players in global IT markets. ICF Consulting found, however, that these firms were providing mainly low-end services, were inadequately capitalized, and had insufficient knowledge about the evolution of both technology and markets. To build competitive advantage for this highly fragmented industry, ICF Consulting steered IT companies towards banding together to share knowledge and information, building linkages with international informatics centers (Austin, Texas, in particular), and redirecting their business development sights towards meeting existing demand in the Northeast for highly localized needs.

These four industry sectors in the Northeast are now better oriented and mobilized for action. Whether the Pro-Northeast Initiative will generate lasting economic improvements, however, depends on whether industry in the Northeast can sustain momentum and continue to maintain a competitive position in a global economy, to which it is now open.

August

August 3, 2000

Fairfax, VA. ICF Consulting's Mike Godec will present "What Are the Opportunities for E&P Companies, Pipelines, and LDCs?" as part of ICF Consulting's Energy Lecture Series. The lecture will be held in the auditorium of the company's headquarters. For more information, contact Sheila Hudson at 1.703.934.3181.

August 20-25, 2000

Pacific Grove, CA. ICF Consulting will have a substantial presence at the American Council for an Energy-Efficient Economy's (ACEEE) upcoming conference. Experts from ICF Consulting's energy, environmental, and information technology practices, in coordination with experts from public- and private-sector organizations, are presenting 12 papers at the 2000 ACEEE Summer Study on Energy Efficiency in Buildings Conference. The paper topics will include market transformation, energy efficiency in homes and buildings, and environmental issues. For more information, contact ICF Consulting's James Stimmel at 1.202.862.1117 or visit www.aceee.org/conf00s/register.htm.

September

September 7, 2000

Fairfax, VA. As part of ICF Consulting's Energy Lecture Series, Suellen Aldina and Bill Cork will present "Issues and Opportunities for Municipal Utilities" at ICF Consulting's headquarters. For more information, contact Sheila Hudson at 1.703.934.3181.

September 11-13, 2000

Atlanta, Georgia. ICF Consulting's Judah Rose will provide the opening remarks for **The Fundamentals of Merchant Power Finance conference**. For more information, contact Elizabeth Kaiga at 1.703.934.3497.

September 25-26, 2000

Calgary, Alberta, Canada. At the **Canadian Energy Research Institute's 2000 Electricity Conference**, Judah Rose will participate in the panel session titled, "Risk Management: Fundamental Analysis/Price Forecasting." For more information, contact Elizabeth Kaiga at 1.703.934.3497.

October

October 2-4, 2000

Chicago, Illinois. ICF Consulting's Judah Rose will speak at the **2nd Session of Infocast's Portfolio and Risk Management conference**, which will help participants learn how to analyze and manage the key risk factors that impact an integrated power portfolio. For more information, contact Elizabeth Kaiga at 1.703.934.3497.

October 5, 2000

Fairfax, VA. ICF Consulting's Todd Davis and Paul Anninos will present "**E-commerce Opportunities for Energy Enterprises**" as part of ICF Consulting's Energy Lecture Series. The lecture will be held in the auditorium of ICF Consulting's headquarters. For more information, contact Sheila Hudson at 1.703.934.3181.

Oct 16-19, 2000

Judah Rose will speak at **FT Energy Power Mart 2000**, North America's annual electric power marketing conference. For more information, contact Elizabeth Kaiga at 1.703.934.3497.

October 17-19, 2000

Morgantown, WV. At the **Eastern Regional Meeting of the Society for Petroleum Engineers**, ICF Consulting's Shree Vikas will present a paper titled, "Development of Reserves Booking Guiding Principles for Sound Reservoir Management." For information about the meeting, please visit www.spe.org. For more information, contact Shree Vikas at 1.703.934.3016.

December

December 3-6, 2000

Arlington, VA. At the **Annual Meeting of the Society for Risk Analysis**, ICF Consulting's James Laursen will present a paper titled, "Risk of Waterborne Infectious Disease in Children with Normally Developing Immune Systems." For information about the annual meeting, visit www.sra.org. For more information concerning this topic, contact Mr. Laursen at 1.703.934.3648.

