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Energy Security, Innovation and Sustainability Initiative

Progressive Dialogue II:
Demand Drivers for Sustainable Energy Solutions—Users

Proceedings Highlights
May 2008

Dialogue Preamble

The Council on Competitiveness launched the Energy Security, Innovation & Sustainability (ESIS) Initiative in July 2007 with a clear goal: to enhance U.S. competitiveness and energy security by shaping a public-private action agenda to drive private sector demand for sustainable energy solutions and support the creation of new industries, markets and jobs.

The core premises of this Initiative are as follows:

- The need for secure, sustainable energy is the defining competitiveness challenge and opportunity of the 21st century.
- As the innovators, investors and adopters, the private sector is the pivotal actor at the nexus of the energy-sustainability challenge and opportunity equation.
- The private sector needs government to set the enabling conditions to create a consistent outlook and regulatory framework for investment decisions and technology development.

Progressive Dialogue II: Demand Drivers for Sustainable Energy Solutions turned the focus to the ESIS Initiative's final two premises: the pivotal role of the private sector in affecting energy systems transformation and the enabling conditions that government must seek to unleash this process.

Experts participating in **Dialogue II** represented the energy "users" perspective and addressed the following questions:

- What is the current state of energy management in the private sector today and what barriers do enterprises face in trying to evolve their approach in this area?
- What conditions must enterprises cultivate within their own organizations and in the marketplace to give the needed focus and prioritization on energy-related issues?
- What actions must government take to create a consistent outlook and regulatory framework for investment decisions and technology development?

PRIVATE SECTOR ENERGY MANAGEMENT—THE CURRENT STATE

There is a Wide Spectrum of Approaches

The Council's first Progressive Dialogue revealed that, while energy efficiency powerfully impacts the ability of all companies to compete, the United States is nevertheless a global laggard in energy productivity.[1] This finding suggested a disturbing disconnect. As such, a key objective for **Dialogue II** was to develop an understanding of how private sector actors are currently approaching energy management within their organizations.

To facilitate this process, the Council conducted an informal online survey of the expert participants in **Dialogue II** to develop insights in four key areas: 1) Commitment & Goals; 2) Assessment & Measurement; 3) Implementation; and 4) Decision Rules and Decision-making Process.

The survey found that energy management is a top priority for all organizations, but there is a wide spectrum of approaches being taken. There were also indications that there is ample opportunity to evolve energy management disciplines and further optimize energy use without the need for government regulation or legislation.

The U.S. Private Sector is in a Period of Transition

The diversity in approaches to energy management revealed in the Council's informal survey bears out an important finding: the U.S. private sector is in the midst of a very significant transition in its approach to energy, and in some instances, carbon management.

[1] Energy productivity is defined as the ratio of production (or service) output in GDP dollars to units of energy input.

Dialogue II revealed a continuum, where at one end energy has only recently become a focus of the enterprise procurement function, and at the other, it is already a strategic issue, having ascended to the upper echelons of management, including the board of directors.

U.S. Business is behind the Global Sustainability Curve

When it comes to adherence to sustainability principles, European companies are on a different and faster track than American companies. This shift is being driven largely by national and EU commission-wide rules and mandates. This gap is particularly apparent at the CEO level, where managing carbon impact is almost universally viewed as a strategic priority for the business. Implementation of sustainability practices is evident throughout the European enterprise, even reaching the customer. "They have carbon footprints on their foreheads in Europe," according to one Dialogue expert. Plant managers are empowered to assess and shift their own practices at a local level and are rewarded for helping achieve the broader organization's carbon goals. Average Europeans have fully integrated carbon neutrality into the consumer mindset—both reflecting and reinforcing the corporate commitment.

The Business Case for Sustainable Energy is Multifaceted

As energy price and supply volatility continues, and global interest and attention to environmental sustainability continues to mount, the business case for pursuing sustainable energy strategies has developed multiple facets. **Dialogue II** participants identified risk management, business survival, stakeholder pressure, and economic self-interest, or "good business sense," as the key motivators, with each weighing differently depending upon the nature of the organization.

The Role of End-use Energy Technology in Addressing Climate Change

Jae Edmonds, Chief Scientist and Laboratory Fellow, Joint Global Change Research Institute, Pacific Northwest National Laboratory

As far as the atmosphere is concerned, all carbon counts the same. It does not matter whether emissions went up from a fossil fuel or through land-use change. The world must decide to reduce emissions from energy use—through the utilization of end-use efficiency and fuel substitution. Stabilizing, and ultimately reducing atmospheric concentrations of greenhouse gases, is a public goods problem unlike any with which the world has ever dealt.

The decision to constrain emissions means that there is a value affixed to the emissions, and putting a price on them will be the only way to stimulate the world to adopt and advance the tools needed at a scale large enough to address climate change. It is important for the world to understand that the end result is a global energy system that looks dramatically different than that of today.

FACTORS AFFECTING PRIVATE SECTOR DEMAND FOR SUSTAINABLE ENERGY SOLUTIONS

Enterprise Factors

Leadership, Vision and Commitment

The engagement and focus of the chief executive and a company's board of directors of a company on its energy and sustainability agenda is a critical determinant of the success of any related initiatives. Executives set the tone and send the signal throughout the entire organization.

Performance Standards & Metrics

Enterprise-wide energy metrics, along with supporting information systems and metering technologies, are pivotal to optimizing energy management. Because energy prices have been so low for so long, most enterprises have not had the incentive to invest in measuring or monitoring energy consumption to any great extent. But energy metrics matter for several reasons. Metrics allow managers to tell the internal energy story and make the case for process improvements and key investments. Metrics drive performance improvement by revealing progress toward established goals, which in turn drives the reward system. They also permit benchmarking across industries and economies, which provides a more thorough and accurate understanding of comparative energy intensity and productivity performance. When implemented transparently, metrics can enable public recognition for improved energy and carbon management and allow consumers to make informed purchasing decisions. EnergyStar is an excellent example of a public program that recognizes organizations for energy performance, informs consumer choice and moves people in the right direction.

Internal Decision Frameworks

Energy optimization strategies entail investments not only in metering and information technologies but also in deployment of the most energy efficient capital equipment available. This may mean industrial process controls equipment for one company or highly efficient data servers for another. However, **Dialogue II** experts confirmed that the internal decision framework employed by an organization can either inhibit or promote investments in energy efficient technologies and equipment. Key variables within the decision framework include: financial measures applied to the investment, the individuals within the organization who make the investment decisions, adequacy of human resources dedicated to identifying efficiency opportunities and the extent to which energy management is linked to the organization's strategic goals or mission.

Supply Chain Expectations & Opportunities

The competitiveness of any enterprise is directly affected by the competitiveness of their suppliers. Some companies are already starting to manage their supply chain from this perspective. Bringing energy efficiency goals and metrics into business-to-business interactions will accelerate the uptake of energy saving measures and speed the development of new and more efficient products and services. In fact, organizations have the opportunity to "multiply themselves" through the supply chain by extending their own energy-related performance requirements to their suppliers.

Information, Awareness & Training

A recurring theme in **Dialogue II** was the important role that information, education and awareness must play in moving organizations, markets and consumers to embrace sustainable energy solutions. Companies do not invest in more efficient manufacturing technologies because they do not know that they exist. Consumers do not purchase more efficient energy appliances because they do not realize the higher upfront price of the product will be more than covered by energy savings achieved over its service life. Both companies and consumers are concerned about climate change, but they do not recognize the strong linkage between energy consumption and carbon emissions. **Dialogue II** participants identified the lack of energy information, education and awareness as a key factor in one of the major market failures confronting the United States—a weak response to energy price signals.

Making Money

Beyond addressing their own energy costs and carbon footprint, many organizations have the opportunity to be a part of the sustainability solution for the markets and customers they serve. They can design energy considerations into technology development, products and services, or in the case of educational institutions—into curricula and research. By addressing energy and carbon issues in their marketplace, enterprises will also better position themselves to compete successfully in a global economy being rapidly reshaped by energy and climate change. When all is said and done, delivering sustainable energy solutions is about making money.

Two Revolutions in Environmental Thinking

Daniel C. Esty, Hillhouse Professor of Environmental Law and Policy and Director of the Center for Business and Environment and the Center for Environmental Law and Policy, Yale University

Energy security and environmental sustainability are the fundamental challenges of our era. Central to addressing these challenges is supporting U.S. competitiveness through a combination of private and public sector solutions. Since the Framework Convention on Climate Change was launched 18 years ago, there have been two significant changes: a revolution in environmental policy and a green wave sweeping the business world.

In the next few years, mandatory regulations on greenhouse gases are inevitable, and price signals will be a central element of the regulatory strategy. Price signals will drive innovation in the private sector, the key to solving the sustainability challenge. The good news is that money is already flowing in the direction of alternative and energy efficient technologies. Overall, there needs to be a level playing field, rather than the government picking winners.

Just three years ago, most companies did not understand the importance of bringing energy and the environment into their core strategy. Today that has completely changed. Stakeholders have broadened and deepened, and customers have become an important environmental sustainability driver. The United States has and will develop the capacity to capitalize on its entrepreneurial spirit to produce competitive solutions to climate change.

Government Factors

Presidential & Federal Leadership

Energy security and sustainability need to be a front-burner issue for the next president—on par with the war on terror. Just as chief executives within the private sector must be the visionaries and champions of their organization's efforts in these areas, so too must the next president of the United States set an overarching framework and high goals for the nation. In addition to presidential leadership, there are several areas within the nexus of America's energy security, sustainability and competitiveness challenge where **Dialogue II** experts believe there is no substitute for a concerted federal role. These are areas where neither the private sector nor the states alone can create the conditions conducive to driving innovation, investment and deployment of sustainable energy solutions. These are areas that require coherent, consistent and national policies that will act to streamline and accelerate both public and private sector efforts. A "patchwork quilt" of rules, regulations and initiatives in these areas inhibits U.S. progress. Key areas for federal leadership are energy metrics and standards; the electric grid and transmission system; and international negotiations in a post-Kyoto era.

Utility Regulation

Reaching into every home, school and business in the United States, electric and gas utilities are uniquely qualified to help drive private sector demand for sustainable energy solutions. Utilities could roll out energy efficiency programs to every company and citizen, in every city, in all 50 states. Yet today, most utilities are inhibited from working with customers to save energy due to the regulatory structure under which they are operating. With limited exceptions, utilities are paid to sell, not save, electrons. Utilities are also well positioned to play a key role in the development of energy efficient devices and technologies, yet research and development by the industry is quite low as compared to other industries.

Fiscal Policy

Government fiscal policies are powerful drivers of investments. In the case of investment in sustainable energy solutions, **Dialogue II** experts focused on two key issues: first, the need for the government to establish a clear, transparent and positive price signal to value carbon; and secondly, clear and consistent tax policies that will accelerate investment in more energy efficient capital plant and equipment. A value on carbon will relieve ambiguity in the marketplace and accelerate investment in cleaner energy technologies. Reform of tax policies will remove unintended impediments to new investment and accelerate the turnover of less efficient capital stock and equipment.

Research & Development

Government has a critical role to play in speeding the development of advanced energy technologies and in reducing the risks associated with demonstrating capital-intensive and large-scale energy technologies. Government investment in energy-related basic research can provide a strong foundation for private sector energy R&D and commercialization efforts much the way it has for the biomedical and pharmaceutical industries. A large and ready customer for sustainable energy solutions, such as that represented by the federal government, can accelerate the penetration and mass deployment of new technologies into the marketplace.

Public Education & Awareness

There is a huge need for public awareness and education on energy and sustainability issues starting from the K-12 system through graduate education and extending out to the general public. Education of primary school children will teach energy fundamentals while shifting values toward environmental stewardship. Higher education cannot yet meet the needs of the energy sector for highly-trained employees. Oil and gas companies are desperate for highly-trained employees they do not have. There will soon be no operators for nuclear power plants; the United States will need to recruit them from France. The nation needs educational programs that go beyond traditional educational silos and instead focus on a multidisciplinary approach to produce an energy professional such as a ‘green engineer’ who can look at business energy management holistically. We need to connect schools of architecture with engineering and management schools.

The Role of Transmission in Achieving Energy Efficiency

Joseph Welch, President and CEO, ITC Holdings Corporation

Transmission represents approximately seven percent of the end-use consumer's electricity bill, but it provides much more value. The nation's transmission system offers "six degrees" of service: reliable energy delivery, efficient regional dispatch of generation, competitive wholesale markets, demand response programs, economic development and increased access to renewable resources.

The current condition of the grid is contributing to a significant loss of energy efficiency and reliability, however. The electric grid in the United States is in disrepair, threatened by an inadequate, aging infrastructure and a deficit in human capital. There are blackouts, increased system losses, lack of infrastructure to support generation additions such as renewables, and lack of regional transmission capacity to facilitate regional markets. There have already been several wake-up calls. It is a miracle that blackouts and other disruptions do not happen more often.

CONCLUSIONS

The experts participating in **Dialogue II** provided valuable insights into the current state of energy management among U.S. enterprises today. They also identified a number of distinct areas where changes in private and public sector action would serve to propel enterprises across the United States to develop and deploy a wide range of sustainable energy solutions —thereby enhancing the nation's energy security and competitiveness while also creating new markets, industries and American jobs. By the end of the brief but impactful journey of discovery that two days of intense dialogue provided, the expert participants arrived at three conclusions about the nature of the challenge and opportunity that lies before the United States.

It Requires Holistic Thinking.

Energy security, sustainability and economic competitiveness are interdependent issues. They cannot be considered in isolation of one another. They require holistic thinking across multiple spheres, including the product and technology level, the enterprise level, and the policy level. The United States is not yet approaching these issues in a holistic way. A holistic approach—employing life-cycle analysis as appropriate—is needed to ensure that U.S. public and private sector actors are making well-informed choices, decisions and investments in technology, infrastructure, capital equipment, and human resources, which together serve the nation's conjoined interests of energy security, economic competitiveness and sustainability.

It Entails a Multipronged Approach.

Just as there is no "silver bullet" technology that will be able to meet America's energy security and sustainability needs, there is no one policy fix or business decision that will get the nation where it needs to go in these areas. The transformation of the U.S. energy system will entail a range of actions by the private sector in tandem with a suite of integrated and coordinated policy measures by government. America needs a comprehensive energy roadmap that will drive private sector demand for sustainable energy solutions, enabling the creation of new markets, industries and jobs while enhancing U.S. energy security and competitiveness.

It is a Shared Responsibility.

As the innovators, investors and adopters of sustainable energy solutions, private sector actors are indeed pivotal to energy system transformation. But the vision of a secure, sustainable and competitive energy future cannot be realized through the actions of the private sector alone. Government must create enabling conditions and consumers must come to see themselves as part of the solution. The success of both government and private sector initiatives will often depend upon the will of the public to embrace change. There is a shared responsibility for public and private sector leaders to bring clearly into light the magnitude and urgency of both the challenges—and the opportunities—that the need for energy security and sustainability presents for America.

