

The Energy–Competitiveness Relationship

Progressive Dialogue I

Executive Summary

In the past forty years, worldwide energy consumption has nearly doubled, driven by population growth, rising living standards and the invention and wide-scale deployment of technologies, products and services dependent upon energy to function. If present trends continue, global energy consumption will double again by mid-century. These demand pressures, coupled with periodic volatility in energy supplies, has put an upward pressure on energy prices in many parts of the world including the United States.

The cost of energy is clearly impacting the prosperity of the United States. But the story does not end there. The economic toll exacted by maintaining the current state of energy use, as well as the prospective windfall for ending it, has not been adequately captured or communicated in the context of competitiveness.

This paper defines the linkages between our nation's need for greater energy security, the global imperative for environmental sustainability, and U.S. economic competitiveness at the enterprise and national level. A more fulsome understanding of the various ways in which energy is now impacting—and driving—U.S. productivity and global competitiveness will add a critical new dimension to the national debate. This articulation of the business case for action and a policy path forward will create the foundations of a public-private sector action agenda, while also adding momentum to the case for energy system change.

To bring these issues to light the Council on Competitiveness convened over three dozen thought leaders and experts from U.S. industry, labor, government, academia and non-governmental organizations to participate in the first in a series of three Progressive Dialogues being conducted under the auspices of the Energy Security, Innovation & Sustainability (ESIS) Initiative. Over the course of two days a number of core findings emerged. These findings are instructive, pointing a way forward to constructive action and change at both the national and enterprise level of the economy.

National Competitiveness Findings

The United States Is a Global Laggard in Energy Productivity.

The United States is the most energy-intensive developed region today and lags behind its OECD competitors in improving energy productivity. At the same time, many developing regions are making rapid progress in reducing their energy intensity. To the extent that energy is an important part of production costs, the United States is losing competitive ground relative to its global competitors. Energy productivity, like labor and capital productivity, is important for wealth creation. The United States has underinvested in energy efficiency. American business leaders in general are not as knowledgeable or open to the economic opportunity inherent in improved energy management as they should be.

U.S. Government Policies and Regulation Can Inhibit Energy Competitiveness.

There are current policies in place that serve to maintain existing energy technologies, such as depreciation cycles meant to keep old coal plants running, input-based emission standards, rules against hanging wires over streets and subsidies. It may be better to reassess and reform or disassemble these policies rather than simply layer new policies over existing ones. Lack of credible policy commitments, those that are sustained over adequate periods of time, can fail to motivate business behavior as intended. Local codes and state government policies can also inhibit the deployment of cleaner energy and energy efficiency technologies.

Transparent, Positive Price Signals Are a Key Ingredient in the Innovation Formula.

To maintain competitiveness and profitability going forward, businesses increasingly need to understand the significant “energy cost” of products they make or resell. The assignment of a market price to carbon, done carefully, can be a driver of innovation. Rather than being framed as a punitive measure to curtail energy use, energy/carbon pricing will work best if businesses or consumers see it as a positive, motivating force to get more value for their money (example: miles-per-gallon ratings of automobiles). Public utilities should also expand the use of motivational pricing. It is important to build excitement around reform and transition by carefully crafting policy and regulatory commitments that seek to motivate not through punitive measures but through incentives that reward innovation and action.

America Faces a Severe Energy Workforce Challenge.

Even as the demand for electricity continues to grow, the United States stands to lose half of the electric power industry workforce within the next five to ten years due to retirement. America's oil and gas workforce averages 50 years in age. Half are likely to retire in just three years. New energy technologies will not compensate for this workforce shortage. There is also more competition for talent today across countries and across sectors. Undergraduate students are not aware of the important role that electrical/mechanical engineers will play in addressing environmental challenges and that they could help solve real problems in this arena. More students are choosing careers in finance and business, and fewer are choosing science and engineering. Advanced placement courses are the key to college admissions, yet they are nearly devoid of engineering content. Much more needs to be done in K-12 education and beyond to promote careers in the energy field.

Consumers Are a Crucial Part of the Energy-Competitiveness Solution.

More than 60 percent of energy demand growth is driven by individual consumers. The economy continues to grow despite rising energy prices, and American consumers keep absorbing the higher prices suggesting that the price elasticity threshold has not yet been crossed. To address the consumer role, we need to find attractive ways to modify consumer behavior—not primarily to use less energy, but to get more productivity out of given amounts of energy. We need energy efficient products whose value to consumers can be articulated simply and concisely. We need to educate consumers better so that they can make wiser and more effective decisions, and we need better information about consumers so that we can pursue smarter innovation.

An Integrated Policy Framework is Vital to Ensuring Economic Prosperity, Energy Security and Environmental Sustainability.

We are confronted with the need to address multiple imperatives at the same time. It is important that we take a systems approach to the various choices and decisions ahead of us. This includes the assessment and design of public policy measures. As state, regional and international energy and sustainability initiatives proliferate, we need to better understand how these are impacting the ability of U.S. enterprises to compete at the national and global level. This also applies to energy and related technology choices, as each source has its own benefits and limitations. There are trade-offs across these areas, and it is important to employ life-cycle analysis to underpin decisions.

Enterprise Competitiveness Findings

Climate Change Is Becoming a Critical Driver of Business Competitiveness.

Climate change is viewed as an unpredictable, disruptive force (“Hurricane Katrina in slow motion”) that has focused attention on the pragmatic need to better manage energy use. Leading companies recognize that climate change concerns will impact their energy costs and business competitiveness, and they are preparing for that future by assessing their carbon footprints and building these issues into their business strategies. Climate change is having a profound affect on business models and operations, investment decisions and the management of critical industries such as energy and agriculture.

Leading U.S. Corporations See Energy and Sustainability Challenges as Opportunities for Competitive Gain—and Are Not Waiting To Act.

Although industry experts participating in Dialogue I see a pressing need for public policy advances related to energy and sustainability, leading firms are not waiting until these measures are proposed and implemented to act. A number of the firms already have relevant internal programs and initiatives in place across their worldwide operations. These companies typically view such initiatives not merely as compliance activities but as opportunities—seized or missed—for business development, innovation and competitive advantage. In fact, the ability to exploit energy and sustainability-related opportunities is becoming a barometer for a well-run company.

Energy Efficiency Powerfully Impacts the Ability of All Companies to Compete.

The rapid rise in energy costs in recent years has added significantly to the costs of U.S. goods and made it more difficult for U.S. firms to compete with countries with lower energy costs. Higher energy costs have a pervasive effect on the business ecosystem. For example, transportation, manufacturing and information technology sectors are highly sensitive to the cost of energy. In the agricultural sector, energy prices ripple up and down the supply chain, affecting the cost of producing crops, feeding animals and transporting food-stuffs. Initiatives that increase energy efficiency can powerfully benefit the competitiveness of U.S. business. Energy quality and reliability are also crucial. According to a study by Sandia National Laboratories, annual financial losses from power disruptions in the U.S. amount to \$150 billion and one-third of all computer problems are related to poor power quality.

Supply Chains Are Being Pressed to Align with Customer Energy Initiatives.

U.S. industry participants indicated that they are increasingly extending their interest in improving their energy management and reducing their carbon footprint to apply across their supply chains. Companies have become much more conscious of the energy costs and related risks that are passed along through the supply chain, and they are actively working to improve practices in this regard. The best firms design processes and innovative technologies with both their suppliers and consumers in mind. Dialogue participants noted that opportunities to optimize energy use exist across all industries, including healthcare, energy, manufacturing and retail. Participants observed that companies that manage their energy well tend to be better managed companies. The supply chain represents a very potent vehicle for promoting energy efficiency across the economy.

Conclusion

It is clear that the United States faces serious challenges and a new competitiveness landscape as it contends with the twin challenges of energy security and sustainability. America's continued economic growth and prosperity is at risk if we do not improve our energy productivity. Though the policy and regulatory response to these issues is still in flux—and can vary considerably at the state, national and international levels—leading companies are not waiting to act. As they do so, they are realizing significant cost savings and new opportunities for top line growth.

It is becoming evident that business is a powerful agent for promoting change in energy and sustainability practices, particularly as companies begin to push their energy and sustainability initiatives through the supply chain. Increasingly, effective environmental and energy management is viewed as an indicator of good business management. The private sector more broadly would be wise to be alert to these new competitiveness drivers and customer expectations. The ability of companies to respond to these trends would be enhanced by the development of transparent and positive price signals and a greater understanding of the true cost of energy inputs.

While companies can play a leading role in the transition to a more competitive and sustainable energy future, there are other issues the United States as a nation must tackle. America must elevate the importance of energy productivity as a measure of its economic competitiveness. The impending energy workforce shortages must be acknowledged and aggressively addressed by both the public and private sectors. Consumers must become part of the energy solution, and concurrently, a more influential factor in the energy innovation process.

Finally, the importance of a rational and integrated policymaking process cannot be understated. This may include retiring policies or regulations that serve to inhibit innovation or the deployment of more sustainable energy practices, products and technologies. It may involve greater coordination and harmonization of state, regional and federal policies. It will certainly require a greater level of systems thinking about the choices and trade-offs involved in reconciling our comprehensive need for energy security, sustainability and competitiveness.

Energy Security, Innovation & Sustainability (ESIS) Initiative

The goal of the ESIS Initiative is to accelerate the nation's achievement of energy security and enhance U.S. competitiveness 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 Initiative is led by a CEO-level Steering Committee composed of a diverse group of chief executives from business, labor and academia who bring a strategic and global perspective to the multiple facets of the energy-competitiveness equation.

Steering Committee (As of January 23, 2008)

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About the Council on Competitiveness

WHO WE ARE

The Council's mission is to set an action agenda to drive U.S. competitiveness, productivity and leadership in world markets to raise the standard of living of all Americans.

The Council on Competitiveness is the only group of corporate CEOs, university presidents and labor leaders committed to ensuring the future prosperity of all Americans and enhanced U.S. competitiveness in the global economy through the creation of high-value economic activity in the United States.

Council on Competitiveness

1500 K Street, NW
Suite 850
Washington, DC 20005
T 202-969-4292
Compete.org

For more information on the Council on Competitiveness Energy Security, Innovation & Sustainability Initiative, please contact:

Susan Rochford
Vice President
Energy and Sustainability Initiatives
T 202 969 3384
E SRochford@Compete.org

HOW WE OPERATE

The key to U.S. prosperity in a global economy is to develop the most innovative workforce, educational system, and businesses that will maintain the United States' position as the global economic leader.

The Council achieves its mission by:

- Identifying and understanding emerging challenges to competitiveness
- Generating new policy ideas and concepts to shape the competitiveness debate
- Forging public and private partnerships to drive consensus
- Galvanizing stakeholders to translate policy into action and change

The Council on Competitiveness is a non-partisan, non-governmental action tank located in Washington, D.C.