

Lessons from 20 Years of Energy Efficiency

Washington-area professionals gathered on April 24 for the sixth session of the IRG Discussion Forum, "Lessons from 20 Years of Energy Efficiency." Tom Dreessen of EPS Capital Corporation and Mark Hopkins of the Alliance to Save Energy discussed trends and initiatives at the round-table, which was moderated by Henri-Claude Bailly, chairman of the IRG Advisory Board.

A third of the world's people lack access to reliable and affordable energy, depriving them of the most basic services—education, healthcare, sanitation—and creating social instability. Meanwhile, development assistance directed at bolstering these basic services must consider both new energy provision and energy conservation in tandem as strategies to maximize energy access per investment dollar. Significant urbanization is occurring throughout the developing world. New commercial and large-scale industrial and residential buildings are being constructed at a swift pace, with insufficient consideration for efficiency standards, codes, and practices.

By implementing energy efficient practices now, developing countries could increase their available energy supply and improve energy access and reliability. This would in turn boost productivity, enable economic growth, and improve quality of life. Additionally, improvements in the efficiency of existing capacity will improve financial viability and may help spur investment in the new generation capacity needed to serve the increasing numbers of people and communities lacking access to electricity.

Projects

The successful application of energy-efficient design standards requires performance codes and training for engineers and planners to apply them. Existing standards, created for industrialized countries, are often inappropriate and prohibitively expensive to be applied in the developing world. But while implementing measures tailored to the developing world may prove challenging, the potential impact on energy consumption promises an equally great payoff.

In countries like China, India, or South Africa, improved design standards would translate into significant improvement in fuel efficiency and energy provision, creating savings that free limited financial resources. California and Texas implemented energy management techniques in the 1970s that halved annual electricity demand growth, with no decline in growth in real gross domestic product. If the Philippines, for example, were able to emulate those strategies, in 20 years, the country could virtually eliminate the need for fuel imports, becoming energy independent.

But over the past two decades, measures to make efficient use of energy in developing countries have run into barriers—the higher price of efficient equipment, artificially low energy prices, and a lack of consumer knowledge about the subject. These barriers can be minimized by using a mix of technical, financial, and marketing mechanisms, including minimum efficiency standards, innovative financing options, public education, and advertising campaigns.

Mark Hopkins, Henri-Claude Bailly, and Tom Dreessen spoke at the sixth session of the IRG Discussion Forum, "Lessons from 20 Years of Energy Efficiency."



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Energy efficiency does not require rationing or denial. It only requires that users recognize wasteful practices and then act to reduce or eliminate the waste. But it can be difficult to identify waste, and where waste occurs, since, for most businesses, energy expenditures are lumped in with total operating costs. Yet energy costs are a significant portion of operating costs for all industries, whether food production (for which energy costs make up about ten percent of operating costs) or ice production (for which energy makes up about 70 percent of operating costs). In addition to reducing bottom-line energy spending, new, efficient machinery can also increase production capacity and, thus, productivity. Linking energy use with energy expenditures is the key to smart energy use and requires a strong energy management program and a rational efficiency investment strategy.

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Funding

Very few developing countries have the public resources or borrowing capacity to finance the investment that will be needed in the energy sector over the next 20 years to address significant energy shortfalls. The prospects of attracting major foreign and domestic private funds depend on the investment climate, regulatory frameworks, and overall energy pricing policies. Many of these issues fall under the auspices of developmental assistance; however under the existing paradigm smaller projects generally fall by the wayside until larger, more politically and financially attractive projects are realized. Lenders become focused on the structure, technologies and returns of these large projects.

The cumulative cost savings from energy management can be high. However, aside from banks' concentration on corporate financing over project financing, their lending rates are often too high for energy efficiency initiatives, and the repayment term is too short—one to two years—for efficiency measures to realize significant returns. In addition, the energy efficiency marketplace is currently too small to encourage local banks to create lending structures for efficiency projects.

Multilateral development banks such as the International Finance Corporation (IFC) generally prefer investments with a total capitalization of more than \$1,000,000, which has constrained small and medium-sized

energy efficiency and renewable energy projects. Multilateral banks also generally require repayment in hard currency, a difficult standard for small projects in developing countries to meet.

But, considering the financial, developmental, and environmental benefits, some institutions in the donor community have begun to initiate more energy efficiency projects. Aside from financing some strictly efficiency-related projects, the IFC has also begun to incorporate efficiency upgrades in larger industrial investments. By the end of 2002, the IFC's investments in efficient and renewable energy amounted to nearly \$600 million, or 11 percent of its total power investments. Also, by mobilizing financing instruments like the World Bank Prototype Carbon Fund, the burgeoning market for carbon credits may provide additional funds to energy projects.

Significant hurdles remain to implementation in the developing world, including the high cost of technology relative to labor, capacity building, training, and the overall investment climate. Efficiency projects, too, are often seen as intangible: it is much easier to pin goals on the gigawatts of new power plants than on improvements to existing facilities in the form of practices and accounting.

Clearly, the importance of energy efficiency measures varies among organizations and companies; often only minimal national standards are imposed. Though significant cost reductions have resulted when companies and industries initiate change, the process has, so far, been mostly voluntary. Energy savings can potentially free capacity, improve access, and create long-term cost savings, once efficiency is made a priority and effective financial mechanisms are established.

Forum Feedback

- ♦ The Czech Republic, Ghana, and Thailand have effectively established energy efficiency programs that could be used as examples in other countries. There have also been positive steps taken in Russia and Ukraine. India has had some success, but efforts are often bogged down by excessive bureaucracy. In the Philippines, the commercial environment was not initially conducive to President Gloria Macapagal-Arroyo's privatization efforts, but the situation has been improving alongside increased enforcement of contracts.
- ♦ Opportunities that combine efforts to meet energy efficiency standards with other economic development initiatives could offer financiers a more solid, less risky investment option. In Argentina and Brazil, for instance, funders could incorporate energy efficiency elements into the poverty reduction programs aimed at curtailing the current financial crisis.
- ♦ Is there greater willingness to invest in something that is yet to be built than in something that needs to be retro-fit? Energy efficiency measures that aren't incorporated into a project during the design

For More Information...

American Council for an Energy-Efficient Economy: www.aceee.org

Oak Ridge National Laboratory: www.ornl.gov

Energy Efficiency and Renewable Energy Network, U.S. Department of Energy: www.eere.energy.gov

Iowa State University Energy Center: www.energy.ias-tate.edu

Alliance to Save Energy: www.ase.org

World Energy Council: www.worldenergy.org

phase can often require more money and effort to install on the back end.

- ♦ National Public Benefits Funds could be established to buy down the financing costs of projects (from 15 percent to 3 or 4 percent, for example), to stretch the financing terms, and to share in credit risks.
- ♦ Can “good” money be made in energy efficiency investments, or is this a marginal business? Companies can make good profits, but that requires the company operate at the right time in the right marketplace, where energy efficiency is particularly lucrative—the Czech Republic or the United States, for instance.
- ♦ Whereas carbon credits are usually directly linked to a consumer, it is hard to track energy use reductions back to the source. Energy efficiency is still a risky business because it is hard to definitively assign ownership to the saver.

Tom Dreessen, CEO of EPS Capital Corporation, owns several energy service companies in North America, India, and Thailand. He served as the president of the National Association of Energy Service Companies from 1992 to 1994 and is currently chairman of its international affairs committee. During his more than 20 years in the industry, Mr. Dreessen has developed, financed, and implemented large performance-based projects in industrial and institutional facilities around the world, and his companies successfully developed and financed the first performance-based projects in several new international markets. Mark Hopkins is the vice president, and an 18-year veteran, of the Alliance to Save Energy, where he manages day-to-day financial, administrative, and program operations. This includes overseeing staff and activities in China, Central Europe, Ghana, India, Russia, and Ukraine in the areas of energy-efficient residential and commercial buildings, energy education, federal energy management, industrial energy efficiency, trade, and development.

About the IRG Discussion Forum

The IRG Discussion Forum is a monthly roundtable for the Washington-area policy community. Building on the Central Asia Speaker Series held at IRG in spring 2002, the Discussion Forum focuses on public and private sector issues affecting international development—agriculture, energy, sustainability. Each session is informal, and off the record; guest speakers and attendees are participating in a personal capacity.

With the Discussion Forum, IRG hopes to foster an environment for sharing experiences, exchanging ideas, and creating new approaches to development.

Henri-Claude Bailly, chairman of the IRG Advisory Board and senior advisor to the president, moderates the IRG Discussion Forum. Mr. Bailly is the former chairman and CEO of Hagler Bailly, an international management and consulting firm to the energy and utility industries. He is a director of the Alliance to Save Energy and a member of the Advisory Council of the Energy Future Coalition.

Schedule

<i>Thursday, April 24</i>	Energy Efficiency
<i>Thursday, May 22</i>	Privatization in the Energy Sector
<i>Thursday, June 19</i>	Energy Challenges: Security, Access, and the Environment

For more information, email discussionforum@irgltd.com or call International Resources Group at 202-289-0100.

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