



Contact: Terry Collins +1-416-538-8712; +1-416-878-8712 (m), terrycollins@rogers.com

Local Financing to Slash Energy Waste in China, India, Brazil Said Crucial to Forestalling Global Climate Change

With world energy prices and climate-altering greenhouse gas emissions ballooning in tandem with a surge in energy demand from the hot economies of China, India and Brazil, the world has a major stake in the success of energy reduction efforts, particularly in those three countries, warn experts concluding a four-year international project.

Without significant gains from energy efficiency efforts, China, India and Brazil within a single human generation (by 2030) will more than double their energy use and greenhouse gas emissions, resulting in major impacts on global energy markets and climate. However, experts estimate that cost-effective retrofits could reduce those countries' energy use today by at least 25% and advanced technologies could reduce their energy use growth projected through 2030 by at least 10% (and reduce projected CO2 emission growth by 16%).

Unlocking today's potential savings requires simple, highly cost-effective renovation projects to identify and eliminate energy waste. The keys are fostering corporate awareness, supporting catalyst energy efficiency practitioners and enlightening commercial banks to ease access to local financing for such projects.

"Improving energy efficiency for existing buildings and other infrastructure could cut current energy consumption by 25% or more in India, China and Brazil, amounting to millions of tonnes in reduced greenhouse gas emissions and hundreds of millions of dollars in energy savings," says Robert Taylor, a World Bank Lead Energy Specialist and leader of the 3 Country Energy Efficiency Project (3CEE).

Conclusions from the project were captured at a conference in Paris May 19-20 involving the project's public and private sector partners. An executive summary of those conclusions will be published online May 29.

Despite the huge potential, it has been difficult to achieve investments on the ground so far, the project summary concludes.

"Many energy efficiency projects quickly pay for themselves, with typical returns on investment of 20-40%," says Chandra Govindarajalu, a senior World Bank environmental specialist. "Despite the demonstrated benefits, though, companies often cite other, more immediate investment and borrowing priorities. Meanwhile, commercial banks in these countries are generally unfamiliar with financing projects designed to achieve cost savings, rather than develop new product lines or other tangible assets."

Other roadblocks within companies include:

- Lack of awareness/experience with newer efficient technologies;
- High transaction costs for smaller sized projects that inhibit implementation;
- High perceived risk by decision makers; and
- A lack of combined technical and financial skills at finance institutions, preventing accurate appraisal and structuring of potential efficiency projects.

Energy saved: cheapest, easiest to produce

"Cutting energy waste is the cheapest, easiest, fastest way to solve many energy problems, improve the environment and enhance both energy security and economic development," says Mr. Taylor. "What we must develop further are systems to tap huge potential energy savings through thousands of small projects scattered across China, India, Brazil, as well as smaller developing country economies,"

He says the reluctance of companies to undertake energy retrofits is akin to that of countless millions worldwide who fail to buy energy efficient light bulbs for homes, despite proof that they save enough in utility bills to more than pay for themselves.

"Even people who know the financial and environmental benefits of the bulbs may not buy and install them – it seems like such a small thing, why take the trouble? But from a national or global point of view, the potential savings add up to the electricity and pollution produced by many large power plants.

"Imagine, however," Taylor says, "if I offered to install the efficient bulbs and guaranteed they would pay for themselves in six months or your money refunded. Perhaps then you might then buy a package.

"Rapidly developing countries such as China, India and Brazil need many people and consulting firms to do that same thing at the level of an industrial facility or apartment building, for example, to identify energy efficiencies across the board and exploit large-scale energy use reduction opportunities, and enlightened banks to finance them."

Such retrofits involve installing, for example, high efficiency lighting, air conditioners, boilers and waste heat recovery systems for commercial and public buildings, industrial plants and other facilities.

Project costs (and profits) can be provided to energy service companies (ESCOs), which design and implement energy conservation projects, or participating banks, from a share of utility bill savings.

"Money is available in these countries but can't be accessed easily by energy conservation promoters and ESCOs. This is a big area for work in the future" says Mark Radka, Head of the UNEP Energy Branch, based in Paris. "It takes time and effort for local businesses, banks, governments and aid organizations to develop energy conservation delivery systems which work and which can be supported by the financial community."

While energy efficiency projects need to be customized to local circumstances and business practices, the project makes a host of recommendations, including:

- Foster the growth of ESCOs;
- Promote energy efficiency investments by local utilities; and
- Develop special local bank lending arrangements to provide energy conservation financing.

Initiated in 2001, the 3CEE Project has worked creatively to promote energy efficiency projects in China, India, Brazil by easing typical investment requirements of financial institutions. The project is a joint initiative of the World Bank, the UN Environment Programme's Denmark-based Risoe Centre (URC), and partners in Brazil, China and India. The UN Foundation and the World Bank Energy Sector Management Assistance Program provided financial support, with complementary activities supported by the Asia Alternative Energy Program and the UK Department for International Development.

"People worldwide have a vital interest in the success of this initiative to harness the power of the private sector to minimize the energy required for these three countries to realize their economic goals," says Jyoti Painuly, Senior Energy Planner at the UNEP Risoe Centre on Energy, Climate and Sustainable Development.

Adds Juan Zak, a project team member at the UNEP RISOE Centre: "Accelerated polar ice melting is the latest indication that severe climate change may be upon us. The current 380 parts per million of carbon dioxide in the atmosphere seem already too high. Roughly half of the global consumption of fossil fuels should be avoided if climate is to be stabilized. Using energy much more wisely is one of the very few feasible ways that, combined, would move the world towards this goal without economic disruption."

Energy-Related CO₂ Emissions Growth to 2030 (Reference Scenario) Source: IEA 2004

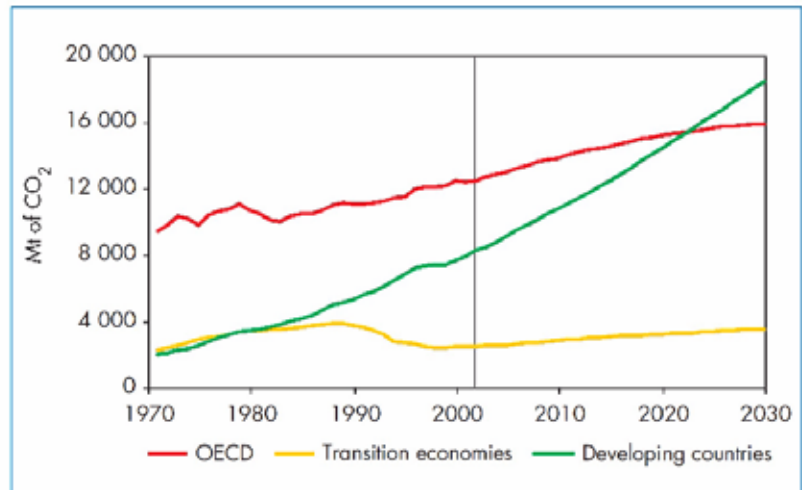
The importance of improving energy efficiency in China, India and Brazil (with a combined 2.6 billion people, or almost 40% of world population) is hard to overestimate.

China, India and Brazil, already rank among the world's top 10 energy consumers with astonishing economic growth rates nearing 10 % per year; they are on track to becoming the world's major greenhouse gas emitters. Although today they emit just 10% as much greenhouse gas per capita as North America, their national emissions are rising far faster. China's emissions, for instance, are expected to double by 2020, in which case China will surpass the US as the leading source of climate-altering gases. By one estimate, the China power market will require an average 48 gigawatts of new capacity every year, equal to two-thirds of the UK's total installed capacity.

Global GDP is projected to more than double by 2030, 80% of that growth accounted for by non-OECD countries, where current energy intensity of GDP (expressed as barrels of oil equivalent—BOE—per \$1,000 of GDP) was approximately three times that of the OECD countries in 2005. Without gains in energy efficiency, such global GDP growth would raise daily global energy demand from 205 million BOE today to more than 500 million BOE by 2030.

Much of that energy in India and China will be supplied by coal. China is both the world's largest coal consumer and producer. While coal in China's overall energy mix is projected to decline from 66% in 2002 to 41% in 2030, its total CO₂ emissions are still projected to increase from 3307 Mt to 7144 Mt.

India's installed capacity for power generation has tripled over the last 20 years and now exceeds 101,000 MW. However, the total demand is expected to increase by another 3.5 times in the next two decades, even under a best-case scenario that envisions intensified efforts to modernize power plants, improve transmission and distribution efficiency, and adopt more efficient generation technologies. The soaring power demand will necessitate tripling installed generation capacity from 101,000 to 292,000 MW over the next two decades, much of it derived from poor quality coal. Similar demand increases are forecast for all fuels, and CO₂ emissions are projected to increase from 1016 Mt to 2254 Mt by 2030.



The 3CEE report notes that improvements in energy efficiency will bring China, India and other coal-dependent countries the important additional benefits of cleaner air, better health and other environmental improvements.

Brazil is the world's 10th largest energy consumer, yet its fossil fuel CO₂ intensity per unit of energy consumed is low due to widespread use of renewable energy from hydro electricity, ethanol and other biomass. However, Brazil's overall energy intensity (measured as energy consumption per dollar of GDP) has been increasing. Fossil fuel intensity increased 18% between 1990 and 2004, while electricity increased by 29%. Brazil's economic growth has been much slower than India's or China's over the past decade and projections are also much lower, hence projected energy supply increases are less dramatic – electricity consumption would increase 65% (244 trillion kw/h) by 2015, assuming annual GDP growth of 4%. The International Energy Agency projects an increase in Brazil CO₂ emissions of 302 Mt to 665 Mt by 2030.

“Energy efficiency in these three countries is a win-win strategy. It is one of the cleanest, cheapest and fastest ways to reduce carbon emissions,” says Timothy E. Wirth, President of the [UN Foundation](http://www.UNFoundation.org) (www.UNFoundation.org), which provided the project's core funding.

ESCOs Gain Traction in China

Three pilot ESCOs in China were given support and access to loans and grants from the World Bank and the Global Environment Facility in 1998. Their success inspired many more companies to copy the business model. In 2005 alone China's new ESCO industry put into place over 300 energy efficiency projects representing an investment of over US \$200 million, saving the energy equivalent of 2.46 million tonnes of standard coal and an annual decrease in CO₂ emissions of nearly 7.0 million tonnes.

“We were told many times this would never work in China because the concept was too novel,” says Mr. Taylor. “However, Chinese entrepreneurs have proved very nimble in adapting the concepts to the Chinese market to both make profits and save energy.”

The World Bank and the Global Environment Facility set up a bank loan guarantee mechanism to help ESCOs (there are now 52 of them and an ESCO association in China) finance for these unique ventures. It also invested efforts in training ESCOs, educating potential clients, showing senior bank officials how to evaluate ESCOs; and working with state tax officials and auditors.

“We were creating a new way of doing things and it could have easily died if not for the strong support of the central Chinese government,” says Mr. Taylor.

The 3 CEE project now has moved on to help China develop lending programs in a local banks for large-scale energy efficiency projects, to be financed in part by a \$200 million World Bank loan.

China has called for a "conservation society" and its commitment to a further 20% improvement in energy intensity over 2005 levels by 2010 and the project initiatives fit well with that objective. The topic of energy efficiency is now granted special attention (along with "energy development") in all of China's energy-related planning. The project report highlights potential savings as well in the industrial, construction and transportation sectors.

"Our hope is that we can generate some successes in new energy efficiency delivery systems in these three countries, which can work by themselves to generate big energy savings over the coming decade," says Mr. Taylor.

Hopefully other countries will see that success and create a similar programs to meet their needs and apply it to other natural resource areas such as water where inefficiencies are equally high he says.

New Approaches for Energy Efficiency in Indian Banks

India's potential energy efficiency market is estimated at more than US \$3.1 billion, which would produce a savings of 54 terawatt hours per year. To help realize this impressive potential, the Indian Government established a Bureau of Energy Efficiency (BEE) under its Energy Conservation Act to institutionalize energy efficiency services, enable delivery mechanisms in the country and provide leadership to key players in the energy conservation movement. A variety of commercial interests are beginning to pick up the energy efficiency business, but more support and financial backing is required.

Introduced to the energy efficiency business through the 3CEE Project, five of India's largest banks – holding 35% of the country's total bank assets – have developed new energy efficiency lending programs. Though small, the programs are growing and attracting increasing attention. Indian banks have targeted small and medium enterprises (SMEs), where energy waste is often particularly high, but knowledge about more efficient options and the financing to implement them is scarce.

"The Indian banks developed a particularly innovative 'cluster' approach for their energy efficiency lending businesses," says Jeremy Levin, a World Bank consultant and project team member. "A series of template-type loans are being developed quickly for batches of projects using the same types of technical innovations in targeted small industries."

The banks have slotted energy efficiency lending schemes into existing SME lending practices. Bank managers point out that the program helps improve cost competitiveness and profitability of SME clients, which can lead to further client growth and bank lending opportunities.

The 3CEE project organized several meetings between Indian, Chinese and Brazilian ESCOs, to exchange ideas, business strategies and ways to help each other. Benefiting from the experiences of ESCOs in China and Brazil, India's young ESCO companies are creating an association to increase awareness of their business and its potential.

“There is much work to be done before the ESCO concept is widely accepted and practiced in India,” says Levin. “One promising idea to help drive the market in India is to develop ESCOs specialized in reducing energy waste in government buildings, including hospitals and schools.”

Energy Efficiency in Brazil

Brazil’s annual untapped energy savings potential is estimated at US\$ 2.25 billion and many projects would enjoy an average payback of less than 30 months.

Brazil’s ESCO industry is the oldest among the three countries, with a vibrant national ESCO association (ABESCO).

It is also among the few developing countries to have established a “wire charge,” which streams a small portion of power companies’ revenues into energy conservation and other public energy benefits. The utilities spend 0.25% of annual revenues on energy saving projects in customer facilities and general conservation education efforts. The wire charge fund provided about \$250 million to efficiency initiatives between 1998 and 2004 and many utilities work with ESCOs to fulfill these requirements, helping the ESCO industry grow.

The 3 EEC project has worked with the energy efficiency and banking communities, to develop new ideas to ease and accelerate the financing of energy efficiency projects.

Via workshops, training and other initiatives, including an international roundtable on energy efficiency financing in Rio de Janeiro April 2, attracting scores of banking, energy efficiency and government experts, the 3CEE project helped clarify roadblocks to progress and potential solutions.

At the Paris meeting, the Brazilian Development Bank (BDNES) announced a new guarantee program to assist ESCOs and accept 80% of loan risks on accepted energy reduction projects.

“Mutual understanding of the requirements and opportunities of each agent in the market had been minimal prior to the 3CEE project,” says Mr. Taylor. “The project put forward several proposals for Brazil, the most important of these being the proposed loan guarantee mechanism for EE initiatives and the Brazilian Development Bank has earned sincere congratulations for having accepted the challenge.”

* * * * *