CLEAN ENERGY FINANCE

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N E W S

EBRD To Capitalize Polish ESCO

The European Bank for Reconstruction and Development (EBRD) is planning to provide an equity investment of $2.12 million, a subordinated loan of the same amount, and an $11.37 million senior loan to ESCO International, a joint-stock company to be incorporated in Poland to finance and install energy-saving equipment.

ESCO International will be established, majority-owned, and operated by Difco Energy A/S (a 100 percent subsidiary of Difko A/S, a Danish financial investment group) together with its sister company LR Energi A/S, a Danish engineering company in the field of cogeneration (the exploitation of waste heat released in the generation of electric power).

The EBRD expects that the Investment Fund for Central and Eastern Europe will also participate in the project. Additional loans will be provided through commercial banks. ESCO International will also benefit from an agreement with the Danish Export Credit Agency (EKF), in which the payments of ESCO International clients will be partly guaranteed. The total project will amount to about $56 million.

The project, coordinated by the EBRD's Energy Efficiency Unit, is the latest in the Bank's record of financial support for energy service companies. ESCOs are companies that provide energy-efficiency services and hardware to clients such as building owners, and receive income out of the resulting energy savings.

In 1995, the Bank extended $162 million in

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IDB Approves $23.4 Million for Energy Efficiency in Mexico

The Inter-American Development Bank has approved its largest energy-efficiency loan (or loan component) to date—a $23.4 million non-concessional loan to Mexico in support of a $46.8 million commercial and industrial energy-efficiency program. The program aims to establish permanent energy-efficiency business activities that will be financially sustainable over a five-year period.

The loan will support a set of activities to commercialize energy-efficient electrical equipment such as electrical motors, variable speed drives, compressors, and lighting technologies. A portion of the loan will support consumer rebates of 5–14 percent of the equipment's capital cost in order to provide an initial market stimulus to users to buy the higher-efficiency equipment. At the same time, commercial financing services will be developed to ensure that the equipment will be financially attractive to users over the long-term. One approach under development is the provision of credits or leases by equipment vendors, who would be supported by domestic commercial banks. Another approach is the establishment of energy-service companies, along with procedures for ensuring their access to commercial financing.

The IDB loan will also support adoption of energy-efficiency equipment standards; ongoing work on reforming Mexico's electricity rate structure; and a series of promotion and information dissemination activities. For example, the program will address the problem

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Wind Power Slows in India

By Vir Singh

After a period of explosive growth that made India the world's third largest producer of wind energy, investment from mid-1996 through the end of 1997 fell sharply. Total installed capacity had jumped from 115 to 732 megawatts (MW) between 1993 and 1995, over 25 MW per month. By contrast, 1996-97 saw the industry grow by a mere 168 MW, or about 9 MW per month. Growth in April–September of 1997 was even slower—installed capacity rose by only 29 MW.

Government officials hope the ongoing consolidation of the industry, along with recently-lowered interest rates, will attract more investors to wind power, one of India's most commercially-visible renewable energy technologies. Many believe the key to future growth is retention of the 100 percent depreciation allowance during the first year, and various state government incentives such as banking of energy and third-party sale, say industry analysts.

India's wind-energy program started in the 1980s as a series of demonstration projects. The Indian Renewable Energy Development Agency (IREDA), a government-established public institution, began lending to wind power developers in 1989. The government's efforts got a boost in 1992, when the World Bank approved a $15 million credit combined with a $13 million grant from the Global Environment Facility (GEF) to attract private investors to wind-energy projects.

Among the more immediate problems facing the industry is the threat to India's approximately one dozen major manufacturers of wind turbines. They will be wiped out if demand for equipment remains this low.

"With the slowdown, not only equipment manufacturers are in trouble, institutions are also in trouble," says S.K. Sarkar, a wind-energy expert at IREDA. "IREDA and other lenders have to earn money." Wind-energy projects account for more than 60 percent of IREDA's lending portfolio.

The wind-energy industry is experiencing a "shakeout" whereby many small players who invested primarily to take advantage of financial incentives are being knocked out, says Dr. Ajay Mathur of the Tata Energy Research Institute (TERI). Ironically, lowering the tax rate to 30 percent, down from 46 percent in 1994-95, has hurt investment across the board. A lower tax rate means that the size of the tax exemption for wind investors has decreased. So a factory owner looking for a way to pay less taxes now has less reason to invest in wind.

Faced with a smaller tax incentive, investors have realized that generating profits increasingly depends on actually running the wind turbines. "There has been a realization that this is about electricity generation," says Mathur. "It is not just a financial investment." Here, larger investors enjoy a clear advantage as their maintenance costs and other overheads are much lower. Also, the large investors, such as cement companies, consume much of the electricity generated themselves. Small investors rely entirely on state utility companies for selling the electricity they produce. State utilities pay between Rs. 1.75–2.25/kWh (4.5–5.7 U.S. cents) for wind power. Currently, investors producing power from wind can sell power to private customers at a premium. They contribute ("bank") power to the grid when the wind is blowing. But lately, state

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governments have discouraged "banking." Tamil Nadu and Gujarat—both key states for wind energy—have also banned third-party sale, a lucrative business for investors.

Some states have banned third-party sale, a lucrative business for investors

According to a study of wind projects in Tamil Nadu, Gujarat, and Andhra Pradesh conducted by TERI and the Operations Research Group (ORG), the average installation is small. The installed capacity per investor in Tamil Nadu—which houses more than two-thirds of India's total wind capacity—is a modest 1.39 MW. Out of 387 investors, 297 or 77 percent, have installed capacities of less than 1 MW. Most of these are Indian finance and marketing companies who invested in wind energy mainly to take advantage of the tax benefits. The biggest investors in the state have been cement, textile, and plastic companies, followed by manufacturers of wind turbines. There have been no foreign investors in Indian wind projects.

The sharp decline in investment is partly due to small investors today having less to gain from buying wind turbines. But rumors that the 100 percent depreciation benefit will be cut by half next year have even large investors worried, says Dr. B.S.K. Naidu, a former IREDA official now heading Winrock International's renewable energy program in India. Naidu says the depreciation benefit has been the "backbone" of the wind industry, a view that is shared by investors.

Also hurting the industry are low generation capacity factors. Promoters of wind energy had based their calculations on 20 percent capacity factors, but the actual figure in most cases is much lower, says Naidu. "Unless this is addressed, the long-term techno-commercial viability of wind will be in question." Winrock has launched a program that seeks to boost the efficiency of existing wind-energy projects, seeking to emulate the experience in California. There, when investment tax incentives were removed in the 1980s, windfarm operators had to focus on increasing generation through improved operations, maintenance, and improved wind turbine siting. IREDA, the Ministry of Non-conventional Energy Sources, multilateral development banks, the government of Denmark, and other promoters of India's wind-energy industry will join forces to fund data acquisition, analysis, and performance evaluations of installed wind turbines.

The cost of wind projects has soared in key states. Between 1993 and 1995, prices jumped by about 30 percent in Gujarat and 55 percent in Tamil Nadu. The increases occurred despite rising sales and a relatively stable rupee value against the dollar, so very little can be explained by price rises in imported wind turbine parts.

Part of the problem is rising land values. But an even bigger problem is interest rates. Wind power projects in India have been largely funded by debt, say the authors of the TERI-ORG study. Debt accounts for about 60–75 percent of total project costs, with the rest contributed by internal savings. IREDA has been the biggest lender, having disbursed loans amounting to $134 million. Other lenders include the Industrial Development Bank of India, the Industrial Credit and Investment Corporation of India, the Industrial Finance Corporation of India, the State Bank of India, and the Bank of Baroda. Borrowers paid between 14–18 percent interest, depending on the lender and the year of the loan. Interest rates have been rising steadily. IREDA recently cut its interest rate for wind projects from 19.5 percent to 15.5 percent in a bid to attract investors. It has also asked state-run enterprises, especially those that are large consumers of energy, to consider investing in wind energy for their own use. ♦

For further information contact REPSO India, Phone: (91-11) 614-2965; Fax: (91-11) 614-6004

EBRD *(Continued From Page 1)*

financing to three large international ESCOs to operate in the central and eastern European region (See CEF Vol. 1. No. 4, Fourth Quarter 1996). In 1995, the Bank provided $5 million to an ESCO in Hungary. ♦

For more information on the ESCO International project, contact Philippe Petit, Phone: (44-171) 338-6000; Fax: (44-171) 338-6100. Also see the EBRD's home page at http://www.ebrd.com

Resources

"**Implemented Jointly to Mitigate Climate Change: Developing Country Perspectives,"** edited by Kalipada Chatterjee, Development Alternatives, New Delhi, 1997, 450 pages. $100 from Development Alternatives, B-32 Tara Crescent, Qutab Institutional Area, New Delhi - 110 016, India; Phone: (91-11) 696-7938; Fax: ((91-11) 686-6031; Email: tara@sdalt.ernet.in

This book contains the proceedings of a joint implementation (JI) conference held in New Delhi in January 1997. The conference was organized by Development Alternatives, a large non-governmental organization in India, and was intended to highlight developing country views and initiatives in JI. Although the papers are by representatives of both industrialized countries and developing countries, most are from a developing-county perspective.

Among the potential JI projects outlined in individual papers are a solar photovoltaic project in Honduras, a series of mini-hydroelectric projects in Bhutan, a sugarcane bagasse power generation project in Brazil, and a project in India to treat municipal solid waste with anaerobic digestion. The sponsors of this latter project calculate a 16.7 percent return on equity over five years without even considering the carbon credit benefits. With the inclusion of tradable carbon credits at $20 per ton, the sponsors project a 32.7 percent return over five years.

The book also includes papers on projects already underway, including district heating efficiency improvement projects in Russia and a renewable energy mini-grid project in Mexico.

A number of papers suggest new or innovative approaches to JI. A paper by India's Tata Energy Research Institute suggests the establishment of an OPEC-like cartel among developing countries to supply greenhouse gas abatement projects to industrialized country investors looking for JI opportunities. In a paper on JI and alcohol fuel for transportation, Luiz Pinguelli Rosa of Brazil's Centre de Technologio suggests that industrialized countries could invest in alcohol production in developing countries such as Brazil, where production is less expensive (mainly because of lower labor costs). The alcohol fuel could then be exported and could substitute for about 20 percent of gasoline consumption worldwide without requiring technical changes in car engines. Carbon emissions would be reduced; local pollutants would be reduced; and jobs would be created in the alcohol production process.

"Financial and Economic Evaluation of Projects in the Electricity Supply Industry," by Hisham Khatib, The Institution of Electrical Engineers, London, 1997, 199 pages, $88. Contact IEE, Michael Faraday House, Six Hills Way, Stevenage, Herts. SG1 2AY, United Kingdom, or for purchase in the U.S., call 732-562-5553.

Though not focused explicitly on clean energy, this book is a good primer for anyone involved in planning a power generation project. It is written mainly to assist engineers in project evaluation, and therefore the treatment assumes some understanding of engineering. But the general reader will be able to follow most of the discussion, while financial analysts may find it akin to a basic business school finance textbook, only with examples from the energy sector. Basic financial concepts such as discounting, depreciation, and sensitivity analysis are presented in a concise manner. Some concepts are addressed almost in passing. Project risks are covered in three pages, decision analysis in one. Relatively more space is dedicated to projecting financial performance and valuing power reliability and interruptions. For those needing a financial reference guide to assist in preparing prefeasibility studies, this book should come in handy. ♦

IDB *(Continued from Page 1)*

that information on a given product's energy consumption is not provided in product catalogs in Mexico.

The program will be implemented by the energy-efficiency organization Fideicomiso para el Ahorro de Energía Eléctrica (FIDE) and the national electrical utility Comisión Federal de Electricidad (CFE). Both have conducted a variety of energy-efficiency studies and demonstrations over the past decade.

The IDB loan is for a 15-year term, with a 5-year grace period, at a variable annual interest rate, now at 6.97 percent. ♦

For more information, contact the Industry Department at FIDE, Phone: (525) 254-2200, Fax: (525) 254-2036; or the Economic Studies Department at CFE, Phone: (525) 533-6685, Fax: (525) 531-6877. At the IDB in Washington DC, contact Steven Fischer, Phone: (1) 202-623-1950, Fax: (1) 202-623-1953.

COMMENTARY

Debt Conversions Could Provide Cash for Clean Energy

By Michael Philips

Promoters and developers of clean energy projects in developing countries should investigate the availability of a potentially low-cost source of investment capital—the converted debt of these countries. Developing countries owe about $2 trillion to a variety of creditors, both public and private. Most are servicing their debt normally. But some have difficulty. With currency devaluations, it becomes particularly difficult for countries to come up with the hard currency to service their debt. Many debtor countries have had to negotiate with creditors for restructuring or partial cancellation of their debts.

Since 1987, $1 billion has been generated through debt-for-nature swaps

This is where debt conversions come into play. Instead of writing off unpaid debt as lost, some creditors negotiate agreements whereby they cancel part of the debt owed to them in exchange for the debtor government converting the canceled amount into local currency for investment in certain domestic activities, such as protecting biodiversity, preserving critical wildlife habitats, or (potentially) pursuing clean energy development. The positive impact of debt reduction at low cost, combined with increased investment in priority sectors, makes debt conversions attractive to a debtor government. The creditor is motivated primarily by the desire to recover some portion of a debt that it perceives as unlikely to be repaid at full face value.

In the 1980s, a number of "debt-for-environment swaps" took place in Latin America and involved commercial debt. Since 1987, about $1 billion has been generated for the environment through such swaps. In the 1990s, the focus has shifted to other parts of the world and involves mainly debt owed to Western governments which, through their development assistance loans and export credit agencies, have provided substantial sums of hard currency for a broad range of development activities.

Since 1991, when they were approved by the Paris Club (OECD official creditors), debt conversions have funded environmental activities such as parkland preservation. Some proceeds have been used to help capitalize environmental endowments, whose interest earnings are used to pay the recurring costs of, say, a park's management, in perpetuity. Although it has not yet been tried, there is no reason debt conversions could not be used to support clean energy development.

Where other sources of funds can be found to pay for imported clean energy products, the debt conversion proceeds can be used to pay local costs such as salaries and for locally-produced hardware. The proceeds are in the form of local currency and thus cannot be used to pay for imported equipment. The most appropriate clean-energy activities would be those involving locally-manufactured products. So, for example, the proceeds could be used to establish a clean-energy endowment which could pay for such recurring project costs as maintenance, training, or monitoring and evaluation. Or they could be used as collateral in order to secure domestic bank financing.

Debt conversions can potentially supply hundreds of millions of dollars for clean energy projects

If and when joint implementation (JI) becomes mainstreamed, official discounted debt could be purchased by private utilities and others looking for low-cost carbon reduction opportunities, for investment in clean energy activities. The JI investors could even use the local currency generated by a debt conversion to capitalize a carbon endowment in a given country in order to pay the recurring costs associated with a given carbon-reduction effort.

There are any number of innovative possibilities. But debt conversions are inherently complex. Trying to combine the practice with another complex practice like joint implementation may involve too much complexity to ever get anything off the ground.

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Commentary *(Continued from Page 5)*

In addition to complexity, there are other limitations on the use of debt conversions. The main limitation is that there are not that many countries where debt conversions can be pursued. Many indebted countries are more interested in having their debts rescheduled or partially forgiven. Such treatments are often more generous forms of debt relief than the relief provided by debt conversions.

In general, debt conversions are applicable in only the most heavily-indebted countries. The best prospects are in Sub-Saharan Africa, and to a lesser extent, in Central and Eastern Europe. Latin America may still offer some opportunities, while the currency devaluations and economic turmoil in Asia may generate some debt relief activities in the medium-term. According to a United Nations report, good candidate countries in Africa for environment-oriented debt reductions are Benin, Burkina Faso, Cape Verde, Egypt, Ghana, Guinea-Bissau, Kenya, Mali, Mauritania, Morocco, Niger, Nigeria, Senegal, Tanzania, and Uganda. Of these, Morocco and Uganda may be among the most receptive to innovative approaches since they have active debt-management policies in place.

A second problem is that even where a debtor country is interested in a clean-energy debt conversion, its debt may be held by a creditor uninterested in such an approach. So far, the main players in debt conversions have been Switzerland, through the Swiss Debt Reduction Facility; the United States, through the U.S. Enterprise for the Americas Initiative; France, through its Libreville Fund; and Germany, which has an active debt-for-environment swap program. In addition, The Netherlands government welcomes debt-for-environment proposals.

The complexity and procedural difficulty of pursuing a clean-energy debt conversion are probably too overwhelming and time-consuming for any given energy developer or organization. Since governments and money are involved, the politics of the procedure become paramount as well. Still, debt conversions can potentially supply hundreds of millions of dollars for clean-energy projects. It is probably worthwhile for a group of private developers, non-governmental organizations, and debt relief experts joining forces to explore. ♦

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