

# IFC's Approach Today

Having extensively evaluated not just its own experience, but also the experience of several key players in the solar PV business, IFC remains cautiously optimistic that it is not a question of “if”, but of “when” the goal of a self-sustaining solar PV market in developing countries will be met. Simultaneously, IFC recognizes the current limitation of solar PV technologies to address the issue of rural electrification. To that extent, it is currently exploring new ways to address rural electrification through using a variety of renewable energy technologies as it moves away from a specific solar PV focus to a more technology-neutral approach.

Although generally less heralded now compared to the mid-1990s, solar PV as a technology continues

to hold promise, having proved to be the most appropriate way of meeting the power needs (lighting, television, radio) of dispersed and remote rural households. With the rising price of crude oil and natural gas, the global commitment to the Millennium Development Goals and Kyoto Protocol, renewable energy technologies, including solar PV, will become more economically viable. The private sector can play an important role in making renewable energy and solar PV services available, as demonstrated by IFC through its recent investment in Moser Baer in India (see box on page 22).

The most important factor that will determine the future role of solar PV in rural electrification initiatives continues to lie in the ability of companies to identify the niche market segments for which this technology is the least-cost alternative. The continued decline in solar PV prices will help create more of these opportunities. Increased manufacturing capacity, new materials that bypass the global bottlenecks caused by the limited supply of silicon, and newer and higher efficiency solar PV materials and end-user devices (i.e., lighting via LEDs) are all contributing factors that should reverse the recent upward trend in solar PV price.

### Continued Support to the Market

While solar PV is no longer a specific focus, IFC remains committed to it as a renewable energy technology for addressing the issue of rural electrification in developing countries. IFC has moved away from solar PV-focused initiatives, such as SDG and PVMTI, in favor of more technologically neutral programs. The corporation is increasingly providing its own funding on commercial terms, without reliance on donor subsidies, to support

<sup>21</sup> This includes hydropower projects greater than 10MW per facility.

### WORLD BANK GROUP COMMITMENT TO RENEWABLE ENERGY

The WBG has remained true to the commitment it made at the June 2004 International Conference for Renewable Energies in Bonn, Germany, to increase its renewable energy and energy efficiency portfolio by 20 percent during a five-year period (2005–2009). During both 2005 and 2006, the WBG surpassed its Bonn target, having financed \$668 million worth of EE/RE projects in 2006 and \$461 million worth in 2005. These commitments represent a 45 percent increase for new RE and EE, more than double the Bonn 20 percent target. Overall, financial support to EE/RE<sup>21</sup> was \$860 million in fiscal year 2006. Total WBG sustainable energy financing in 2006 supported 61 projects in 34 different countries.

Among the various WBG institutions and units, IFC was the largest contributor to RE and EE, with \$393 million in commitments, and contributions of \$326 million of its own funds for new RE and EE projects and \$67 million for hydropower projects greater than 10MW. These increases suggest that the concerted efforts of the WBG to scale up support for new RE and EE are having a positive impact.

larger utility-scale projects, through its Infrastructure Department, as well as solar PV module manufacturing companies, through its Global Manufacturing Department. (See Lesson Learned box on Moser Baer, page 22) Smaller solar PV initiatives, such as the SHS distributors profiled in this study, may find IFC support through the following market acceleration schemes:

**WORKING THROUGH FIS: THE ENVIRONMENTAL BUSINESS FINANCE PROGRAM (EBFP).** The EBFP, a \$20-million GEF-funded facility, builds upon the experiences of the SME Program, and is specifically interested in engaging financial intermediaries in the financing of SMEs involved in activities that benefit the global environment. Designed to provide FIS with risk-sharing mechanisms that encourage intermediaries to provide financing to SMEs undertaking environmental projects, the EBFP also provides technical assistance grants to develop and strengthen an FI's appraisal, risk management, and monitoring and evaluation processes, as well as promote market development. Sustainable energy is a key focus of this program.

**DIRECT INVESTMENT TO SUPPORT A MIX OF TECHNOLOGIES: THE SUSTAINABLE ENERGY FACILITY (SEF).** The SEF is a \$14 million IFC/GEF fund that finances sustainable energy and energy efficiency projects in Brazil, Central America, China, and Southeast Asia. Designed based on the experience of previous IFC programs, including SDG, the SEF structure has a more streamlined approval process. A clear focus was placed on debt instruments over equity, with convertibility features to take advantage of any potential upside. Unlike some earlier initiatives, the SEF has moved away from a single focus on solar PV to a broader renewable energy focus.

**FOCUS ON AFFORDABLE OFF-GRID LIGHTING PRODUCTS: LIGHTING THE BOTTOM OF THE PYRAMID.** This initiative seeks to catalyze local and international lighting-related companies, offering the unelectrified population in Kenya and Ghana greater access to modern and affordable off-grid lighting products, and displacing fuel-based lighting products (such as kerosene lamps or candles). The initiative aims to facilitate the market entry of the lighting companies by helping firms, firstly, to understand the market, including consumer behavior and preferences concerning lighting, acceptable pricing points, and distribution channels and, sec-

ondly, to understand and mitigate the perceived risks of entering into a new market in a region that, for most private companies, has been very challenging. (See Lesson Learned box on the Lighting the Bottom of the Pyramid initiative, page 23.)

**FOCUS ON DISTRIBUTED GENERATION PROJECTS: THE PORTFOLIO APPROACH TO DISTRIBUTED GENERATION OPPORTUNITY (PADGO).** This project aims to reduce CO<sub>2</sub> emissions by displacing central fossil-fuel-based generation in favor of a portfolio of renewable and clean fossil-based distributed energy generation technologies with waste heat recovery (also known as combined heat and power). A key focus of the project is on developing a perfor-

**TABLE 5: WORLD BANK GROUP COMMITMENTS FOR RENEWABLE ENERGY AND ENERGY EFFICIENCY IN FISCAL YEAR 2006 (MILLIONS OF DOLLARS)**

SOURCE OF FUNDS	NEW-RE	HYDRO >10MW	EE	TOTAL
World Bank (IBRD/IDA)	135.7	118.6	115.3	369.5
World Bank (GEF and Carbon Finance)	54.7	6.0	1.2	62.0
IFC (own funds)	17.4	67.0	309.0	393.4
IFC (GEF, Carbon Finance and other trust funds*)	13.0	0.0	20.1	33.1
MIGA	0.0	0.0	1.8	1.8
<b>Total</b>	<b>220.8</b>	<b>191.6</b>	<b>447.4</b>	<b>859.8</b>

\*The IFC's "other trust funds" category includes the Environmental Opportunities Facility.

mance framework to enable risk sharing between IFC and local banks, and on piloting private company projects using new technologies. (See Lesson Learned box on PADGO, page 21.)

Through the above market acceleration initiatives, the corporation aims to provide technical assistance and financing to support renewable energy technologies and practices that are commercially viable in certain applications, but whose market penetration is hindered by the persistence of market barriers. These barriers may include high upfront costs; a lack of financing, successful business models, adequate product quality standards, and consumer awareness; limited managerial and technical skills among project developers, etc. By addressing these barriers through carefully designed market interventions, which may include transaction support, enterprise and public education, and development of quality standards, these initiatives seek to accelerate

the penetration of sustainable energy technologies so that, at the end of project implementation, the market is further ahead than it would have been otherwise.

Going forward, IFC expects to see an increasing number of opportunities for mainstream renewable energy and energy efficiency investments, as renewable energy technologies become more competitive and regulatory frameworks are improved to encourage greater utilization. Beyond these efforts to finance mainstream sustainable energy projects, IFC has utilized and will continue to utilize limited—

and carefully targeted—concessional funding to support worthwhile projects that are likely to accelerate the application of RE and EE technologies in developing countries. Since GEF was established in 1991, a significant quantity of funds has been provided by GEF under its operational programs to mitigate the effects of global climate change. IFC has received approval for more than \$200 million in GEF funds to support climate change mitigation initiatives, including renewable energy. GEF funding continues to play a vital role in IFC's continued support of solar PV and other renewable technologies.<sup>22</sup> IFC always attempts to minimize the use of concessional funding and targets the subsidies in a hierarchy of preferred market interventions that favor projects that are closest to commercial viability and preferably involve a mainstream IFC investment.

By building partnerships with key players in the renewable energy field and increasing confidence in solar PV technology among suppliers, governments, utilities, and end users in developing countries, IFC, as part of the World Bank Group, seeks to promote solar PV and sustainable energy technologies. In general, it seeks to identify avenues to maximize financial leverage and experience and acts on particular opportunities to aggregate markets.

<sup>22</sup> While GEF support is generally not needed for small hydro initiatives, it is still an important component of solar PV, geothermal, and wind initiatives.

#### MAINSTREAMING SOLAR PV INTO IFC INVESTMENTS

The projects described in this report were primarily financed with concessional resources from GEF and other donor support mechanisms, because they did not meet minimum eligibility requirements for IFC investments (although IFC also did invest on its own account in the externally managed funds created under SDG). One measure of success in donor-supported programs is the process of “mainstreaming”; i.e., the ability to make similar investments on commercial terms without donor subsidies, an evolution that is occurring in the context of IFC's EE financing programs. As described in this report, the Corporation has approved an investment in a solar PV manufacturing facility in India (see Lesson Learned box on Moser Baer, page 22) and has indirectly supported a bank loan for a grid-tied solar PV power plant in the Czech Republic through a clean energy finance program (see Lesson Learned box on solar plant construction in the Czech Republic, page 17). For IFC to make additional fully commercial investments in solar PV production or enterprises, several conditions will have to be met:

- The investment should meet minimum size requirements to justify IFC's transaction costs. While some latitude has been allowed for RE projects, deals of less than \$10 million are unlikely to be attractive.
- The expected rate of return should be commensurate with the level of perceived risk, which may be an issue for the production and sale of solar PV cells and modules currently being sold, primarily to satisfy short-term regulatory policies in a few industrialized countries, principally Germany, Spain, and the United States.
- Other positive attributes that may increase IFC interest in a project include opportunities to engage and influence government policy (e.g., through a solar PV purchase program), the leveraging of commercial finance from local FIs, local employment and associated supply chain benefits of the investment, and expected opportunities for further business growth.
- The proposed financing should also meet standard IFC conditions, including maintenance of appropriate minimum debt service coverage ratios, projected business performance metrics, sponsor support, and security arrangements. Most importantly, the financing should be based upon a sound and financially viable business plan that addresses a quantifiable market opportunity and is guided by an experienced management team.