



## Accelerating the Transition to a Low Carbon Economy: World Bank Group Support for Renewable Energy and Energy Efficiency Climbs to US\$1.4 Billion in Fiscal Year 2007

**E**vidence is mounting that developing countries will be disproportionately affected by the adverse impacts of climate change, putting at risk hard-earned development gains - Sir Nicholas Stern's 2006 economic review of climate change estimated that "business as usual" emissions of greenhouse gases might lead to damages between 5 and 20 percent of GDP over the next 200 years. The poor are most vulnerable and least able to adapt. At the same time, increasing energy supply and services are critical for economic growth for all developing countries. A consensus is growing that moderating and managing climate change is central to every aspect of poverty reduction, economic growth and development. Renewable energy and energy efficiency are among the two of the more effective means the World Bank Group - World Bank, IFC, MIGA as well as Global Environment Facility (GEF) co-financing and Carbon Finance - is employing in helping its partner countries in the transition to a low carbon economy.

In fiscal year 2007 (FY07), total World Bank Group financial commitments for renewable energy, including hydropower of all sizes, and energy efficiency rose to \$1.4 billion. This represents a 67% scale up in financing for renewable energy and energy efficiency from \$860 million in FY06. The GEF has been an important partner contributing \$128 million in co-financing for World Bank projects. In FY07, we supported 63 renewable energy and energy efficiency projects in 32 countries. Commitments for new renewable energy and

energy efficiency were \$683 million and \$751 million was committed for hydropower projects greater than 10MW per facility.

World Bank Group Commitments for Renewable Energy and Energy Efficiency in Fiscal Year 2007 (millions of dollars)

Source of Funds	New Renewable Energy	Hydro>10MW	Energy Efficiency	Total
World Bank (IBRD/IDA)	70	430	49	549
GEF (World Bank)	121	0	7	128
World Bank (Carbon Finance)	68	66	10	144
IFC (Own Funds)	154	140	156	450
IFC (Carbon Finance)	7	0	0	7
MIGA	0	115	40	155
<b>Total</b>	<b>421</b>	<b>751</b>	<b>262</b>	<b>1,433</b>

Source: World Bank Group

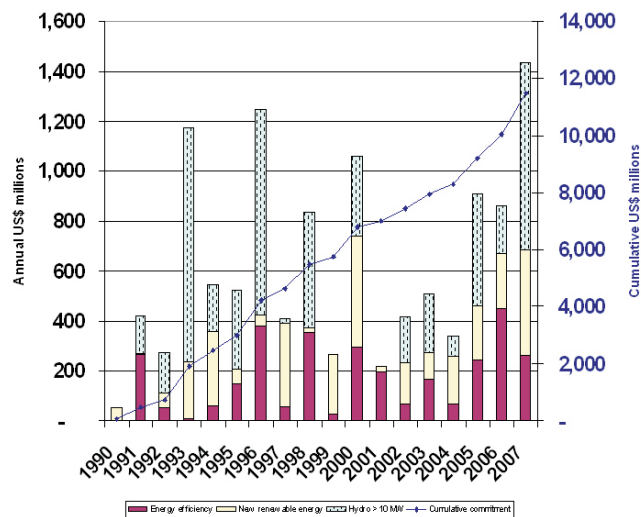
At the Bonn International Conference on Renewable Energies in 2004, the World Bank Group made a commitment to accelerate its support for new renewable energy<sup>1</sup> and energy efficiency. We committed to increase our financial commitments for new renewable energy and energy efficiency at a growth rate of 20 percent per annum between fiscal years 2005 to 2009, compared to a baseline commitment of \$209 million (equal to the average of the previous three years). The World Bank Group has outperformed its Bonn commitment.

<sup>1</sup> New renewable energy comprises energy from solar, wind, biomass, and geothermal as well as hydropower from facilities with capacities up to 10MW.



From FY05 to FY07, we committed \$1.8 billion for new renewable energy and energy efficiency compared to the Bonn commitment goal of \$913 million for the same period and thus exceeded our target by almost 100%. As shown in Figure 1, the cumulative World Bank Group financial commitments to renewable energy and energy efficiency from FY90 to FY07 exceeded \$11 billion, with a nearly steady increase in commitments from 2002.

**Figure 1: World Bank Group Renewable Energy and Energy Efficiency Commitments. FY1990-2007**



Source: World Bank Group

*"The World Bank has strengthened its investment support and technical assistance for low carbon energy projects. This is reflected in the progress we made these last few years in expanding support for renewable energy and energy efficiency. Recognizing the economic, environmental and energy security values of clean energy, the World Bank Group's Clean Energy Investment Framework established in 2006 sets the stage for even greater support for clean energy development in the coming years." Jamal Saghir, Director, Energy Transport and Water Department, The World Bank*

**Box 1. World Bank Group Support for Private Participation in Low Carbon Projects**

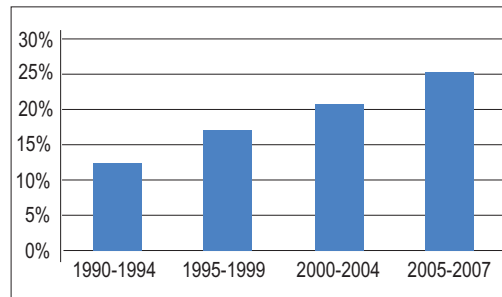
**The Bujagali Hydropower Project** is a proposed 250 MW hydropower facility on the Victoria Nile that will address the medium- and long-term need for economical, large-scale power generation in Uganda. The project consists of the development, construction, and maintenance of a run-of-the-river power plant on a Build-Own-Operate-Transfer basis. The project is structured as a privately-owned Independent Power Producer (IPP) which will sell electricity to the grid. The total project cost is expected to be approximately US\$750 million and will be financed by the Government of Uganda as well as a consortium of lenders, including the WBG. IFC is providing financing in the form of long-term loans, and MIGA, equity political risk insurance. IDA is providing a partial risk guarantee. The financial package provided sufficient risk mitigation to enable a consortium of private developers (IPS, the Kenyan subsidiary of the Aga Khan Foundation and Sithe Global) to develop this renewable energy option which will help Uganda increase access to electricity and do so in a climate-friendly manner.

The **Renewable Energy Market Transformation Project** supported by the Bank is designed to establish policy and regulatory frameworks and build institutional capacity for renewable energy development in South Africa. The project has an overall cost of US\$17.3 million, and is being funded by a US\$6 million grant from GEF, US\$2.3 million contribution from the South African government and US\$9 million leveraged from the private sector. The project's objective, over a four-year period, is to assist the Government meet its target of 4% of electricity demand to be met by renewable energy by 2013. The project is designed to remove the barriers and reduce implementation costs of renewable energy technologies to help mitigate greenhouse gas (GHG) emissions.



There has been a steady rise in the share of financing the World Bank Group committed for low carbon renewable energy and energy efficiency since 1990 (Figure 2). In 1990-1994 the share was about 12 percent of total energy sector commitments. The share of renewable energy and energy efficiency financing rose to 25 % of total energy commitments in the three years, FY05-07. In FY07 the share of renewable energy and energy efficiency financing reached 40% of total energy commitments.

**Figure 2: Share of World Bank Group Financial Commitments for Renewable Energy and Energy Efficiency Relative to the Total Energy Sector Financial Commitment**



Source: World Bank Group

### Box 2. Private Sector Small Hydro Development in Sri Lanka

The WBG is finding innovative ways to more effectively promote smaller hydro projects (less than 10MW), particularly through the use of carbon finance and by bundling financing for several small investments in one project. Two IDA-financed projects in Sri Lanka have accelerated small hydro development by facilitating a favorable regulatory and financial environment. Today about 117 MW of private sector hydropower facilities with capacities up to 10 MW each are operating or under construction (about 5 percent of total power capacity in the country), up from zero in 1997. A new GEF-supported IFC project in Sri Lanka aims to extend and expand this model by creating more standardized financial terms for a range of distributed generation technologies.

### Leveraging Private Investment

Given the huge investments needed to supply the energy needs of developing countries, estimated to be about \$165 billion per year, leveraging our investments with private sector resources is essential. The World Bank Group uses a range of financial instruments reflecting its different institutional strengths and sometimes creative responses to market needs. Among these are its support for the Bujagali Hydropower Project in Uganda, and a Renewable Energy Market Transformation Project in South Africa to support the production and sale of agriculturally derived GHG emissions reductions (Box 1).

Our projects also promote private investment in clean energy through a variety of economic sector work and technical assistance. This work is an integral part of our activities which is valued as an important source of information and advice for policy makers and other stakeholders. In addition,

these activities are an important component in the preparation of future lending activities. Such activities rose sharply in FY07 reaching 21 products. These figures show increasing interest in renewable energy and energy efficiency related activities on the part of client countries and pave the way for strong operational and lending activities in the coming years. A good example is in Sri Lanka, where a favorable regulatory climate has been a key factor in the growth of investment in small hydro (Box 2).

During FY07 IFC made 25 investments valued at \$450 million in energy efficiency and renewable energy such as biomass cogeneration systems, hydropower and credit lines for energy efficiency lending. The total value of these clean energy investments exceeded \$1.1 billion, of which about three-fourths or about \$763 million came from commercial investors, with every dollar of IFC lending leveraging 2 dollars of private sector investment (Box 3).

*“IFC has learned a great deal in the process of identifying energy efficiency and renewable energy investment opportunities in recent years. Our investment of \$450 million in 25 projects in FY07 is already substantial and reflects strong market demand for clean energy, but we expect to grow this part of our business much more rapidly in coming years with benefits for our clients and the environment especially the need to respond to climate change.” Rachel Kyte, Director, Environment and Social Development Department, International Finance Corporation*



### Box 3. Mainstreaming Clean Energy Finance at the International Finance Corporation

Over more than a decade, IFC has developed and refined a highly successful approach to leveraging commercial lending for clean energy investments through training and risk mitigation instruments provided to local financial institutions in emerging markets. This approach allows IFC to deal with the typically smaller transaction size of clean energy investments while also achieving significant financial leverage. The IFC model started in Hungary with a \$5 million grant from the GEF and evolved around two primary features, a technical assistance component to provide banks with the knowledge necessary to properly evaluate clean energy investments, and a guarantee facility to provide some initial period of risk coverage to support lending initially perceived to have higher risks. The project was expanded with additional GEF support to cover several countries in Central Europe and was highly successful, with a separate IFC facility spin-off in 2006 to enable \$250 million in funding for energy efficiency renovations of schools and municipal buildings with \$125 million of IFC risk-sharing. The Hungary model has been adapted to projects in Russia, China, and a new facility in development in the Philippines.

Another outcome from the model developed in Hungary has been a transition from GEF and other donor support to a model increasingly funded by IFC resources in mainstream investments. For example, the initial donor supported program in China is being expanded with an additional IFC commitment of \$170 million with local bank on-lending expected to total more than \$450 million - all based on an initial GEF commitment of \$16.5 million. IFC is now planning to grow this business from internal resources with a target of \$500 million per annum by FY09.

A collaborative project between the World Bank and IFC, **Lighting Africa**, seeks to catalyze a commercial market for modern lighting services in rural Africa. This market will provide energy efficient, non-polluting lighting mostly powered by renewable energy sources to areas without electricity that are largely dependent on kerosene. Kerosene lighting is often the largest energy expenditure in rural areas, as much as 15 percent of household income, for a low quality service. The Lighting Africa challenge is to take advantage of innovations in efficient lighting, such as light emitting diodes, and make them accessible to consumers in unelectrified areas on a very large scale. Lighting Africa in cooperation with the Global Environment Facility and other donors is supporting market research, building ties between the lighting industry and potential local distributors, developing standards, aggregating market demand, and stimulating knowledge sharing with the aim of building a sustainable and large scale market for modern lighting products (<http://www.lightingafrica.org>).

World Bank Group **carbon finance** is proving to be an increasingly valuable source of financing for clean energy investments including wind energy and small hydro projects. For example, a \$9 million carbon finance project in the Nigerian city of Aba focused on improving efficiency through the development of a gas-fired cogeneration plant and reduction of transmission and distribution losses through upgraded transmission lines.

For more information about the World Bank Group's commitment to renewable energy and energy efficiency, please visit <http://www.worldbank.org/re>. For information on World Bank Group projects please visit <http://www.worldbank.org/projects>, <http://www.ifc.org> and <http://www.miga.org>. The Renewable Energy Toolkit, an interactive web-based tool for renewable energy practitioners and policymakers is available at <http://www.worldbank.org/retoolkit>.

