



# Power Failure:

How the World Bank is Failing  
to Adequately Finance  
Renewable Energy for Development

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# Power Failure:

## How the World Bank is Failing to Adequately Finance Renewable Energy for Development

### Executive Summary

**T**he energy needs of developing countries are enormous and growing. Worldwide, nearly one out of every four people still lack access to electricity, and more than one out of every three people still rely on traditional biomass – wood, charcoal, or manure – for cooking and heating.<sup>1</sup> At the same time, worldwide energy use is expected to rise by over 34 percent between 2002 and 2025, and energy use in developing countries is expected to double during that period.<sup>2</sup>

As a global community, we are at a critical juncture in deciding how to address these energy needs. A new energy path is needed to provide energy for billions of people, while also ensuring an environmentally and socially sustainable future. As this report describes, renewable energy represents an enormous and largely untapped opportunity to bring energy to many of the poorest people around the world.

The World Bank Group<sup>3</sup>, as the world's foremost multilateral development institution, is in a key position to drive policy and financing for clean, renewable energy and energy efficiency in developing countries. During the past year, the World Bank Group has emphasized the global leadership role it hopes to play in addressing climate change and financing for renewable energy. Last year, the Bank committed to increasing its renewable energy financing by 20 percent each year for the next five years, and this year, the G8 asked the Bank to “finance a framework for climate change.”

In spite of these commitments, the World Bank Group is still following, rather than leading, in efforts to promote clean energy. Thus far, based on an examination of publicly available documents for World Bank Group energy lending, the Bank has failed to adequately fund and create policies to push the development of clean energy and has failed to meet even its own commitments:

- An examination of last year's renewable energy and energy efficiency projects suggests that the World Bank has fallen significantly short of its target of increasing lending for renewable energy and energy efficiency projects by 20 percent annually. The increase was only 7 percent in fiscal year 2005, an increase of merely \$14 million.

Thus far, based on an examination of publicly available documents for World Bank Group energy lending, the Bank has failed to adequately fund and create policies to push the development of clean energy and has failed to meet even its own commitments.

- Most of the money for the lending target did not come from the World Bank's own funds, but from carbon finance funds and the Global Environment Facility (GEF). Only \$109 million, or 49 percent, of the World Bank's renewable financing came from the World Bank's own funds. Of this amount, \$87 million was for just one project.

- The World Bank Group chose not to include the private sector lending arms of the Bank – the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA) – in its 20 percent target, and the IFC and MIGA therefore have no concrete goals for increasing financing for renewables. The IFC devoted only 2 percent of its total energy lending to renewables in fiscal year 2005.

- Regional breakdowns of financing for fiscal year 2005 show renewable energy and energy efficiency financing was very uneven, with little attention or resources given to several regions with critical energy needs. Three projects in China received \$145 million, or 65 percent, of the World Bank renewable and energy efficiency funding, while the South Asia region, for example, received only \$5.6 million in funding.
- The World Bank Group's amount of lending to renewable energy and energy efficiency has been and continues to be quite small compared to its funding of greenhouse gas producing fossil fuel projects. In fiscal year 2005, only 9 percent of the World Bank Group's energy financing went to renewable energy and energy efficiency projects.

This failure to adequately fund clean energy misses a tremendous opportunity to use these energy sources to promote development and poverty alleviation, and it continues the Bank's longstanding overinvestment in harmful energy sources. Over the years, the Bank has used its low-interest lending to pump massive amounts of money into oil, gas, and coal projects, which produce greenhouse gases that lead to climate change. The Bank has not seriously considered mitigation of climate change impacts of its projects in the past, and, in spite of acknowledgements by world governments that climate change is a critical problem facing developing countries, there have been relatively few subsidies for clean energy sources.

The current global energy path is unsustainable. Massive energy consumption of fossil fuels including oil, gas, and coal, particularly in developed countries, but also increasingly in developing countries, is contributing to climate change that will have harmful impacts worldwide and especially for the poorest in developing countries.

Providing clean, renewable energy from wind, solar, geothermal, small hydroelectric, and biomass sources, combined with improved energy efficiency, can meet our current energy needs, in addition to supplying electricity to those who currently do not have access. With increased financing for, and provision of, renewable energy sources in developing countries, many of the 1.6 billion people who do not have electricity can be provided with clean, healthy energy. At the same time, increased demand for power in developing countries from growing industries and population growth can be met using clean, renewable sources of power that do not contribute to climate change.

If the World Bank Group is to deliver on the potential of renewable energy to promote development and poverty alleviation, it will have to significantly shift its approach to the financing of renewable energy:

- The World Bank Group will have to dramatically increase its funding for renewable energy, both in absolute terms and as a proportion of its overall energy funding.
- The private sector lending arms of the Bank – the IFC and MIGA – will have to commit to renewable energy financing targets and develop clear strategies to meet those targets.
- The World Bank Group will have to adopt regional targets for renewable and efficiency financing. The World Bank Group will have to create renewable energy and energy efficiency teams to focus on specific countries and technologies.
- The World Bank Group will have to integrate climate change mitigation and non-conventional energy approaches more deeply into its overall lending strategy. The World Bank Group will have to find a way to pursue the cleanest sustainable technologies, rather than defaulting to projects that are environmentally and socially damaging. The World Bank Group will have to increase its support for renewable and efficiency projects through the use of financing tools such as grants, concessional credits, credit enhancement products, and lending for micro-credit financing projects.
- The World Bank Group will have to leverage carbon finance funds to finance clean renewable technology like wind and solar power, rather than using the funds for harmful projects such as large dams.

- The World Bank Group will have to integrate renewable energy and energy efficiency more into lending outside the energy sector, including financing for electricity in schools and health clinics.

As described in this report, the World Bank Group is missing a tremendous opportunity – and failing to fill an urgent need – by not adequately financing renewable energy and energy efficiency in developing countries. The Bank's record puts in to question whether the World Bank Group is even the right institution to take the lead on tackling climate change issues and renewable energy financing for developing countries.

## Clean, Renewable Energy Is Critical to Development

A consensus is emerging among civil society, governments, and international institutions that energy is critical for development for the world's poorest people. The 1.6 billion people who lack access to electricity and the 2.4 billion people who still rely on wood, charcoal, or manure for cooking and heating are badly in need of light, access to information and communication, the ability to efficiently produce goods, and the many other critical services that electricity and fuel can provide.<sup>4</sup> At the same time, electricity demand is growing rapidly in many developing countries as populations grow, standards of living improve, and industries expand.

As a global community, we are at a critical juncture in deciding how to address these energy needs. Renewable energy represents an enormous, and largely untapped, opportunity to bring energy to many of the poorest people around the world. Meanwhile, business as usual – oil, gas, coal, and large hydropower – is not a viable option in the long run. The climate change and other social and environmental impacts of conventional energy sources are simply unacceptable.

With business as usual, world carbon dioxide emissions are projected to grow to 38.2 billion tons by 2025, almost twice the 21.5 billion tons released in 1990,<sup>5</sup> despite the fact that the Kyoto Protocol requires participating industrialized countries to reduce carbon dioxide emissions by 5 percent below their 1990 levels by 2012. These increasing levels of greenhouse gases are expected to cause significant climate change. These changes will hit developing countries hardest, even though these countries are historically the least responsible for carbon emissions.

Worldwide, in both developed and developing countries, we must turn to clean, renewable energy – including wind, solar, small hydropower, and some types of biofuels – as well as energy efficiency to meet our energy needs in the future. In developing

countries, renewable forms of energy are critical to spurring and supporting development in both rural and urban areas that are not connected to the electrical grid. Renewable energy must also become a central component in the expansion of electricity production as demand increases for energy from electrical grids. We also must continue working towards a viable alternative to oil, like responsibly produced biofuels, especially for transportation. Increased investment in renewables will help to diversify energy sources and to stabilize – and even decrease – both local pollution and greenhouse gas emissions.

Unquestionably, much of the financial and leadership burden falls on industrialized nations to push this shift to renewable energy. The United States and other industrialized countries are historically responsible for much of the planet's greenhouse gas emissions, and they have a critical role and responsibility in reducing carbon emissions. However, developing country energy demand is expected to grow by 90 percent in the next 20 years, and greenhouse gas emissions from developing countries are expected to exceed those from developed nations as early as 2010.<sup>6</sup> Through institutions such as the World Bank Group, developed countries and developing countries must join together to turn to renewable energy sources and energy efficiency as a way to address the twin concerns of development and climate change.

## Negative Impacts of Climate Change on Development

The severe impacts that climate change will bring to developing countries present one of the most compelling reasons to shift from fossil fuels to renewable energy – and for the World Bank Group to shift its lending toward clean, renewable energy projects. Increased levels of carbon dioxide and other greenhouse gases in the air are already altering the world's climate, and if current trends continue, global temperatures are expected to rise between 1.4 and 5.8 degrees C by 2100.<sup>7</sup> Our burning of fossil fuels like oil, gas, and coal, increases the potential impacts of climate change every day.

According to the Intergovernmental Panel on Climate Change, some regions are projected to experience temperature increases at three times the global average increase due to climate change.

**Renewable energy represents an enormous, and largely untapped, opportunity to bring energy to many of the poorest people around the world.**

There is a high likelihood of “changes in extreme weather and climatic events.”<sup>8</sup> These altered weather patterns, including an increase in the number and severity of storms, are likely to harm people and destroy property. In some areas, average rainfall and temperature will change so significantly that now fertile areas may become desert. Crops will be affected by changes in climate, increasing the risk of famine.<sup>9</sup>

Perhaps 100 million people worldwide are at risk of experiencing direct climate impacts like sea-level rise. Several billion people are at risk of experiencing indirect climate change impacts such as water scarcity caused by less precipitation.<sup>10</sup> In Africa, increased droughts and floods are expected, and grain yields are expected to decrease. In Asia, floods, droughts, forest fires and tropical cyclones are expected. Many low-lying areas of the

continent will be inundated by sea-level rise and severe weather. In South America, glacial melting will impact water supply. In Central America and the Caribbean, increases in tropical cyclones are expected. In small island states, sea level rise is expected to increase soil erosion and loss of land will dislocate people. Coral reefs and other coastal ecosystems are expected to be lost.<sup>11</sup>

Developing countries will be unable to prepare for these impacts. High levels of poverty and a lack of adequate public infrastructure will make it very difficult for these countries to adapt to climate change. Development targets like the Millennium Development Goals will be even further out of reach to these countries as the impacts of climate change increase in severity.

## Clean, Renewable Energy for Electricity Access

While climate change is a powerful reason to dramatically shift World Bank Group financing to renewable energy, providing renewable energy to impoverished rural communities is also vital to development. Most people without access to clean energy live in rural areas of developing countries in Africa, Asia and Latin America, far from the national electricity grid, although there are increasing numbers of people in urban areas without access to clean energy. Many people still use fuels like wood, charcoal, manure, kerosene, and diesel for basic needs. These fuels take time to collect or are often very expensive, and they are harmful to health and the environment. For instance, acute respiratory



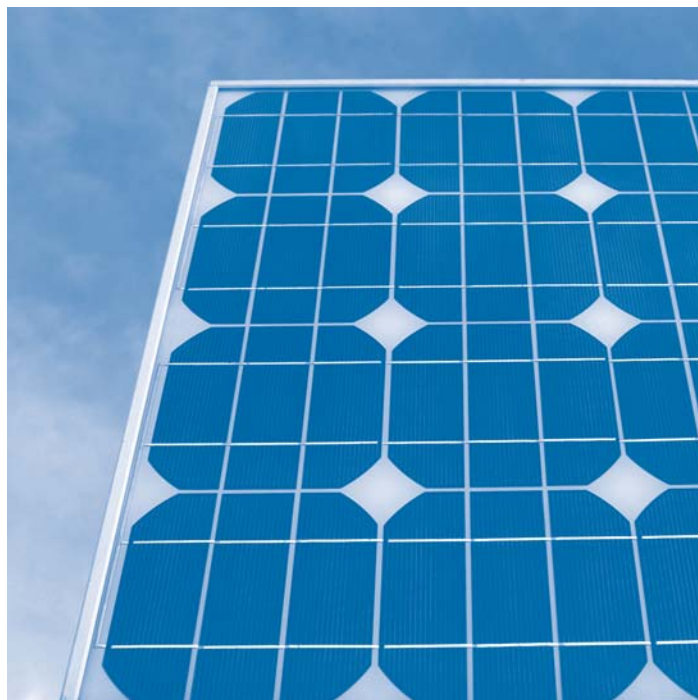


Photo: Green Empowerment

infections are often caused by indoor and outdoor air pollution from the burning of these fuels and are the most frequent illnesses globally and a leading cause of death for children under five in developing countries.<sup>12</sup>

In 2000, the 191 member states of the United Nations adopted the Millennium Declaration, calling for global policies and measures to address the needs of developing countries and economies in transition. All UN member states have pledged to achieve the Millennium Development Goals – ranging from the eradication of extreme poverty and hunger to ensuring environmental stability – by 2015. Access to energy is not stated in the goals, but clean sources of electricity and fuel can help achieve every single part of them.

A small amount of electricity, especially with energy efficient appliances, can have a substantial impact. Just 15 to 100 watts of electricity can power lights, a small television or radio and an



additional small appliance in a home. One kilowatt of electricity can light 10 to 20 rural households or power a solar irrigation pump. One megawatt of electricity can power lights for a town of 3,000 and some daytime industries such as agricultural mills, sawmills, welders or bakeries.<sup>13</sup>

Renewable energy can help alleviate poverty by increasing quality of life and productivity, reducing regional and local air and water pollution, generating jobs and income, and promoting gender equity by providing fundamental services such as lighting, heating and cooling, and mobility. Clean energy technologies that use local resources, are manufactured or at least maintained locally, and are managed within the communities themselves can also empower communities and encourage sustainable development.

How Clean Energy Can Further the Millennium Development Goals		
Millennium Development Goals		Impacts of Clean Energy
<b>GOAL 1</b>	Eradicate extreme poverty and hunger	Clean energy helps people light their homes, increasing economic productivity. Indoor lighting can encourage micro enterprise and other business ventures. Using solar water pumps can free time from water collection, increasing productivity in other areas. Clean energy can also facilitate irrigation, increasing agricultural productivity and decreasing hunger.
<b>GOAL 2</b>	Achieve universal primary education	Clean energy increases access to education and communications materials. Lighting in schools facilitates education and allows for night classes. Clean energy can help heat or cool schools, making it easier and safer to educate students.
<b>GOAL 3</b>	Promote gender equality and empower women	Using solar energy to facilitate water collection can free time for women to undertake other activities. Having indoor lighting can allow women to study at home and can facilitate women starting micro enterprises in their homes.
<b>GOAL 4</b>	Reduce child mortality	Clean energy can make it easier to cook food, increase access to clean water, and reduce indoor and outdoor air pollution. All of these improvements can vastly improve health in young children. Clean energy is also vital for rural health clinics and can also increase access to vaccines and other medicines important for children.
<b>GOAL 5</b>	Improve maternal health	Clean energy makes homes healthier, with clean water, cooked food, and lower air pollution, keeping mothers healthier while they are pregnant or have young children. Electricity can also increase access to medical services, including maternal care.
<b>GOAL 6</b>	Combat HIV/AIDS, malaria and other diseases	Clean energy can improve medical facilities and access to medicine, including through critically needed refrigeration of vaccines. By enabling better communication through radio, television, and computers, clean energy can also facilitate education about AIDS and ways to prevent it.
<b>GOAL 7</b>	Ensure environmental sustainability	Clean energy can be used for cooking and to pump and purify water without contributing to air pollution. Renewable energy will reduce the negative impacts of the use of traditional sources of energy, like wood, which leads to erosion, reduced soil quality, and desertification. Clean energy also reduces global carbon emissions, lessening the impacts of climate change.
<b>GOAL 8</b>	A global partnership for development	Clean energy can facilitate communication, education, and job creation.

## Renewable Energy and Energy Efficiency Technologies for Electricity Access

**Micro hydropower**, which produces up to 100 kilowatts of electricity, is one of the most effective means of producing off-grid electricity for rural communities, particularly in mountainous areas. A set of 900 micro-hydro plants installed in Nepal have shown that small, almost subsistence businesses can be sustained using micro-hydro power to mill grain, and that proper application of a micro-hydro plant can reduce poverty, increase education, and promote economic growth in an environmentally responsible way.<sup>14</sup> Intermediate Technology Development Group (ITDG) found that the cost per installed kW ranged from US\$714 to US\$2,133 – about 5 to 18 times less than a comparable photovoltaic system.<sup>15</sup>

**Solar photovoltaic (PV) systems**, which turn sunlight directly into energy, are particularly useful for rural electrification in areas not well-suited for micro-hydropower. Solar PV systems can be used for electricity, water pumping and treatment, health care systems, and communication. The Solar Electric Light Fund (SELF) estimates that the monthly cost of a photovoltaic solar home system (SHS) to be around US\$10 – well within the US\$3 and US\$17 range that most people in developing countries already pay for energy.

**Wind energy** is also a viable source for off-grid applications: community wind systems that are linked to generators and

small wind turbines linked to batteries are good options in rural areas with certain wind conditions. Wind turbines are generally a cheaper option than solar power in locations with average windspeeds larger than four meters per second during the least windy times.<sup>16</sup>

**Biogas and biodiesel** are fuels produced from plants that can be used in much the same way as natural gas or gasoline. When biofuels are produced from native plants, or from plants that grow without fertilizer and do not need irrigation, this type of fuel can produce significantly fewer emissions than conventional gasoline. When produced and used locally, biofuels can also help local economies.

**Energy efficient** technologies in rural areas can be applied to or substitute for conventional lighting and appliances, creating overall cost and energy savings for rural electrification projects. For example, energy efficient white light-emitting diode (WLED) systems can provide light at a cost that is 600 times less per unit than kerosene lighting. These systems, which are powered by a battery and recharged with a small solar cell, provide better light than kerosene and can improve air quality, cutting down respiratory problems and eye infections.<sup>17</sup>

## Green Empowerment: Partnering for Micro-Hydro Power in Borneo

In 2002, the community of Long Lawen in the remote Sarawak region of Malaysia on the island of Borneo became the first inland Malaysian settlement to meet all of its electrification needs with micro-hydropower. With the financial, technical and administrative support of the US-based NGOs Green Empowerment and the Borneo Project, and with construction assistance from Friends of the Earth-Malaysia, the community installed a micro-hydro project for the community of 350 people. By making use of a small stream with sufficient drop to generate electricity, construction was relatively inexpensive, resulted in little alteration of river hydrology and did not require displacement of inhabitants.

The indigenous Kenyah people of Long Lawen had been displaced by the controversial Bakun Dam – a \$5-billion dam that flooded a rainforest and forced a total of 10,000 people to leave their homes. The 70 families of Long Lawen defied imposed relocation plans, instead moving upriver to their

ancestral lands. Before the community adopted the micro-hydro and solar systems, they had to rely on polluting and inefficient diesel generators and kerosene for light and power.

The new community-owned micro-hydro system replaces the generator and kerosene with a clean, efficient alternative. A new rice-milling machine that is mechanically connected to the turbine saves the villagers significant time and money when processing this cash crop. Electrical appliances like refrigerators increase their standard of living. Most importantly, the newly adopted rate structure for the community's electrical power not only covers the costs of operation and maintenance - it also generates revenue that can be used to fund and build a new school, clinic and community center as well as pay for maintaining their roads and potable water system themselves.

Source: Green Empowerment. [www.greenempowerment.org](http://www.greenempowerment.org)





## Clean, Renewable Energy for Electricity Grids and Fuel

Developing countries will also require increasing amounts of electricity and fuel at regional and national levels, as populations grow, quality of life improves, and industries expand. For the World Bank Group and other funders, it will be essential to finance larger scale energy projects that meet critical energy needs in the most appropriate way possible. By meeting energy demands with clean, renewable sources of energy, developing countries will be able to leapfrog many of the current models of energy production, thereby avoiding many of the economic, social and environmental downsides that have accompanied conventional forms of energy.

Environmental impacts of large-scale fossil fuel extraction and use are substantial. In addition to the impacts of greenhouse gas emissions from burning fossil fuels, oil and gas are made up of highly toxic chemicals, and extracting, processing and transporting these substances can lead to spills and contamination. Gas flaring – the common practice of burning off excess gas emitted from oil wells – emits a mixture of toxic gases that pollute the areas immediately surrounding the flares in addition to greenhouse gases that contribute to climate change. Fossil fuel power plants, when not properly regulated, pollute the air with sulfur and nitrogen emissions and other harmful pollutants, including

particulate matter that is linked to illnesses such as asthma. Other forms of fossil fuel combustion, such as diesel engines, are also highly polluting for local communities.

For developing countries that are major producers of fossil fuels, the economic risks associated with the fossil fuel extractive industries include economic distortions such as a reduction in investment in other productive economic sectors, as well as increased economic inequality.<sup>18</sup> Developing countries that have based energy strategies on imported fossil fuels have been left vulnerable to dramatic increases and swings in the price of oil and gas,<sup>19</sup> contributing to external debt problems.

A clean, renewable energy strategy avoids the need to absorb changes in fuel prices, so renewable options can be more stable and sustainable in the long run than conventional energy. Clean, renewable energy for grid-based electricity and for fuel can benefit developing countries by contributing to energy security and reducing dependence on fossil fuel imports.

## Public Financing for Renewable Energy in Developing Countries

Despite its enormous potential, financing for renewable energy in developing countries has been limited, although it has grown significantly in recent years. Much of the early financing for renewable energy projects was in the form of development assistance focused on providing technology in demonstration projects. In many cases, the financing did not extend far beyond the technology itself; funding for maintenance and for building capacity for a broader dissemination of the available technologies was not provided.<sup>28</sup> In some countries such as Kenya, however, donor programs helped lead to the development of technical capacity and, in Kenya's case, a robust solar industry.<sup>29</sup> More broadly, the emergence of developing country renewable energy industries have usually been tied to initial public investments that have provided learning experiences for local governments and business.<sup>30</sup>

As technical capacity has grown in recent years in developing countries, new financing models based in local capacity have emerged. The most well-known of these financing models is a set of microcredit consumer programs that have provided loans for small-scale solar systems, often for home use, in India, Bangladesh, Sri Lanka, and Vietnam.

Other new financing models have provided seed capital to assist local entrepreneurs in taking ideas for renewable energy provision into the marketplace. For example, the UN Environment Program (UNEP) has partnered with a leading renewable energy investment company, E+Co, to create the Rural Energy Enterprise Development (REED) initiative. The initiative provides seed financ-

## Renewable Energy and Energy Efficiency Technologies for Electricity Grids and Transportation

**Wind power** can be fed into electricity grids to provide clean, renewable power that does not emit greenhouse gases and has minimal environmental impacts. Measurements of wind speed around the world suggest that wind captured at specific locations, even if partially harnessed, could generate more than enough power to satisfy the world's energy demands.<sup>20</sup> Wind potential in China is abundant, with approximately 250 gigawatts of exploitable wind resources at a height of 10 meters.<sup>21</sup> According to the United Nations Solar and Wind Energy Resource Assessment (SWERA), Sri Lanka has a land wind power potential of about 26,000 megawatts – more than 10 times the country's current installed electrical capacity. Guatemala has estimated wind resources at 7,000 megawatts. Ghana was found to have more than 2,000 megawatts of wind energy potential – this alone represents over 5 percent of the 40,000 megawatts of electricity estimated as necessary to power industrialization in all of Africa.<sup>22</sup> In many cases, wind power costs can be comparable to the costs of conventional energy – the global average cost of wind power generation is anywhere between US\$0.04 and US\$0.08 per kilowatt hour.<sup>23</sup> Although there are concerns over wind intermittency, this issue can be overcome by mixing wind resources with other renewables resources like solar power and hydropower.

**Solar power**, including concentrating solar systems that use reflective materials such as mirrors to concentrate the sun's energy and to then convert the heat into electricity, is becoming increasingly cost effective to feed into electricity grids, although it is still substantially more costly than alternative technologies. The potential for solar power is vast, however, and developing countries are beginning to look to this type of technology. For example, a one megawatt solar photovoltaic facility was built on rooftops in Shenzhen, China in 2004.

**Small and mini hydropower** systems that produce between 100 kilowatts and 10 megawatts of electricity often produce enough electricity to be fed into a grid.<sup>24</sup> These facilities do not require reservoirs and do not disrupt the flow of the river or stream, and they can be very effective in supplying energy to the grid in areas where there is flowing or falling water. Potential small hydropower capacity worldwide is substantial, and is estimated at 150 to 200 gigawatts.<sup>25</sup> Costs of small hydro can vary significantly, but these systems are often cost effective in mountainous areas. The United Nations

Environmental Program (UNEP) estimates the cost of a mini-hydro system to be between US\$1,000 and US\$5,000.<sup>26</sup>

**Biofuels** present a comparatively clean alternative to oil as a source of fuel, and could be particularly useful for use in transportation. Biofuels have the potential to provide a fuel that emits a fraction of the carbon produced by conventional fossil fuels; they also usually produce less of other pollutant emissions than fossil fuels. New technology that would be able to convert cellulosic plant waste into biofuels appears to have a great deal of potential, particularly with the increased cost effectiveness of using waste products to produce energy. However, the environmental impacts of producing and using biofuels on a large scale must be carefully considered, including the impacts of biofuel production on local ecosystems. For example, forests may be cut down for biofuel plantations, and these plantations may use large quantities of water or require harmful applications of fertilizers and pesticides. The fuel inputs required to produce certain biofuels may cancel out, or nearly cancel out, the greenhouse gas benefits from use of the biofuel. As one of the few alternatives available to conventional oil use, however, biofuels must be considered, albeit carefully, as an alternative source of fuel.

**Energy efficiency** provides overall cost savings, energy savings, and reduction in greenhouse gas emissions, both for electricity and fuel use. Energy efficiency improvements can be applied in a wide variety of ways to promote development. For example, promoting production of energy efficient lighting and other appliances in developing countries would increase capacity while reducing energy costs. Any building could potentially take advantage of passive solar heating and cooling, natural light, and other energy efficiency measures. Projects designed to produce energy for countries should be measured against the costs and benefits of energy-saving project finance. Energy efficiency measures have been estimated to cost between \$.005 and \$.04 per kilowatt-hour – significantly less than producing even conventional energy.

Energy efficiency in transportation is also essential – improvements in gas mileage in vehicles and shipping can help reduce oil use in an economical way. The impetus for these improvements, of course, is on automakers and other producers, and industrialized countries must lead the way, then allowing developing countries to take advantages of improvements in technologies.

## Why Large Dams are Not Clean Renewable Energy

In the past, large hydroelectric dams have been considered by some as a “renewable” source of energy. But the environmental and social damage brought by about these dams – including possible climate change impacts, particularly in tropical climates – makes them entirely unsuitable for designation as clean energy. Indeed, the World Bank has decided that large dams should not be included in its commitment to increase financing of renewable energy and energy efficiency projects.

Large dams can displace hundreds of thousands of people, disrupting lives and communities. Providing adequate compensation, resettlement, and rehabilitation has proven to be very difficult, and in many cases, communities affected by these projects have been left worse off than they were prior to the projects. The World Commission on Dams found that 40-80 million people have been displaced to make way for large dams that “have led to the impoverishment and suffering of millions.”<sup>27</sup>

The environmental impacts of large dams are also extensive. Reservoirs created by large dams can inundate natural areas, and the changes in water flow that dams create can significantly alter river systems, negatively impacting species living in the rivers and people who rely on the rivers for their livelihoods. In addition, recent research has shown that large reservoirs in tropical areas release substantial amounts of methane, a greenhouse gas that leads to climate change.

ing for renewable energy entrepreneurs in Africa, Brazil and China. The African program operates in five countries and has successfully used debt and equity investment to provide seed capital for a range of 15 projects, from wind water pumping to solar water heating.<sup>31</sup> In addition to these models, other financing tools such as loan guarantees can be used to promote investment in renewables.

Many observers now agree that subsidies for renewable energy in developing countries must be carefully designed to ensure that they do not undermine the development of local commitment and investment in renewable technologies.<sup>32</sup> Funding programs for renewables must help to create a partnership between outside donors and on-the-ground implementers and users.

Yet publicly-supported programs and funding remain critical. Many of the most successful financing programs, such as the Grameen Shakti microcredit program in Bangladesh, have been founded with public capital. Similarly, the REED initiative has drawn on public funding to subsidize the cost of the seed capital it provides. Perhaps most important, many of the most critically needed uses for renewable energy are for basic services in developing countries – especially for health, education, and water supply. These uses are all for common goods that often do not provide an immediate return on investment. As a result, it will likely be necessary to pursue funding for renewables in these sectors through grant-based subsidies that are aimed not only at providing clean energy, but are also closely tied the provision of basic services in developing countries.

In addition, recent analyses have shown that when the costs of renewables are compared to the long-term costs and risks involved in conventional fossil fuel electricity production, renewable energy is cost-competitive, including for grid-based electricity.<sup>33</sup> Key reasons for this competitiveness include the relatively higher costs and price volatility of fossil fuels. As a result, concerns about the high up-front costs associated with installing renewable infrastructure are often overstated. For developing countries, then, funding that recognizes the long-term financial advantages from these energy sources is critical.

## World Bank Group Failure to Adequately Fund Renewable Energy

**D**uring the past year, the World Bank Group has emphasized the global leadership role it hopes to play in addressing climate change and financing for renewable energy. Notably, the World Bank Group announced in June 2004 that it would increase its lending for renewable energy and energy efficiency projects by 20 percent per year over the next five years.<sup>34</sup>

Then, in a communiqué released by the G8 countries at the conclusion of the G8 Summit in Gleneagles in July 2005, the World Bank Group was asked to “finance a new framework for climate change.” This would include 1) facilitating dialogue among the G8 and other countries on a long-term climate change agreement; 2) creating an investment framework for low-carbon economic growth among multilateral banks, export credit agencies, private sector financiers, and re-insurers; and 3) increasing its lending as part of the attempt to increase public and private finance for low-carbon, climate-friendly economic development.<sup>35</sup>

While World Bank Group representatives have stated that the Bank has made some progress in reconsidering its approach to cli-

## Solar Electric Light Fund: Solar Energy Initiative in Northern Nigeria

In the dry savannah of Northern Nigeria, most people still live in houses constructed of mud and thatch, use donkeys or cattle-drawn carts for transportation, and scratch out a subsistence living by growing their crops in the harsh conditions found just south of the Sahara Desert. Although wood is a rapidly disappearing resource, it is still the primary fuel for cooking. Lighting is provided by kerosene lamps that produce toxic fumes and the danger of fire. In most villages, water of poor quality is either pulled from open wells by rope and bucket or brought to the surface with hand-powered pumps. Health resources are minimal and village primary schools are often no more than dilapidated buildings lacking chairs, desks and books.

Rural areas in Northern Nigeria lack the modern energy sources needed for improvements in health, education and economic development. Even though Nigeria has an abundance of petroleum-based energy resources and exports nearly \$20 billion worth of oil annually, very little oil revenue filters down to help the rural population.

With the intention of addressing the supply of energy to villages, the Solar Electric Light Fund and the Jigawa State Governor initiated a proposal to bring solar-generated electricity (photovoltaic, or PV) to power essential services in three villages of Jigawa State. After extensive surveys and consultation with the people in the villages, nine PV systems were developed for this project: community water pumping, village health clinics, village schools, streetlights, mosque lighting, micro-enterprise centers, home lighting systems, mobile solar irrigation pumps, and groundnut oil expeller.

The United States Agency for International Development and the United States Department of Energy contributed 60 percent of the project budget with the balance coming from the government of Jigawa State. Installation began in June of 2003 and was completed in April of 2004. This project is now fully operational and is demonstrating the transformative effect that a sustainable source of electricity has on village life in the areas of health, education, water supply, security and economic development.

Source: Solar Electric Light Fund. [www.self.org](http://www.self.org)

## E+Co: Financing for Wind Power

E+Co has developed a model for financing renewable energy through the provision of debt or equity for new projects. E+Co believes that clean energy projects can be made a reality, and that it is not the technology, business models, demand, or ability to pay for renewable energy that holds up investment. Instead, E+Co focuses on providing seed capital, needed services to new enterprises, and support for finding next stage capital.

Working on the ground with local groups and dedicated entrepreneurs who best understand the needs of their community, E+Co provides business advice and services combined with early stage investment in renewable technologies. The company then works with its partners to establish a business plan and invest seed capital to get projects started. E+Co will also assist in identifying co-financiers and/or later stage financiers to move the enterprise forward to the next stage. Through early-stage investments ranging from \$25,000 to \$250,000, E+Co is able to finance renewable technologies like solar, wind, hydroelectric, geothermal, biomass, and energy efficiency.

E+Co has financed several innovative wind power projects in developing countries. For example, in China, E+Co made an

equity investment and approved a loan for working capital to establish Beijing Bergey Windpower Co. (BBWC), which manufactures 1 kilowatt and 10 kilowatt mini wind turbines for the Chinese and export market. The venture is responding to growing market recognition of the importance of photovoltaic/wind hybrid systems in providing a more substantial electricity supply beyond that for basic lighting, allowing for productive uses in non-electrified areas.

BBWC was established in 2001 by Bergey Windpower Company, a leading US supplier of small wind turbines. The Chinese venture has produced more than 1,200 high quality, low-cost systems, and the total installed capacity of Bergey systems in China has reached more than 1 megawatt. Through rural electrification programs, Beijing Bergey wind turbines are providing electricity through village grids to about 1,000 households that previously had limited or no access to electricity. Other customers include telecom companies, military, ocean traffic service, health clinics and micro-businesses. In many cases the wind turbines displace the use of diesel and kerosene for electricity generation and lighting.

Source: E+Co. [www.energyhouse.com](http://www.energyhouse.com)



mate change and renewable energy financing, an examination of past history of energy financing, in addition to last year's financing for renewable energy, shows that the Bank is failing to adequately finance renewable energy and energy efficiency.

The World Bank Group's approach to funding projects does not adequately consider the costs associated with the harmful impacts of conventional energy sources nor does it adequately consider the benefits of shifting to cleaner, renewable energy strategies. For many years, the Bank's focus for its energy sector lending has been the fossil fuel sector, particularly the extraction and export of oil and gas, as a means to spur development in countries. The Bank has also historically financed large hydro-electric dams as a central part of its energy strategy. Although for several years the Bank backed off of the large dam strategy, the institution is now re-entering the sector. This orientation towards fossil fuel and large dams has meant that the Bank has failed to fund clean, renewable energy in any meaningful way.

The World Bank Group has long emphasized the export of oil and gas to spur development. But it is questionable what development impacts these projects have had, particularly considering the local social and environmental damage caused by these projects. For example, the Extractive Industries Review (EIR), which was commissioned by the World Bank Group itself, found that large energy infrastructure projects financed by the Bank have caused substantial damage at local levels, including environmental degradation, social disruption, and conflict.<sup>36</sup> Other studies have found that countries with economies dependent on fossil fuel production and exportation have been found to experience increased rates of poverty, economic inequality, and corruption.<sup>37</sup>

The extraction and production of conventional energy resources have also been found to frequently lead to social conflict. Oil extraction sites are often guarded by large security details that sometimes include military police, and protests by local citizens against the negative impacts of oil on their communities can be met with repressive actions that lead to violence and human rights violations.<sup>38</sup> Oil production and export has also been found to increase countries' debt burdens, despite generating massive revenues for oil companies.<sup>39</sup>

While the Bank has put some money into renewables over the years, the amounts for those projects have been grossly overshadowed by the money poured into carbon emitting fossil fuel projects – by a factor of fourteen to one according to some estimates.<sup>40</sup> In spite of commitments made in the past year with regards to renewable energy and climate change, it is still unclear whether the Bank is ready to fully commit to a clean energy path.

## Failure to Consistently Consider Climate Change in Project Lending

Climate change concerns have been left on the sidelines in the World Bank Group's approach to providing fuel and electricity. From 1992 to 2004, the World Bank Group financed an estimated \$28 billion in fossil fuel projects, including extraction, power plants, and sector reforms – averaging about \$2 billion each year.<sup>41</sup> The estimated lifetime carbon emissions resulting from these projects is 43.4 billion tons, almost half of which have been or will be produced as a result of extractive industry projects aimed at exporting oil to the global marketplace.<sup>42</sup>

The Bank has not taken this massive amount of greenhouse gases into consideration on a project or sector level. For example, the World Resources Institute found that 84 percent of World Bank Group energy sector lending for the period 2000-2004 did not consider climate change impacts, including greenhouse gas emissions accounting, identification of lower emission alternatives, climate specific indicators or outcomes, or consideration of incremental cost and financing issues.<sup>43</sup>

Nor does the Bank examine renewable energy alternatives systematically in Country Assistance Strategies or Country Partnership Strategies.<sup>44</sup> These documents only sometimes mention energy efficiency explicitly, and even less often consider renewables in energy development strategies. Energy strategies generally focus instead on conventional energy projects.

## Bank Funding for Clean Energy in 2005 Does Not Meet 20 Percent Target

In June 2004, then-IFC Executive Vice President Peter Woicke announced at the International Conference on Renewable Energies, held in Bonn, Germany, that the World Bank Group would increase its lending for renewable energy and energy efficiency projects by 20 percent annually over the next five years (fiscal years 2005-2009). This commitment was later reaffirmed by the World Bank's Board of Directors.<sup>45</sup> The Bank's commitment applies to wind, solar, geothermal, biomass, thermal and electrical efficiency, and hydropower smaller than 10 megawatts.

The World Bank Group later clarified that the baseline for its annual increase would be US \$209 million, an average of International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA) renewable and efficiency financing for the years 2002-2004, in addition to carbon finance and Global Environment Facility (GEF) funding.<sup>46</sup> Given this



	Renewable Energy (in millions US\$)	Energy Efficiency (in millions US\$)
IBRD	92.7	0.0
IDA	14.9	1.6
Special finance (IBRD-IDA)	0.0	0.1
GEF	58.5	47.5
Carbon finance	3.8	4.3
IFC	10.7	0.6
IFC-Netherlands Carbon Facility	0	8.9
MIGA	0.0	0.0
<b>TOTAL</b>	<b>180.6</b>	<b>63</b>

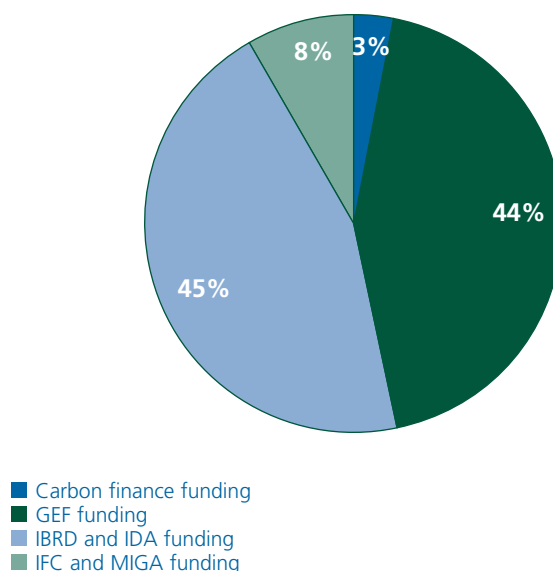
baseline and the goal of a 20 percent annual increase, the World Bank Group would have to fund at least \$500 million in renewable energy and energy efficiency projects by fiscal year 2009.

Many civil society advocates criticized the World Bank Group's target as too little to effectively change course and achieve a substantial shift to clean energy lending. However, an analysis of Bank financing for fiscal year 2005 shows that the Bank failed to meet even its limited target for increasing clean energy lending by 20 percent annually.\*

**Based on an examination of publicly available documents for World Bank Group energy lending, Friends of the Earth concludes that renewable energy and energy efficiency funding from IBRD and IDA, including carbon finance funds and the Global Environment Facility (GEF) for fiscal year 2005 was \$223 million, or only a 7 percent increase over the baseline of \$209 million.<sup>47</sup>**

The total of \$223 million in renewable and energy funding actually inflates the scale of World Bank clean energy financing. This figure uses the World Bank's framework for renewable and ener-

### World Bank Group Renewable Energy and Energy Efficiency Financing By Source FY 2005



gy efficiency finance, incorporating financing from carbon finance and GEF sources for projects that IBRD and IDA implements or co-implements. While the World Bank should continue to work with other funding sources to leverage money for renewable energy and energy efficiency, it should also work to increase the amount of money from dedicated Bank funds that go towards renewable energy projects. Notably, support for renewable and energy efficiency projects using IBRD and IDA financial resources alone totals only \$109 million.

This failure to meet the 20 percent target is perhaps not surprising given the Bank's historic orientation towards energy financing. For the past decade, in spite of increasing indications that climate change is a serious threat, the World Bank has not taken climate change into account, nor has it taken any serious steps to shift its lending from fossil fuel projects to renewables.

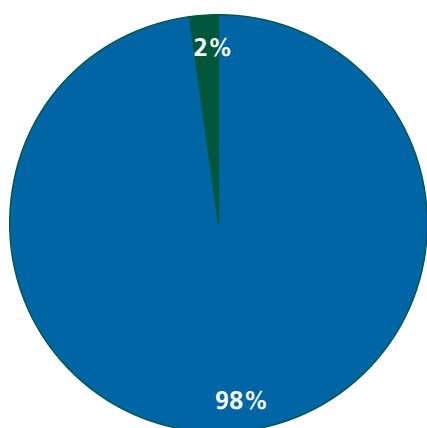
## IFC and MIGA Not Included in 20 Percent Commitment

It is also noteworthy that the World Bank Group chose not to include International Finance Corporation (IFC) and Multilateral Investment Guarantee Agency (MIGA) financing in its 20 percent annual growth target for renewables and energy efficiency. This exclusion is particularly striking given that then-IFC Executive Vice President Peter Woicke made the first public announcement of the Bank's clean energy commitment.

The rationale for not including the IFC and MIGA in the baseline, or the target, is that this assistance is focused on the private sector, which is demand-driven and less influenced by the World

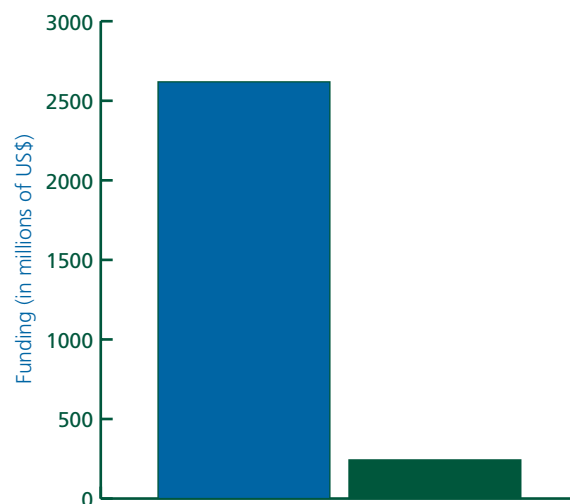
\*For this report, all analyses of fiscal year 2005 financing by World Bank Group entities is based on examination of publicly available documents on the websites of the World Bank, International Finance Corporation, and Multilateral Investment Guarantee Agency. Friends of the Earth offered to compare these numbers with the Bank's analysis, but Bank staff declined to do so. An Annex to this report listing individual projects can be found at [www.foe.org/camps/intl/cleanenergy/wbreport](http://www.foe.org/camps/intl/cleanenergy/wbreport)

### International Finance Corporation Energy Financing FY 2005



■ Other Energy  
■ Renewable Energy and Energy Efficiency

### World Bank Group Renewable Energy and Energy Efficiency Financing By Source FY 2005



■ Other Energy  
■ Renewable Energy and Energy Efficiency

Bank or country strategic planning assistance.”<sup>48</sup> This is a flawed argument. The IFC and MIGA should approach companies and governments with project ideas on renewables in a proactive manner to allow them to pursue a minimum target for renewable energy and energy efficiency investment.

However, the IFC and MIGA currently have no targets for their renewable energy and energy efficiency lending. The amount of financing that went to renewable energy and energy efficiency from the IFC and MIGA in fiscal year 2005 was only \$20 million, with approximately \$8.9 million of that for an IFC-Netherlands Carbon Facility project. With no responsibility to increase this amount, there is no reason to expect that the IFC and MIGA will put their private sector expertise into supporting renewable energy and energy efficiency projects. At the same time, both the IFC and MIGA continue to heavily finance fossil fuel projects. Only 2 percent of IFC energy funding for fiscal year 2005 went to renewable energy or energy efficiency.

## Renewable Energy as a Small Percentage of Overall Energy Lending

The World Bank Group’s renewable and efficiency lending is a mere fraction of the amount that has gone to fossil fuel projects. In setting a baseline for increasing its renewable energy and energy efficiency lending over five years, the Bank identified an amount of \$209 million, only one tenth of that amount of the Bank’s historical average spending on fossil fuel projects.

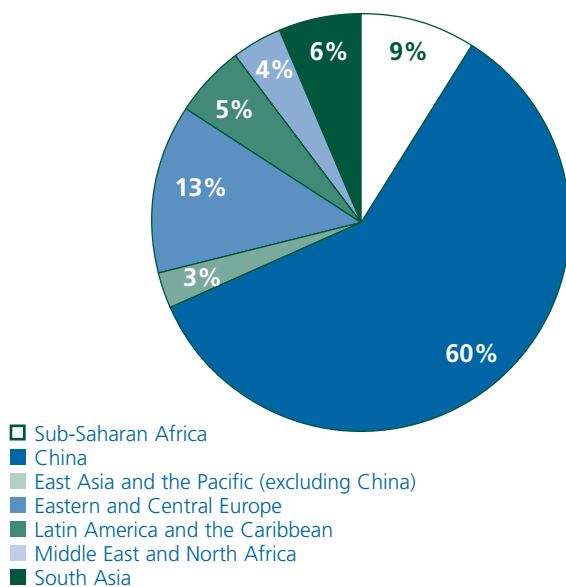
Even if the World Bank Group succeeds with its target and invests \$500 million in renewables and energy efficiency by 2009, this is still only one quarter of what it spends annually on other energy lending, including projects that contribute to large quantities of greenhouse gas emissions.<sup>49</sup> The Bank’s small amount of funding for renewable energy and energy efficiency hardly makes up for the vast amounts of greenhouse gases for which World Bank Group projects are directly or indirectly responsible.

Including IFC and MIGA in an analysis of the World Bank Group’s overall energy lending demonstrates the degree to which renewable and energy efficiency are a very limited fraction of the Bank’s total energy financing. IFC and MIGA’s overall energy lending totaled \$1.13 billion, and with IFC and MIGA included, the World Bank Group’s overall energy lending total is \$2.86 billion. For the World Bank Group as a whole, renewables and energy efficiency are only 9 percent of overall energy financing for fiscal year 2005.

## No Regional or National Renewable Energy Lending Targets

Regional breakdowns of financing for fiscal year 2005 shows renewable energy and energy efficiency financing was very uneven, with little attention or resources given to several regions with critical energy needs. Of the funding going to renewable and energy efficiency projects through IBRD, IDA, GEF, and carbon finance, \$145 million, or 65 percent of the \$223 million, went to just three projects in China. Another \$32 million went to Europe and Central Asia. While these are important markets for renewable energy, and particularly so in terms of China’s likely cli-

## World Bank Group Renewable Energy and Energy Efficiency Financing By Source FY 2005



mate change impacts, other regions received only minimal attention or resources. Sub-Saharan Africa, with some of the lowest levels of electrification in the world, received only \$22 million, South Asia received only \$5.6 million, and the remainder of East Asia and the Pacific outside China received only \$6.7 million. The World Bank Group does not have any regional or national lending targets to guide renewable and energy efficiency lending or funding in developing countries.

## No Serious Backing of Grants and No-Interest Credits for Clean Energy

The World Bank Group has failed to adequately supplement large lending packages with grants and concessional credits from their own resources to help with the provision of clean, renewable energy. If the World Bank Group is truly interested in long-term sustainable development, a system of grants for renewable energy could provide substantial long-term benefits. The GEF and carbon finance provide funding in the form of grants, but this funding comes from outside of the World Bank's own resources. The GEF in particular appears to have limited capacity for increas-

ing funding, while carbon finance is in general not being used to fund clean renewable technologies like wind and solar power.

Governments may be wary of undertaking renewable energy projects because of perceived cost of the technologies. The World Bank Group is in a position to present information and advice to governments about the benefits of clean energy and to provide grants or subsidies to bring the costs of clean energy in line with conventional energy. Particularly with some of the more cost effective clean technologies, such as wind and small hydro, the Bank itself could provide supplemental grants to encourage the adoption of this sort of technology.

## Little Funding Available For Community Level Projects or Microcredit Programs

The World Bank Group has failed to effectively support community-level projects with small loans or microcredit programs for renewable energy. According to the project database, there is very little, if any, funding within the Bank projects going to small scale, community-level electrification using renewable energy. Yet the most successful energy projects in developing countries have often been small, community-based projects like those done by non-governmental organizations.

Organizations like Green Empowerment, Light Up the World Foundation, ITDG, and others have succeeded in providing clean energy to villages and communities around the world through microhydro and solar technologies. With a mixture of small grants and loans for this type of work, organizations like these would be able to work with more communities and bring electricity to more villages, including electricity for health clinics, schools, and community centers. Microcredit programs like those of Grameen Shakti have also proven to be quite successful in the provision of energy services. Establishing and seriously backing a microcredit program for energy in rural communities could also facilitate rural electrification.

Rural communities are often willing and able to pay at least part of the cost of electrification, but they may lack start up costs or be unable to cover the entire costs of new systems. Providing microcredit to these communities could speed rural electrification more rapidly than the large loans that the Bank provides.

## Carbon Finance Not Being Used to Fund Wind, Small Hydro, or Solar Power

The carbon finance programs managed by the World Bank Group are designed to regulate the emerging carbon market for greenhouse gas emission reductions. These funds include projects under the Kyoto Protocol's Clean Development Mechanism, which permits industrialized countries to finance emissions-avoiding projects in developing countries and receive credit for doing so. The Bank has a variety of funds – the Prototype Carbon Fund, the Community Development Carbon Fund (CDCF), the BioCarbon Fund, and several national carbon funds – to provide credits for low emissions projects in developing countries. But these funds do not leverage World Bank money, as they are funded directly by industrialized country governments and companies specifically for the purpose of trading carbon credits. The projects financed through this mechanism are rarely renewable energy projects such as wind power, small or mini hydropower, or solar power. Without using the carbon financing to fund clean and sustainable renewables projects, the Bank is losing an opportunity to promote new technologies that could provide reliable, long term electricity generation for developing countries.

## Moving Forward on Renewable Energy at the World Bank Group

If the World Bank Group is to deliver on the potential of renewable energy to promote development and poverty alleviation, it will have to significantly shift its approach to the financing of renewable energy and enhance the use of existing resources and financial instruments. At the same time, donor countries will need to provide new and additional funding to ensure a lower carbon path in these investments.

Even making good on the Bank's limited commitment to increasing its renewable energy financing by 20 percent annually over five years will require a major change in course. Friends of the Earth believes that, in order for the World Bank Group to achieve an appropriate level of financing for renewable and efficiency projects, the Bank will have to undertake the following significant changes in its lending approach.

- **The World Bank Group will have to dramatically increase its funding for renewable energy, both in absolute terms and as a proportion of its overall energy funding.** The Bank's failure to meet even a 20 percent increase target for renewable and energy efficiency lending in fiscal year 2005 demonstrates the Bank's inability thus far to

truly commit to a low carbon, clean energy path. The very small percentage of renewable and efficiency projects as a proportion of overall energy lending shows that the Bank has not yet begun to shift its energy lending approach as a whole.

- **The IFC and MIGA will have to commit to renewable energy financing targets and develop clear strategies to meet those targets.** As drivers of private sector investment at a development institution, IFC and MIGA are in strong positions to influence the flow of money going to renewables projects. Instead of shying away from a target to increase their investments as they appear to be doing with the World Bank's commitment to increase renewables lending by 20 percent, IFC and MIGA should embrace this challenge, setting the tone for private sector renewables investment and shifting from oil and gas financing.
- **The World Bank Group will have to deploy more of its own financial resources to fund renewable and efficiency projects, in addition to continuing to work with the GEF and carbon finance funds to support projects.** The funding that the Bank has provided for renewable and efficiency projects has in fact relied heavily – over 50 percent in fiscal year 2005 – on sources other than the Bank's own financial resources. While the Bank should continue to work with funds such as carbon finance and the GEF, the Bank itself should also seriously commit the use of its own financial capacity in the energy sector to renewable and efficiency projects and away from fossil fuels.
- **The World Bank Group will have to adopt regional targets for renewable and efficiency financing.** Since much of the impetus for lending at the World Bank comes from country offices and regional departments, the lack of regional targets for renewable and efficiency financing is a major gap in any effort to create increased momentum for these projects. The disparate amounts of financing provided to different regions in fiscal year 2005 suggests that there is no Bank-wide commitment to renewable and efficiency projects. The very limited funding of these projects in South Asia and Africa in fiscal year 2005 is particularly noteworthy.
- **The World Bank Group will have to create renewable energy and energy efficiency teams to focus on specific countries and technologies.** The Bank has announced its intention to increase staff capacity in the area of renewable energy, which is a necessary prerequisite to increasing renewable energy and energy efficiency. The Bank should put these people into teams that will focus specifically on the right technologies for each country consistent with their national development objectives and independent criteria for sustain-

ability. While it is important to look at the countries with the largest projected increases in energy demands, it is also necessary to assist all developing countries with clean energy paths for electrification and to meet energy demands.

- **The World Bank Group will have to increase its support for renewable and efficiency projects through the use of funding tools such as grants, concessional credits, credit enhancement products, and lending for micro-credit financing projects.** Successfully stimulating markets for renewable energy in developing countries will require the Bank to increase incentives for these types of projects, including increasing grants and low interest loans to make up cost differences. The Bank should also develop innovative financial products such as specialized risk and credit guarantees to overcome barriers to successful renewables financing. The Bank will also have to explore micro-credit and small-scale grant and loan programs to successfully undertake rural electrification through renewables projects.
- **The World Bank Group will have to leverage carbon finance funds to finance clean renewable technology like wind and solar power.** Carbon finance funds are being used by the Bank to finance large hydropower and other projects with substantial negative impacts. But rather than finance questionable or harmful energy approaches, these funds should be used to spur investment in clean renewables – primarily wind, solar and small hydro.
- **The World Bank Group will have to integrate climate change mitigation and non-conventional energy approaches more deeply into its overall lending strategy.** The ongoing failure of the Bank to adequately consider climate change mitigation issues in its energy sector lending is another key indicator of its need to substantially shift its approach to providing financing in ways that support renewable energy and energy efficiency. Poverty Reduction Strategy Papers, Country Assistance Strategies and other documents should all take climate change, renewables and energy efficiency into account.
- **The World Bank Group will have to find a way to pursue the cleanest sustainable technologies rather than defaulting to projects that are environmentally and socially damaging.** The Bank has announced its intent to increase infrastructure lending to 40 percent of its lending portfolio, signaling a move back into large dams without adequate safeguards in place. There have also been indications from the World Bank Group that a “clean energy path” would involve a great deal of “clean” coal technologies. Large dams, however, have significant local environmental and social impacts and dubious economics, while “clean” coal still

emits significant amounts of greenhouse gases. The Bank should aim to substantially increase investment in the cleanest and safest methods of electricity production, avoiding so-called clean coal and large dams.

- **The World Bank Group will have to integrate renewable energy and energy efficiency more into lending outside the energy sector, including financing for electricity in schools and health clinics.** The Bank has acknowledged that electricity is vital to development in the poorest areas of the world. The Bank will have to incorporate this sort of recognition into funding for providing clean, renewable electricity in schools and health clinics worldwide.

## Conclusion: Is the World Bank the Right Place to Promote Renewables?

**A**s recognition of the impacts of climate change and the need for energy for the world's poor grows, international institutions, governments, and others must come together to find a way forward. Significantly more funding for renewable energy must be put on the table, both in developed and developing countries. There should be serious consideration given to the appropriate international financing mechanisms for shifting energy investments to renewable energy.

The World Bank Group is designed to fund projects that may involve greater financial risk, effectively subsidizing technologies for developing countries. Instead of using that subsidy power for clean technologies, like solar or wind power projects, the Bank continues to put a large portion of its money into conventional energy projects, including fossil fuel development and large dams. Using the Bank's money and influence to subsidize clean, cutting edge energy technologies would be a better use of the limited resources of the world's most influential development bank.

Despite its mandate to promote renewable energy and reduce the impacts of climate change, it appears that the World Bank Group may be ill-suited to take on this important responsibility. The Bank continues to be focused on financing conventional energy projects that contribute to climate change, while taking only small steps in the direction of renewables and energy efficiency. The Bank is missing the tremendous opportunity that renewable energy presents. To address the issues of supplying energy for development without at the same time exacerbating climate change, the Bank must change the way it does business now, before it is too late.



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