The Carbon Partnership Facility

think big cpf

Larger scale, longer term, and bigger impact

Gas Flaring

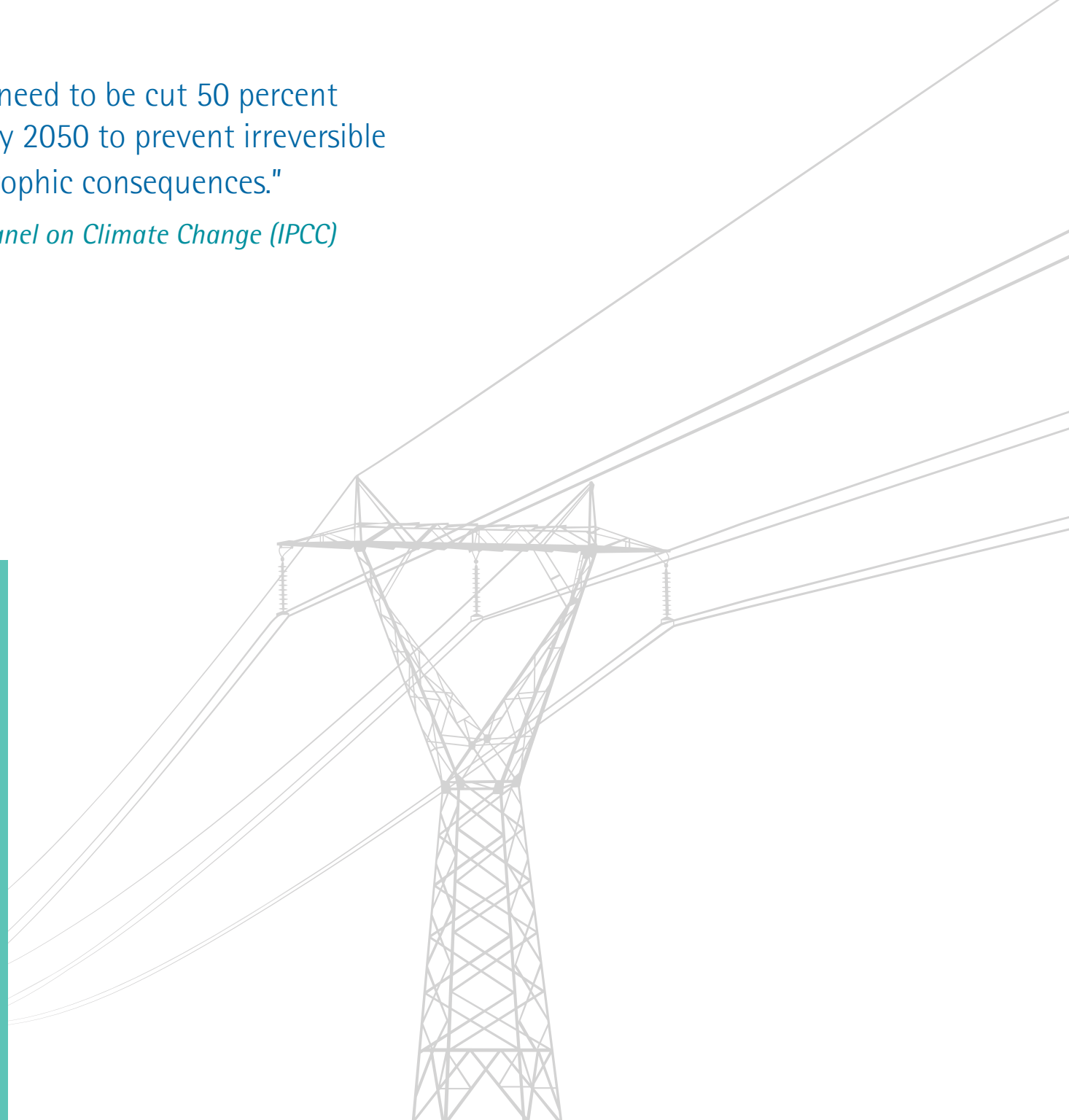
emission reductions

energy efficiency

long-term impact

"Greenhouse gases need to be cut 50 percent below 1990 levels by 2050 to prevent irreversible and possibly catastrophic consequences."

- Intergovernmental Panel on Climate Change (IPCC)



Carbon Finance for the post-2012 world

The Carbon Partnership Facility will pioneer development of programmatic and sector-based approaches to carbon finance through a partnership which supports the development and implementation of larger scale and longer-term investment programs that will help to significantly reduce greenhouse gas emissions.

Enormous Challenges - Insufficient Responses

The earth's atmosphere is rapidly getting warmer. Glaciers melt, sea levels rise, rainforests shrink, deserts grow, coral reefs bleach, the oceans become acidic, and our weather becomes more extreme. If not contained, climate change will cause dramatic changes to our ecosystems, economies and societies. These changes might be too fast and drastic to adapt to. Urgent action is required *now*.

In order to limit the atmosphere's temperature increase to 2 degrees Celsius and to prevent catastrophic consequences, the Intergovernmental Panel on Climate Change has concluded that global greenhouse gas emissions would need to peak by 2020 and drop dramatically soon thereafter. That means we have to put our economic development on a sustainable path *today*.

Much of the infrastructure for the 21st century is currently being built or planned. The carbon intensity of that infrastructure will determine our future. Developing nations in particular are expected to see a rapid expansion of their energy, transport and housing infrastructure due to population and economic growth, rural-to-urban migration and a global shift in manufacturing. Global primary energy demand is likely to grow between 40 and 150 percent until 2050. But climate change is not factored into decisions on many of the investments being made today. That needs to change quickly.

The world needs to move to a lower-carbon economy. In order to reduce greenhouse gas emissions significantly, we must find ways that will indeed achieve the scale and impact that are adequate to the challenge we face – a way that enhances and not jeopardizes sustainable economic and social development.

Many technologies and systems that could help cut global emissions are already commercially available. They just need to be deployed much more rapidly.

The Kyoto Protocol under the United Nations Framework Convention on Climate Change (UNFCCC) has created mechanisms which help promote investment in clean technologies in developing countries and nations with economies in transition. These mechanisms– Clean Development Mechanism (CDM) and Joint Implementation (JI) – have been successful in thousands of projects worldwide. But, they are not designed to enable the broad shifts in industrial, urban and transport infrastructures or the long-term investments needed to lower carbon emission trajectories in these countries.

What is needed is a strategic integration of carbon markets, clean technology investments, and development policies and finance. Various instruments and financing sources will likely be required to meet the challenges ahead. Market-based approaches, such as carbon finance, can make a significant contribution.

Strategies to move to a lower carbon path will require investments on a scale estimated by the UNFCCC to be around US$200 billion annually, making it critical to mobilize financing from both public and private sources of capital. The carbon market has proven to be an effective tool to address the latter. Much of the carbon market consists of private capital and World Bank estimates show that carbon finance can leverage investments at a ratio of 1:4 on average and 1:9 for renewable energy.

Using market mechanisms can complement assistance from industrialized countries and multilateral lending. Carbon finance can simultaneously support sustainable development and provide opportunities for developed countries with carbon compliance requirements to meet emission reduction commitments at a lower cost.

Big emission cuts needed

The power sector accounts for 26 percent of global greenhouse gas emissions. Industry accounts for 19 percent, and cement production alone for 5 percent. Transport and solid waste contribute to 14 percent and 4 percent of greenhouse gas emissions respectively. In order to change this we have to think big. The Carbon Partnership Facility aims at reducing emissions in these critical sectors in developing countries.

The Carbon Partnership Facility – Taking the carbon market to the next level

The World Bank has been a pioneer, catalyst and facilitator helping to shape the global carbon market for 10 years. It has contributed to developing what was initially a risky untested market into a now vibrant market.

With the Carbon Partnership Facility (CPF), the World Bank is now pioneering the next generation of carbon finance for the post-2012 world. The World Bank's knowledge, experience, global network, credibility with the private sector and special relationship with developing countries make it particularly well-positioned for the task.

The CPF intends to develop programmatic and sector-based approaches in developing countries to reduce greenhouse gas emissions. It will be used in areas such as the power sector, energy efficiency, gas flaring, transport, waste management systems and urban development.

The flexible structure of the CPF also enables it to explore the use of carbon finance to promote the introduction of cutting-edge technologies and solutions, such as carbon capture and storage.

The new approach of the CPF can help catalyze change in developing countries and nations with economies in transition towards lower carbon development paths and help modernize their infrastructure.

The CPF is intended to demonstrate how scaling up investment in clean technologies and modern infrastructure solutions can work, using carbon finance to help transform sectors and deliver social and economic co-benefits in the developing world.

The CPF provides a platform for partnership between buyers and sellers, and developed and developing countries, to integrate carbon finance into sustainable economic development and policy.

Ultimately, the CPF aims to make a significant contribution to the use of carbon finance in mitigation of global climate change.

Linking development & climate change action

The World Bank's approach to climate action is based on its core mission of supporting economic growth and reducing poverty in developing countries. In 2008 the Bank adopted a Strategic Framework on Development and Climate Change, which provides the basis for World Bank programs to: support climate action through country-led development processes; mobilize additional finance; facilitate the development of marked based financing mechanisms; leverage private sector resources; accelerate the deployment of low carbon technologies and step up research and capacity building. The World Bank will increase its funding for energy efficiency and renewable energy by an average 30 percent a year, with the share of low-carbon projects rising from 40 percent in 2008 to 50 percent in 2011. One important aspect of this work is to package development finance from the Bank's lending instruments with carbon finance, Global Environmental Facility grants, and concessional loans from the Clean Technology Fund in support of climate change mitigation programs.

Post 2012 climate negotiations

Market mechanisms, in particular the Clean Development Mechanism, have been focused thus far on project-based emission reductions. Governments under the UNFCCC negotiations are exploring innovative ways to strengthen carbon finance, including programmatic and sector-based approaches, which could enable larger-scale carbon finance programs to support national actions.

Key approaches

In order to scale up carbon finance, the Carbon Partnership Facility will collaborate with governments and market participants on *investment programs and sector-based interventions* that are consistent with low-carbon economic growth and the sustainable development priorities of developing countries. The Facility will draw on the World Bank's financial and knowledge resources to strategically *integrate carbon finance with sustainable development* plans.

The Carbon Partnership Facility will support investments and programs that have a potential *long-term and large-scale impact* on emission reductions. To do this, the CPF intends to enter into purchase agreements initially up to 2022 and potentially well beyond.

Open to use its resources and develop emission reduction programs under an international climate change agreement, the Facility will pilot new ways and develop methodologies where currently no or limited rules exist. It will work to pioneer programmatic and sector-based methodologies for the *post-2012 carbon market and evolving carbon finance mechanisms.*

Measuring the success of programs instead of projects

Doing the math for emission reductions can be challenging. For each type of CDM project activity a methodology has to be developed and approved. Methodologies, once approved by the UN, can then be applied to other similar projects. In order to scale up the carbon market, the way emissions are being measured may need to change. One approach could be to focus on changes in trends at the technology or sector level instead of monitoring every single activity and ton of CO_2 individually, while ensuring that emissions are cut. If for example a government sponsors an energy efficiency program for public buildings, you may not need to detect the emission cuts achieved by this program at every building; instead you could check that all the buildings have indeed implemented the efficiency measures.

Key Sectors

CPF programs will focus on a set of investment projects that will cut greenhouse gases on a large scale at country level. Potential examples include:

Energy efficiency: The CPF could develop a program for the manufacturing sector which aims for emission reductions by establishing energy management centers for a specific industry. The cement industry could be one of the candidate sectors, given its relatively homogeneous set of production processes. A program on the demand side could include the introduction of energy-efficient appliances.

Urban development: Cities are the fastest growing source of greenhouse gas emissions. While urban areas provide better quality of life to their burgeoning population through services such as water supply, waste management, mass transport and other public utilities, these services are also the source of major emissions. Most cities are straddled with financial burdens due to the fast pace of growth and competing socio-economic demands and are unable to assess or mitigate their emissions. The CPF intends to work with cities and municipalities to create umbrella emission reduction programs that support mitigation activities across sectors. These programs aim to allow the inclusion of all small and large sources of greenhouse gas emissions and move the cities towards a low-carbon growth path.

Gas flaring: It is estimated that over 100 billion cubic meters of natural gas are flared annually, equivalent to the annual gas consumption of France and Germany combined. Gas flaring therefore wastes a valuable energy resource. It also releases about 400 million tons of carbon dioxide equivalent each year into the atmosphere. The potential for emissions reduction is therefore significant. If the gas were re-used locally, for power generation for instance, an additional development benefit would be created.

Power sector development: Most developing countries have huge needs for additional power generation capacity and for improvement of generation efficiency in existing plants. The CPF could, for example, support a country to undertake a program to modernize its coal-fired power generation or to roll out a series of renewable energy plants. An agreement could be reached on the upgrading or construction of a series of power stations over a number of years, resulting in millions of tons of emission reductions.

Key features

The structure of the Carbon Partnership Facility supports the dialogue between buyers and sellers and their mutual effort to identify and develop emission reduction programs. The CPF establishes a *partnership of buyers and sellers* of carbon credits, with balanced representation of public and private sector entities from developed and developing country. The buyers and sellers will provide guidance to the World Bank as the trustee of the Facility on the approach to pricing of the emission reductions and on other terms and conditions of the sale and purchase contracts. In addition, *donors, developing country governments and possibly other partners such as technology developers* will be key contributors to the success of the partnership by playing an advisory role.

A *preparation fund* (Carbon Asset Development Fund) will finance the development of the emission reduction programs and the related due diligence, including by providing grant resources.

A portion of the carbon credits generated by the emission reduction programs will be purchased by a *carbon fund* (*the CPF Carbon Fund*) using financial contributions from developed country governments and the private sector. The remaining credits can be sold to the market by the sellers.

The *World Bank will act as trustee* of the CPF, contributing its expert knowledge and capacity in not only carbon finance but also sustainable economic development, policy advice and finance.

CPF programs will provide sellers of emission reductions with the opportunity for significant and long-term revenue streams to help finance their investment projects. In the preparation of programs, sellers will be supported by the Carbon Asset Development Fund and can benefit from capacity building and training services as well as from the policy and methodology work that will be associated with the CPF programs.

For buyers of emission reductions, the CPF will provide an opportunity to receive a relatively large stream of carbon credits to better plan for future compliance obligations. They will thus be able to hedge carbon liabilities while lowering their costs and risks of carbon credit acquisitions in an uncertain market. For that, the World Bank will seek the consent of the buyers prior to including any program in the CPF portfolio.

Both buyer and seller participants in the CPF will benefit from the broader partnership for which the CPF will provide a basis.

CPF: Partnership & Governance

The CPF ensures an equal representation of buyers and sellers through

- Annual participants meetings which provide guidance to the World Bank as trustee, function as forum for information exchange and elect members of the Partnership Committee;
- A Partnership Committee, which includes buyer and seller representatives as well as host government and donor country partners, is co-chaired by a buyer and seller representative and endorses the pricing approach and the form of emission reduction purchase agreements (ERPA) and advises on portfolio balance and eligibility criteria;
- Advisory groups of relevant partners and experts which will be set up as needed.

Scaling up carbon finance in developing countries

Carbon finance in developing countries works mainly through the Clean Development Mechanism (CDM). Its dual objective is to assist developed countries to reach their emission reduction targets at lower costs, while helping developing nations to achieve sustainable development. So far, investments have been made in single projects in many different sectors through a project-by-project approach.

The CDM has demonstrated that offset-based mitigation can work for a variety of industries and technologies and it can help reduce the cost of global mitigation efforts. However, it has become apparent that the project-by-project approach is simply not enough to substantially cut greenhouse gases. It is also often expensive and time- consuming to create new methodologies and apply them to a proposed project.

As the limitations of the project-based approach have to come to be recognized, greater emphasis is now being placed on the potential for emission reduction opportunities after 2012 to be based on larger scale government policy reforms and investments. These programs would enable carbon finance transactions that encompass large programs or an entire sector or sub-sectors of the economy.

First steps through the CDM Program of Activities (PoA).

The programmatic approach of the CDM aims to support low-carbon policies of governments or a stated program objective of private or public sector entities. If a policy or program allows the verification of emission reductions, the program and projects under it can be considered as a CDM activity. Enabling policies and programs increase the number, scope and scale of investments to reduce emissions. A program creates a framework – for instance, providing tax rebates, preferential tariffs, other financial incentives/subsidies or regulatory support – which encourages the large-scale deployment of greenhouse gas mitigation technologies through projects that may then be eligible for carbon finance.

Future scenarios

Carbon finance could apply to a specific sector in a country. One idea is to move away from the traditional CDM approach where credits provide incentives directly to the installations which reduce emissions. Instead, policies to reduce emissions in the sector are implemented and can be credited if the outcome is below a baseline, such as the carbon intensity of production or overall emissions of the sector. Another idea would be that credits would be granted to entities which emit less than a sector-based or subsector standardized benchmark, taking certain qualifications into account like scope of industry, size of plants or type of product For instance, power generation or cement plants might earn credits if their emissions were below this standard.

"We are working towards integrating carbon financing as a tool to enhance financial viability of Indonesia geothermal development, to support achieving its sustainable energy development target"

— Sugiharto Harsoprayitno,
Director of Geothermal Enterprise Supervision and Groundwater Management,
Ministry of Energy and Mineral Resources

Examples

Accelerating the development of geothermal energy in Indonesia

Indonesia has the world's largest geothermal resources due to favorable geological formations and volcanic activities. The power generation potential is estimated to be as much as 27,000 MW. Most of the rich steam fields under the surface are found on the islands of Java, Bali, Sumatra and Sulawesi, where much of the electricity demand originates.

However, this clean, sustainable and climate friendly source of energy has so far been largely untapped. It currently contributes less than 4% to Indonesia's power generation mix, with only 1,052 MW developed and under operation.

The Carbon Partnership Facility will help Indonesia to faster develop and deploy its geothermal power. This helps to mitigate climate change, reduces local pollution, makes the country more energy independent and diversifies its energy mix.

Geothermal power is a very suitable alternative for expanding base-load power generation capacity in Indonesia and substitute coal-based installed capacity which is being increased by as much as 10,000 MW. Greater availability of clean geothermal energy would displace an equivalent amount of coal-based power. In light of this, the CPF program could play a catalytic role in mobilizing investments towards achieving the government target of developing 6,000 MW of geothermal power capacity in Indonesia by 2020.

The CPF program can address some of the key barriers that would challenge Indonesia from achieving its geothermal development target. Many project developers are reluctant to invest in geothermal since they are unable to secure a return on their investment commensurate with its risks. By selling their emission reductions through the CPF program, geothermal developers can augment their cash flows and enhance the financial viability of their projects. Therefore, the CPF program will enhance the prospects of Indonesia successfully implementing their geothermal development program.

Indonesia – awakening the geothermal giant

Indonesia has developed a blueprint which sets a target for developing up to 6,000 MW of its world's leading geothermal resources by 2020. Geothermal power is also expected to make up nearly 40% of an upcoming 10,000 MW accelerated program to increase power generation capacity in the country. Many of these projects could be part of the CPF program.

Geothermal power in Indonesia is developed by both public and private entities as the investment needs are momentous. Carbon finance is expected to play a key role in addressing present barriers that constrain development, and enhance the financial feasibility of geothermal power. Once the geothermal fields are developed, its power will be sold to PLN, the national power company.

By displacing the rapidly increasing use of coal and other fossil-based fuels for power generation, these projects, when operational, will result in millions of tons of emission reductions annually.

FEC has been mandated by the Moroccan government to assist cities to develop CDM projects and sell emission reductions. The CPF program will first target the major cities included in the first phase of the Solid Waste Management Program. The waste sites considered represent around 2.9 million tons of waste per year. The number of ERs for the planned 25-year period (2011-2035) is evaluated at 26 million tCO_2e.

"The Carbon Finance program prepared in cooperation with the World Bank is an innovative solution to generate additional funding for the solid waste management sector while promoting sound environmental practices. It is a new and promising area for FEC's activities which reinforces our commitment to support Moroccan municipalities in their sustainable development efforts."

—Mr. Karim Mansouri, General Manager FEC

Sustainable solid waste management in Morocco

More than half of Morocco's population lives in urban areas and is expected to grow by 2.85 percent per year. More people mean more consumption and more waste. The country currently produces about 4.7 million tons of municipal waste every year. Waste sites also produce the potent greenhouse gas methane.

Waste management has become critical considering the negative effects on human health, natural resources, the environment, climate change and economic and social development.

The Moroccan government has started an ambitious program reforming the solid waste sector which aims to create a nation-wide sustainable management system. The 15-year program was launched in 2008. Its objective is to expand and modernize collection and waste disposal practices. Open dump sites will be closed or upgraded and new sanitary landfills will be built to ensure that all waste in urban areas is being collected and properly disposed.

The CPF will promote projects to eliminate landfill gas emissions and use the captured methane to generate electricity all over Morocco. This will help to improve air quality and the quality of life in areas surrounding landfills. It will reduce nuisances due to odors and hazardous risks such as fire and explosions.

A nationwide Carbon Finance Program is being developed with Fonds d'équipement communal (FEC), a state-owned bank specialized in the financing of investment projects of local communities.

Renewable Energy for Vietnam

Vietnam has one of the fastest growing economies in the world. Rapid industrialization increases the demand for energy. The power sector is under pressure to meet this demand. Vietnam has imported power from China and Lao PDR to cope with recent shortages. Expanding the energy supply is therefore critical.

Currently, due to Vietnam's large gas and coal reserves, thermal electricity generation from natural gas and coal accounts for 40 and 20 percent of the total power generation, respectively. To meet rising energy demand, the Vietnamese government plans to increase the supply of renewable energy and therefore speed up the development of hydropower, biomass and wind power. The hydropower potential for smaller installations (30 MW or less) has been estimated at 2,900 MW, located mainly in the harder to reach, hilly northern and central regions.

Renewable energy is not only climate friendly; it can be deployed more readily in remote areas. Although electricity access has increased dramatically in Vietnam from around 51 percent of households in 1995 to around 94 percent in 2007, more than 8 million people, mostly in rural communities, still lack access to electricity. Poor and unreliable service and low voltage are also very common in rural areas. Having access and reliable service will improve health and education, provide jobs and reduce environmental degradation.

The Vietnamese government has adopted a Renewable Energy Action Plan in order to encourage sustainable energy production. The underlying World Bank loan and CPF program aim to provide re-financing to participating banks for loans to eligible renewable energy projects that are developed by private companies. It will also provide technical assistance to those banks.

Carbon Finance will help overcome barriers in investing in renewable energy projects in Vietnam. It will provide needed incentives to scale up development of small hydropower, wind and biomass projects. The initial plan is to get 20 installations up and running after 2012 averaging 10-11 MW each. The total capacity of this initial phase is expected to reach 210 MW producing about 880 GWh of electricity every year. With a Program of Activities (PoA) and the institutional arrangement put in place, it is possible to scale up to reach the total renewable energy potential of 2,900 MW with the benefits of carbon finance. The entire program is expected to run for 28 years and to cut greenhouse gas emissions by a total of more than 9 million tons of CO_2 equivalent per annum.

THE WORLD BANK

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