

Supporting low carbon energy development in Africa

Africa is not considered a major contributor to global climate change but is recognised as the continent most vulnerable to the adverse impacts of climate change.

This vulnerability is particularly acute in rural areas. The African Development Bank, with its Regional Members Countries, is working on programmes to reduce the energy poverty of the continent, taking the climate change challenge into account.

For most of Africa's rural areas, access to energy is in the form of fuelwood. This is a major cause of deforestation in the continent. Deforestation and poor land use practices account for about 65 percent of Africa's greenhouse gas emissions, and addressing the issue of deforestation is therefore central to any attempt to reduce these emissions. Although Africa is currently a low carbon emitter, several projections have shown that if nothing is done quickly to address this problem, the continent could soon become a major greenhouse gas emitter in contrast to developed countries that are striving to reduce their own greenhouse gas emissions.

The paramount challenge facing Africa's rural areas, home to about 70 percent of Africa's population, is the ability to cope with the adverse impacts of climate change while ensuring the adoption of low-carbon economic development. Energy will play a very significant role in Africa's quest to pursue a low-carbon economy and simultaneously achieve sustainable development. This is the only way that Africa

can make significant progress towards the achievement of the Millennium Development Goals.

The importance of energy security towards the achievement of the MDGs cannot be over-emphasised. Although there is no direct goal for energy self-sufficiency in the MDGs, enhanced access to modern sources of reliable energy is central to meeting the MDGs and overcoming extreme poverty as those activities linked with low quality or traditional energy have barely contributed to increasing rural incomes and livelihoods.

Africa has abundant renewable energy resources that could be developed. For instance, Africa has only developed about seven percent of its known hydro potential, and a significantly smaller proportion of the continent's potential for wind and solar energy has been developed. With their environmental advantages, their suitability for use in rural areas and their potential for promoting local income generating activities, small-scale renewable energy technologies present a good opportunity to break with conventional centralised patterns of energy development which to date have failed to serve the poor in many places. In Africa, there are several unrealised opportunities to develop hydro-electric power, geothermal energy, wind energy, and in

the long term, larger-scale solar energy projects. Increasing the reliability of on-grid energy supplies would reduce the need to run costly, highly-polluting generators. Increasing the provision of modern energy will go a long way towards contributing to meeting the MDGs in Africa and addressing the continent's climate change concerns.

The African Development Bank (AfDB), as the continent's premier financial institution, is working with its Regional Members Countries (RMCs) to address the continent's energy poverty. This work will not only contribute to achieving the MDGs, but will also address the long-term climate change challenge, as well as providing a means to support low-carbon development.

■ Plans and strategy frameworks for energy development and climate change

The Bank has developed several initiatives to address climate change concerns at the conceptual and project levels. At the conceptual level, the Bank has developed several policies and frameworks to guide its operations to develop the African energy sector. The **Clean Energy Investment Framework** (CEIF) provides a clear path for increasing Africa's access to clean energy supplies while simultaneously addressing climate change adaptation and mitiga-

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tion challenges. Its main objective is to reduce the continent's energy poverty. The **Climate Risk Management and Adaptation Strategy** (CRMA) will seek to enhance the adaptive capacities of the Bank's RMCs and reduce their vulnerabilities to the adverse impacts of climate change. The key features of both these strategies are summarised in the Figure.

The African Development Bank has developed the **Climate Change Action Plan** to implement the CEIF and the CRMA. The Climate Change Action Plan (CCAP) articulates objectives, principles, and areas of focus, major activities and an investment plan for the Bank in the area of climate change for the period 2010–2014. The CCAP will support the Bank in increasing its effectiveness and delivering on its core mission of poverty reduction and economic growth while recognising the risks and opportunities to address the challenges of climate change. This will be addressed under three categories: low-carbon development, climate change adaptation and establishment of a climate change funding platform, which will be implemented through a mix of several financing options.

The Bank is elaborating the **African Green Development Strategy**, which will guide the development of a low-carbon economy for the continent. Green Development is an economic growth concept and new paradigm

Objectives and areas of action of the CEIF and CRMA

Clean Energy Investment Framework for Africa (CEIF)	Climate Risk Management and Adaptation Strategy (CRMA)
<p>Objectives:</p> <ul style="list-style-type: none"> (i) Reduce energy poverty and vulnerability among households and small-scale economic operators. (ii) Sustain high rates of economic growth facilitated by reliable, competitively priced energy supplies. (iii) Support African energy security. (iv) Contribute to international greenhouse gas mitigation efforts. 	<p>Objectives:</p> <ul style="list-style-type: none"> (i) Reduce vulnerability within regional member countries to climate variability and promote climate resilience in past and future Bank-financed development investments, making them more effective. (ii) Build capacity and knowledge within regional member countries to address the challenges of climate change and ensure sustainability and gender equality through policy and regulatory reforms.
<p>Areas of action:</p> <ul style="list-style-type: none"> i) capacity strengthening ii) improving energy access iii) resource mobilisation 	<p>Areas of action:</p> <ul style="list-style-type: none"> (i) climate proofing ii) legal and regulatory reforms iii) knowledge generation, capacity building

for sustainable development. It emphasises natural resource economic assets, the potential multiple benefits of developing green industries as well as the need for different environmental policies which include (or which make use of) economic instruments. Green Development focuses on the quality of development by promoting eco-efficiency. By moving beyond the three pillars of sustainable development (economic development, social, and environmental), Green Development also pursues a goal of providing quality of life and well-being for all.

Consistent with international obligations, the Bank's Green Development Strategy will address urgent and long-term challenges in the fight against climate change and environmental degradation, the enhancement of energy security, and the creation of new engines for economic

growth. A Green Development model for Africa will adopt a more sustainable development path by increasing the share of its Gross Domestic Product (GDP) devoted to renewable energies, clean transportation, clean technologies, green (energy efficient) buildings, waste management, water services, and sustainable management of natural resources. It also will seek to reduce energy use per unit of production, as well as carbon emissions per unit of GDP, while minimising wasteful consumption in various sectors of the economy.

■ Promoting rural energy development

The AfDB is aware that the development of renewable energy is central to addressing and overcoming Africa's energy poverty, especially through the development of off-grid systems in the rural areas. The Bank, through its public and private sector departments, is implementing several renewable energy projects. Such projects include:

- The Sahanivotry mini-hydro project in Madagascar, the project has an installed capacity of 15 megawatt



Photo: AfDB

The Sahanivotry mini-hydro project in Madagascar.



Photo: AfDB

The Ain Beni Mathar Solar Thermal Power Plant in Morocco.

(MW) and an average gross electricity generation of 90 gigawatt hours. It will produce 10 percent of the country's total supply of electricity. The Clean Development Mechanism (CDM) component of the Saharivory project has been successfully registered by the CDM Executive Board (CDM reference number 2558).

- The Lake Turkana Independent Wind Power Project, which includes installing 365 wind turbines and will add an estimated 426 kilometres of transmission lines to connect and

supply power to the national electric grid. The wind park will generate 300 MW in 2012. With this project, the Kenyan government seeks to reduce its reliance on imported energy and fossil fuel while increasing the rate of energy access by providing a reliable supply of electricity based on clean, low-cost technology. The reliable, continuous supply of clean power will provide the country with 300 MW of a relatively inexpensive source of energy – adding an additional 30 percent to Kenya's current total installed power. The project is forecast to reduce carbon emissions by 16 million tons during its 20-year lifespan.

- The Ain Beni Mathar Solar Thermal Power Plant in Morocco, which combines solar and thermal power

to produce up to 2,000 MW of electricity with an annual saving of one million tons of oil.

Other Clean Energy projects that the AfDB has funded in recent years include: the 250 MW Bujagali hydro-power dam in Uganda, the El Kureimat Combined Cycle Power Plant, El Abu Qir Thermal power plant, Egypt and the El Ain Sokhuna Supercritical Thermal Power Plant in Egypt.

The Bank also supports clean energy development in other economic sectors such as education, health, agriculture and water resources. A typical example is the pilot project on the utilisation of solar and wind energy for rural water supply in Ethiopia. The project objective is to promote and pilot the use of solar and wind energy for water pumping in rural areas of Ethiopia. One of the outputs of the project is to have approximately 80 water supply schemes effectively functioning and utilising solar and wind energy to supply clean potable water to nearly 130,000 people. The project is an important instrument to raise awareness amongst government, end users and other sectors of the society on the benefits of using renewable energy for decentralised energy services in rural areas.

Zusammenfassung

Wirtschaftliche, soziale und ökologische Entwicklung ist nur mit einem angemessenen Zugang zu modernen Energiequellen und -dienstleistungen möglich. Das hohe Maß an Energiearmut, das wir heute auf dem afrikanischen Kontinent beobachten, ist ein Hemmschuh für eine solche Entwicklung. Die Afrikanische Entwicklungsbank (AfDB), die einen afrikanischen Kontinent ohne Armut zum Ziel hat, arbeitet eng mit ihren regionalen Mitgliedstaaten zusammen, um diese Energieknappheit zu lindern. Sie investiert erhebliche Mittel in diesen Sektor, um den Zugang des Kontinents zu modernen Energien zu verbessern. Der Klimawandel-Aktionsplan der Bank soll die Umsetzung geeigneter Strategien für den Zugang zu Energie und die Anpassung an den Klimawandel

lenken. Die Bank entwickelt ferner eine „Green Development Strategy“, die CO₂-reduzierte und klimaneutrale Investitionen in afrikanischen Ländern unterstützen und fördern soll. Die Entwicklung sauberer Energien und die Förderung CO₂-reduzierter Technologien werden bei der Umsetzung dieser Strategie von zentraler Bedeutung sein.

Resumen

El desarrollo económico, social y ambiental no puede lograrse sin un acceso adecuado a fuentes y servicios modernos de energía. El alto nivel actual de la pobreza energética en el continente africano representa una barrera para alcanzar este desarrollo. El Banco de Desarrollo Africano (*African Development Bank – AfDB*), cuyo objetivo es eliminar la pobreza en el continente,

trabaja en estrecha colaboración con sus países miembros regionales para aliviar esta pobreza energética. El AfDB ha invertido significativamente en este sector para mejorar el acceso del continente a la energía moderna. El banco ha formulado un Plan de Acción frente al Cambio Climático que aspira a guiar la implementación de estrategias relacionadas con el cambio climático para lograr el acceso a la energía y emprender la adaptación. El banco también está diseñando una Estrategia de Desarrollo Ecológico, que contribuirá a respaldar y promover las inversiones bajas en emisiones de carbono y resistentes al cambio climático en los países africanos. En este sentido, el desarrollo de una energía limpia y el fomento de tecnologías bajas en emisiones de carbono serán cruciales para la implementación de esta estrategia.