

Executive summary

The Development Effectiveness Reviews are a series of publications that examine the contribution of the African Development Bank (AfDB, or the Bank) to Africa's development. They are presented in an accessible way, for a general audience. This Development Effectiveness Review examines the challenges Africa faces in providing affordable and sustainable energy to its citizens, and the Bank's contribution to meeting those challenges during 2009–13¹

The Bank is a leading investor in African infrastructure, and energy projects are a major part of our portfolio. Over the past 40 years, we have invested \$13 billion in building up power generation capacity and distribution networks across Africa, together with the institutions required to manage them. Our Strategy for 2013–2022 emphasises promoting growth that is inclusive and increasingly green in nature. For the energy sector, this means focusing on rural and peri-urban electrification; installing off-grid, decentralised electrification using renewable energy options to spread livelihood opportunities to remote areas; and helping to develop Africa's vast clean energy potential.

This review is organised in four chapters, corresponding to the four levels of our Results Measurement Framework. The first chapter describes the nature of the energy challenges Africa faces and the progress it has made in addressing them. The second chapter looks at the Bank's contribution to that progress, presenting aggregate results data from our energy portfolio and describing some of our more innovative operations. The third chapter looks at how well we manage our energy portfolio, and the fourth chapter assesses some of the measures we have taken to enhance our own capacity to deliver effectively in this important area.

Africa's progress in the energy sector

Nearly 60% of Africans have no access to reliable energy, and over 620 million people live without the benefits of an electricity connection. In rural areas in sub-Saharan Africa, electrification rates can be as low as 10%. The businesses and households that do have a connection often find that the electricity supply is both expensive and unreliable. As economic development and high population growth nurture demand, 30 African countries now face regular power shortages.

Energy poverty carries a heavy human cost. Many African households continue to use traditional solid fuels (wood fuel, charcoal) for cooking. Collecting fuel is time-consuming and

damaging to the environment, while traditional stoves cause widespread health problems—burdens that fall disproportionately on women and children. Additionally, the development of the industrial market is lagging because private investors are unwilling to risk investing in Africa while the supply of electricity is unreliable.

The Bank has invested \$13 billion in building up power generation capacity and distribution networks across Africa over the last 40 years

Africa is making gradual progress, but the energy deficit remains very large. The overall electrification rate increased from 38%² in 2005 to 42% in 2013, even as populations grew at a faster rate. Average electricity consumption also edged up, from 666 to 690 KWh/year. However, Africa is still far behind other developing regions.

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At the same time, Africa's untapped clean energy potential is one of its most important development resources. The continent has a significant share of the world's renewable energy potential: hydropower, bio-energy, geothermal, solar and wind power. Within 20 years, renewables are expected to account for 40% of total energy generation in Africa. Clean energy solutions involve high initial capital costs, but are cost-effective over the longer term. Innovative, small-scale and off-grid clean energy technologies will play a key role in bringing power to remote areas.

Only 5% of Africa's vast hydropower resources are currently being tapped

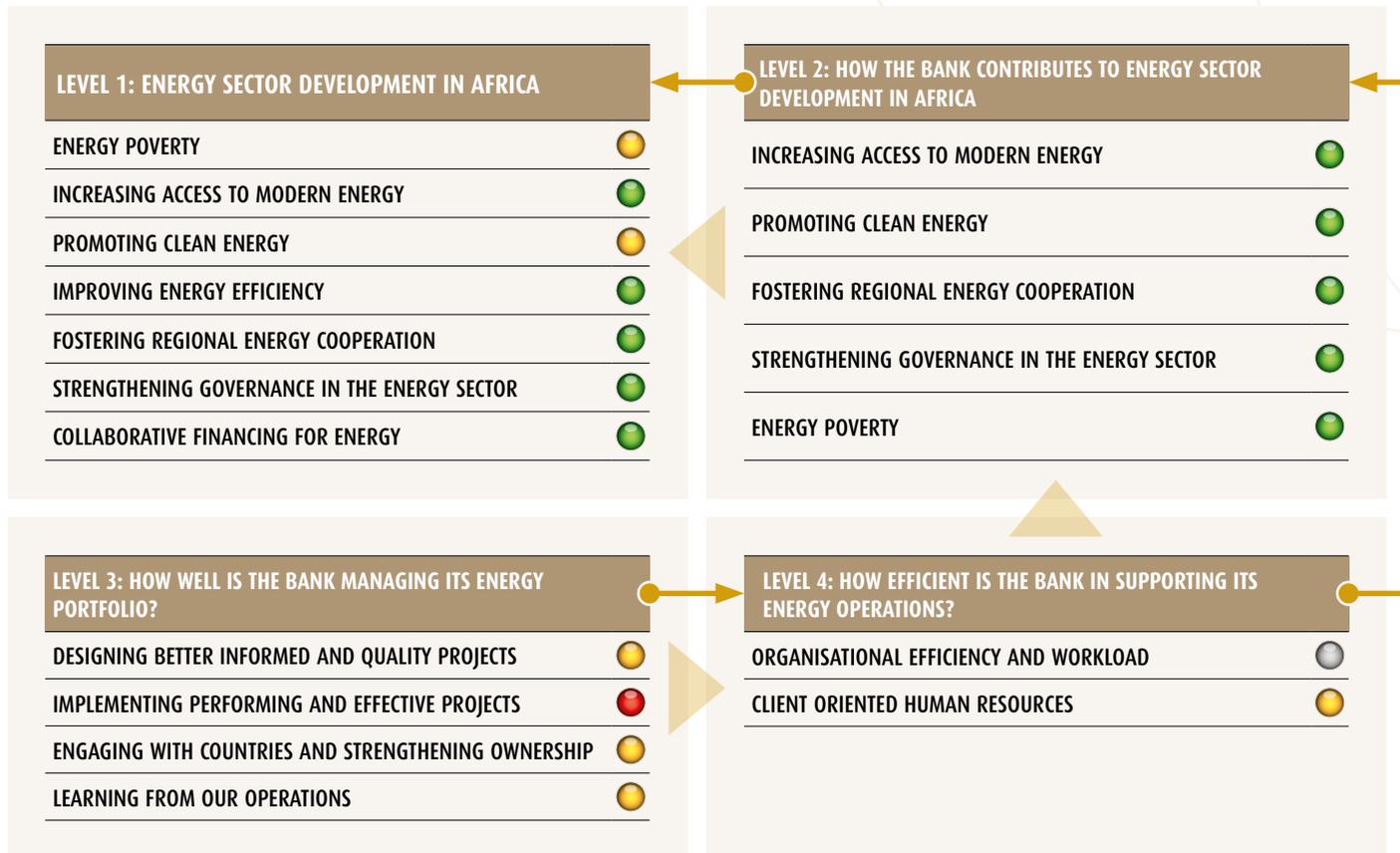
Only 5% of Africa's vast hydropower resources are currently being tapped³. The Democratic Republic of the Congo and Ethiopia alone—with their dense river networks—would have the capacity to supply most of Africa's energy needs, if regional interconnection energy networks were in place to enable the trading of electricity. The environmental and social impacts of such development will need to be carefully managed, to avoid damaging fragile ecosystems and affecting downstream communities.

1 Energy in this report includes electricity and gas and excludes oil.

2 IEA, World Energy Outlook 2013.

3 Challenges and trends in the African energy sector, AfDB and GIZ initiative.

Summary performance scorecard 2013



For Level 1, Africa's energy sector relative performance is measured by comparing its progress against 2005 baselines; for Level 2 the Bank's performance is measured by comparing expected and actual achievements for all operations that have been completed; for Levels 3 and 4 the Bank's progress is measured against its progress in achieving its 2013 targets set out in the Bank's Results Measurement Framework.

- **Made progress:** More than half of the indicators in the group improved over baselines.
- **Little progress:** Results are mixed, with equal numbers of indicators showing improvement or little/no progress.
- **Progress stalled or regressed:** More than half of the indicators in the group stalled or regressed over two or more review periods.
- **Progress could not be measured because of lack of data**

Africa urgently needs to improve its energy efficiency. In some cases as much as 40% of power generated is lost in transmission and distribution. Countries such as Algeria, Morocco and Tunisia have made good progress on energy efficiency through improvements in planning, network upgrading, maintenance and investments in modern technology. Major cost savings can also be made at the consumer end, often through such simple measures as using low-energy light bulbs.

development of regional power pools to enable energy-rich countries to export power to their neighbours. These pools allow participating countries to plan their networks jointly, achieving economies of scale that translate into cheaper prices for consumers. Africa now has five regional power pools, although only Southern Africa has made the transition to a limited competitive regional power market. Substantial challenges are involved in building strong regional institutions with robust procedures for managing disputes. The Regional Economic Communities have a key role to play in this area.

Africa needs more than \$60 billion in annual investments to achieve universal electricity access by 2040.

The International Energy Agency estimated that Africa needs more than \$60 billion in annual investments to achieve universal electricity access by 2040. Africa therefore urgently needs to attract private investment into the energy sector. So far, progress in this area has been slow. A few countries have succeeded in developing

With energy resources distributed unevenly across Africa, regional energy cooperation will be critical. Africa is pressing ahead with the

4 IEA, Africa Energy Outlook, 2014.

workable public-private partnerships for power infrastructure. Some are also attracting private investment in independent power producers, to construct and operate smaller-scale plants.

AfDB's contribution to the energy sector

The Bank's approach to supporting the energy sector has evolved over the years. The 1994 Energy Sector Policy concentrated primarily on institutional reforms and capacity development in the energy sector, with the goal of helping to unlock private investment. We helped to improve pricing policies, management practices and maintenance regimes. After a few years, however, it became clear that private investment was not forthcoming. We therefore decided to support regional member countries by scaling up our investments in major infrastructure development.

For the past two decades, some 12% of AfDB investments have gone into the energy sector. Most went towards building national generation capacity and distribution networks, with an emphasis on rural electrification to promote inclusive growth. Since 2009, the Bank has contributed to financing over 1900 MW of new generation capacity and over 15 000 km of transmission lines. Through these efforts, we have provided 567 000 people with new electricity connections and over 14 million people with improved access to electricity. Having built up a strong pipeline of new energy projects, we expect to double these results by 2018.

We are strongly committed to supporting Africa's transition towards clean energy. The Bank has helped to develop Africa's hydropower potential through major projects in the Democratic Republic of the Congo, Sierra Leone, Uganda and Madagascar. We have supported wind farms in Cape Verde, solar plants in Morocco and geothermal energy in Kenya.

We are working closely with the African Union and the New Partnership for Africa's Development (NEPAD) to strengthen the planning of energy and infrastructure at the regional and continental levels. We lead on the implementation of the Programme for Infrastructure Development in Africa, which sets out priority power-sector investment needs for the next three decades. We are supporting the development of cross-border power connections, in support of regional energy trade. We have helped to build connections between Algeria and Morocco, between Ethiopia and Djibouti, and across West Africa. We are working closely with the Regional Economic Communities to build their capacity to support regional planning of energy networks.

We are helping to build the "soft" infrastructure of institutions and regulations required for efficient energy markets. We have helped reform regulatory arrangements and pricing structures, to ensure sustainable energy markets without placing undue burdens on consumers. Since 2009, we have supported national power utilities in recruiting and/or training nearly 1700 staff in the maintenance of energy facilities.

A key element of our work is attracting new sources of investment into the energy sector. Since 2011, we have helped to secure \$566 million in funding from the global Climate Investment Funds for projects in Kenya, Mozambique, Morocco, South Africa and Niger. Since 1998, we have approved more than \$1 billion in private sector energy projects that are designed to leverage additional private sector funding. We are helping to build national capacity to design and manage complex public-private partnerships in energy.

We have provided 567 000 people with new electricity connections and over 14 million people with improved access to electricity

How well is the Bank managing its energy portfolio?

We use a range of tools to ensure that our energy projects are well designed, to maximise their development impact. Our quality-at-entry standards have been steadily improving, and in 2013 92% of our new public sector energy operations were rated satisfactory. However, the delay from approval to first disbursement has grown from 11 to 16.5 months, reflecting the complexity of co-financing major infrastructure projects with a range of partners, among other factors.

Our environmental and social safeguards are rigorously applied. We have recently adopted a new Integrated Safeguards System with a strong focus on sustainable development. The system takes into account wider challenges such as climate change, environmental pollution and population growth. All our environmental and social assessments are disclosed before projects begin, to give members of the public an opportunity to comment.

We have approved more than \$1 billion in private sector energy projects that are designed to leverage additional funding

We invest substantial resources in building and sharing knowledge of the energy sector in Africa. In 2013, we produced 12 reports and studies on the energy sector, including in-depth studies of particular countries, which serve as a platform for discussing policy priorities with governments. For example, we helped to prepare Burundi's Infrastructure Action Plan, which looked at the country's future energy needs and assessed the investment options. We also provide analytical support to governments in developing renewable energy strategies.

The Bank is working to mainstream gender equality into its portfolio. All of our energy projects offer important direct or indirect benefits to African women, and they should include gender analysis and special measures to benefit women and girls, as well as monitoring arrangements that identify different impacts on women and men. However, so far only half of them have specific gender indicators.

We are making steady progress on “climate-proofing” our energy operations. Under our Climate Change Action Plan 2011–15, we have set a target of building an additional 5 gigawatts of clean energy generation capacity, which will entail Bank investments of up to \$9.6 billion. We are helping African governments to integrate climate change planning into their energy strategies and to access international climate finance. We have introduced new tools and staff training programmes to ensure that our own investments can withstand the impacts of climate change.

We have established an Energy Sector Network within the Bank to pool knowledge and resources across our public- and private-sector teams

Overall, our energy portfolio is moving from strength to strength. In 2013, our energy portfolio totalled over \$10 billion, with projects that were on average twice the size of those in other sectors. Despite the technical complexity of energy projects, through robust supervision we have eliminated underperforming projects from the portfolio. Our disbursement ratio has increased from 10% in 2009 to 20% in 2013, indicating that projects are being completed in 5 years rather than 10. However, this progress has been mainly in the middle-income countries; in low-income countries, capacity bottlenecks continue to cause lengthy delays.

Africa has forecast 4% annual growth in energy demand, as a result of strong economic and population growth and rapid urbanisation.

How efficient is the Bank in supporting its energy operations?

In recent years, we have launched a number of initiatives to strengthen our own capacity in the energy sector. In 2010, we created the Energy, Environment and Climate Change Department (ONEC), which leads on the delivery of the energy agenda, along with climate change and the environment. We have established an Energy Sector Network to pool knowledge and resources across our public and private-sector teams.

Our indicative operational plans for 2014-16 comprise energy sector investments in excess of \$5 billion that are closely aligned with the Bank’s Strategy

We have developed new financing instruments to attract private investment into the energy sector. Our partial risk guarantees help

protect investors against African governments’ failure to deliver on their contractual obligations. They proved key in the \$20 million financing of the Lake Turkana wind power transmission line and in support to the Nigerian energy sector. Another useful financing instrument is equity for public-private partnerships, which provides concessional resources for African governments to use as their contribution to such partnerships.

We have been working to build up a cadre of energy experts.

We now have 37 energy experts with a wide range of relevant expertise—including in renewable energy and in environmental and social impact—plus another 11 professionals in the private sector department who specialise in infrastructure financing. We will continue to invest in the development of our staff, ensuring that they can identify and apply best practices in the energy field from across Africa and around the world.

Conclusion and outlook

Africa’s energy needs continue to grow rapidly. For the coming years, the International Energy Agency has forecast 4% annual growth in energy demand for Africa, as a result of strong economic and population growth and rapid urbanisation. Per capita energy consumption will grow at an unprecedented 3.7% per annum. Electricity generation capacity will grow at 6%, but will fall well short of what is required, causing power shortages to become more common. The Bank will therefore work to accelerate the rate of investment in energy infrastructure, both using our own resources and leveraging other investments.

The Bank has developed a new energy policy to guide its interventions in the energy sector. The policy sets out two broad objectives: to help African countries develop modern, affordable and reliable energy services; and to do so in a socially, economically and environmentally sustainable manner. We will work to provide access to energy for all Africans, wherever they live, and to develop a clean energy path for Africa that makes use of its abundant renewable energy resources.

We will continue to maintain high levels of ambition in this critical sector. Our indicative operational plans for 2014–16 comprise energy sector investments in excess of \$5 billion that are closely aligned with the Bank’s Strategy for 2013–2022, with its focus on private-sector development, regional integration and inclusive and green growth. We are determined to make the best use of our resources to help Africa overcome one of the most pressing constraints to its development ■