Africa Clean Energy Corridor

IRENA
International Renewable Energy Agency

THE AFRICA CLEAN ENERGY CORRIDOR

Africa is changing fast. By 2050, it will be home to 2 billion people, of whom three out of five will live in cities. Over a third of its people have already joined the middle class. Sub-Saharan African economies have grown 5.3 percent per annum in the past decade, with a dramatic increase in energy needs. As their growth continues over the next quarter century, electricity demand will triple in the Southern Africa Power Pool and quadruple in the Eastern Africa Power Pool. But four fifths of all electricity in the region is generated from fossil fuels – coal in the south, gas and oil in the east. If the current reliance on fossil fuels continues, this growth will be economically and environmentally unsustainable.

The Africa Clean Energy Corridor initiative, endorsed by ministers from the countries of the Eastern and Southern African power pools at IRENA's Fourth Assembly in January 2014, aims to transform the current fuel mix by promoting the development of clean, indigenous, cost-effective renewable power options. It will tap into the continent's abundant renewable energy resources and evolving power infrastructure. As renewable power technologies decline in cost, they are increasingly competitive with fossil-fuelled power. They can be deployed rapidly to meet growing power needs, expand electricity access and fuel economic growth. New jobs and investment opportunities will be created while carbon emissions will be reduced.

POWERING CHANGE

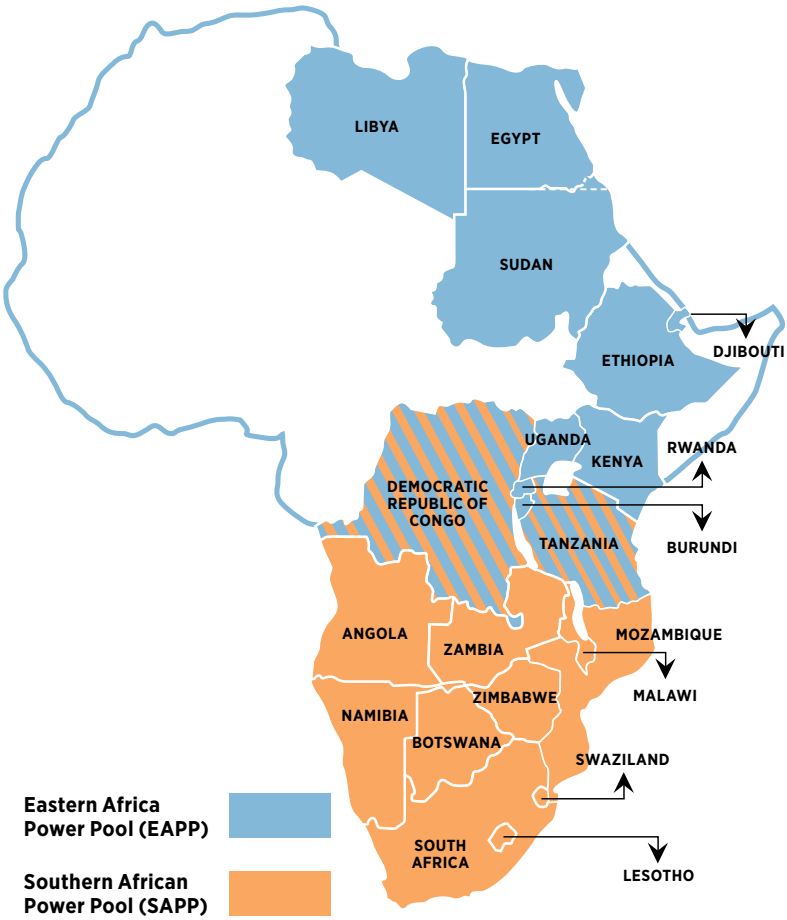
» **Supplying clean power**

To ensure that renewable power is developed and transmitted in a cost-effective manner to rapidly growing demand centres, IRENA is working with expert institutions and partners to identify renewable power development zones in areas of high resource potential.

» **Reforming power markets**

Attracting investments in renewable power requires creating a level playing field for all investors, and IRENA is supporting market reforms to this end.

Corridor Countries



The term "country" as used in this material also refers, as appropriate, to territories or areas

» Enhancing power grids

To help integrate a higher share of variable renewable generation on power grids, IRENA is developing capacity building tools and strategies.

» Financing clean power

To facilitate financing for renewable power projects, IRENA is benchmarking existing financial structures and synthesising best practices for reducing capital costs.

CURRENT ELECTRICITY MIX

Today, 80 percent of the electricity in the Southern African Power Pool (SAPP) is generated from coal, while 82 percent of the electricity in the Eastern Africa Power Pool (EAPP) is generated from gas or oil. This pattern is likely to continue in the absence of transformative change.

But hydro, geothermal, biomass, wind and solar resources could be developed to reduce the region's fossil fuel dependency.

EXPANDING REGIONAL COOPERATION

There are unprecedented opportunities to move Africa into a clean energy future. Still, the regional power pools face major challenges in moving towards a cleaner, more renewable mix of electricity generation.

Meeting these challenges will require the power pools to include renewable power options in their planning processes. It will also require countries of the region to enable markets and financing for renewable power investment.

The Africa Clean Energy Corridor builds upon the work of EAPP and SAPP, and on the political commitment of African leaders to strengthen regional institutions and transmission infrastructure.

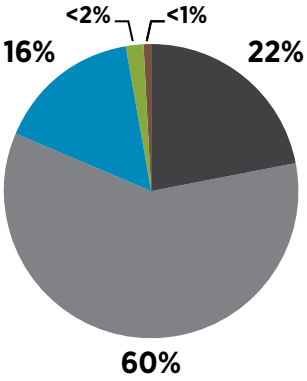
LOW-CARBON GROWTH

Renewable energy sources could potentially meet 40%-50% of power needs in the EAPP and SAPP region by 2030, with half of this coming from non-hydro renewables.

» Reduced carbon emissions

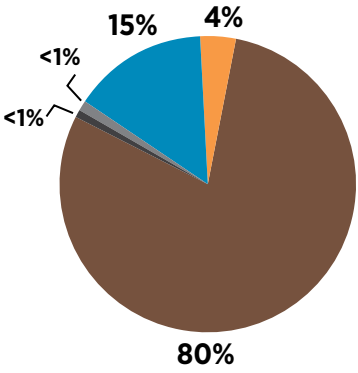
While annual carbon dioxide emissions from electricity generation in the SAPP region could rise by 100 million tonnes between 2010 and 2020 as fossil-fuelled power plants now under construction are put into operation, renewable power investments could put yearly emissions on a downward path, reducing them by 50 million tonnes between 2020 and 2030. Renewable electricity generation should also help to limit carbon emissions in the EAPP region.

Eastern Africa Power Pool
Electricity Mix



172 TWh

Southern African Power Pool
Electricity Mix



309 TWh

Coal Oil Gas
Hydro Nuclear Non-hydro renewables

TWh = Terawatt-hour
Sources: International Energy Agency, EAPP, SAPP
Based on 2012 averages

» Improved supply security

Renewable energy deployment would diversify the energy mix, improving supply security and making economies more resilient to fuel price volatility.

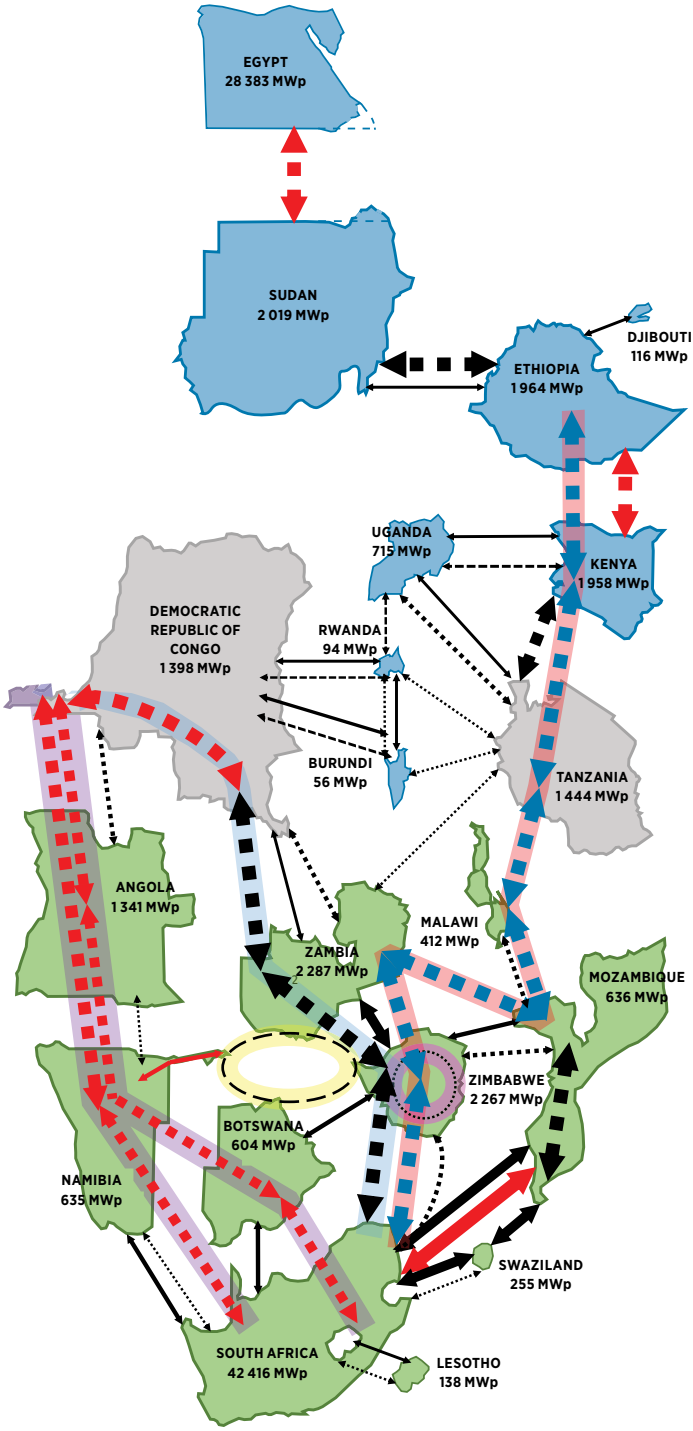
» More investment and jobs

Renewable power deployment at regional scale, potentially exceeding 120 GW by 2030, will provide new investment opportunities and create new jobs.

» Expanded regional trade

Larger markets for electricity trade will enable countries to benefit from increased power exports, lower-cost power imports, and a more complementary supply mix.

EAPP-SAPP Transmission Infrastructure



< 500 MW
500 - 999 MW
1000 - 1999 MW
> 2000 MW
AC
HVDC
Existing
Commited
Proposed

Regional projects:

- ZIZABONA (2015)
- 765 kv
- WESTCOR
- Central Transmission Corridor
- PIDA North-South Power Transmission Corridor

*Peak capacities for SAPP include a 15% target reserve margin

COMMITMENT TO ACTION

Development of the Africa Clean Energy Corridor is guided by a Communiqué endorsed by ministers and heads of delegation of Angola, Botswana, Burundi, the Democratic Republic of Congo, Djibouti, Egypt, Ethiopia, Kenya, Lesotho, Malawi, Mozambique, Namibia, South Africa, Sudan, Swaziland, Uganda, the United Republic of Tanzania, Zambia and Zimbabwe. The Communiqué calls for the following actions:

» **Zoning and Resource Assessment**
to identify zones for development of renewable power plants in areas of high resource potential and routes for the efficient transmission of electricity to load centres

» **Country and Regional Planning**
to consider cost-effective renewable power options for optimising investment in electricity generation and transmission infrastructure

» **Enabling Frameworks for Investment**
to open markets to independent renewable power producers, reduce the costs of renewable power financing, and facilitate renewable power trade

» **Capacity Building**
to develop the skills required to build, plan, operate, maintain and govern power grids and markets with higher shares of renewable electricity generation

» **Public Information**
to raise awareness of the Africa Clean Energy Corridor and promote its benefits in providing secure, sustainable and affordable energy to meet rising energy demand

PARTNERS

Partners for the Africa Clean Energy Corridor include countries in the Eastern Africa and Southern African Power Pools, along with the African Union Commission (AUC), the Common Market for Eastern and Southern Africa (COMESA), the East African Community (EAC), the Southern African Development Community (SADC), the New Partnership for Africa's Development (NEPAD) and the African Energy Commission (AEC).

Other key partners include EAPP and its Independent Regulatory Board (IRB), as well as SAPP and the Regional Electricity Regulators Association of Southern Africa (RERA). Support is also provided by several IRENA member countries outside of Africa, by the United Nations Economic Commission for Africa (UNECA), by the African Development Bank (AfDB) and by other multilateral financial institutions and development partners.

ABOUT IRENA

The International Renewable Energy Agency (IRENA) is an intergovernmental organisation that supports countries in their transition to a sustainable energy future, and serves as the principal platform for international cooperation, a centre of excellence, and a repository of policy, technology, resource and financial knowledge on renewable energy. IRENA promotes the widespread adoption and sustainable use of all forms of renewable energy, including bioenergy, geothermal, hydropower, ocean, solar and wind energy in the pursuit of sustainable development, energy access, energy security and low-carbon economic growth and prosperity.

For more information about the Africa Clean Energy Corridor, please contact us: acec@irena.org

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