

EUROPEAN INVESTMENT BANK

Energy Finance in Sub-Saharan Africa



European
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Bank



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EXECUTIVE SUMMARY

Energy is the key to all socio-economic development: an essential resource in agriculture and food processing, as well as in higher-value added services and industries. Without energy you cannot improve social services, empower women, or combat climate change. With 590 million people without access to electricity (about 57 percent of the population) at the end of 2016, Sub-Saharan Africa has a particular need in this field.

While substantial progress was made in some countries of Sub-Saharan Africa in recent years towards universal access to energy, and some countries are on track, the IEA estimate that a five-fold increase in investment is required to reach Sustainable Development Goal (SDG) number 7 (“Ensure access to affordable, reliable, sustainable and modern energy for all”) by 2030. Particular effort is necessary to provide electricity to a growing population in remote rural areas.

The EU's engagement in Sub-Saharan Africa is guided by the Cotonou partnership agreement between the Member States and the countries of Sub-Saharan Africa, the Caribbean, and the Pacific. More recently the Addis Ababa Action Agenda, the United Nations' SDGs and the Paris Agreement on Climate Change, all adopted in 2015, have become important determinants of EIB development cooperation. In this framework, universal access to affordable and sustainable energy, as proclaimed in SDG 7, features prominently.

Energy finance is a cornerstone of the EIB's activity in Sub-Saharan Africa, representing about one third of total lending in the region. The Bank is committed to providing a minimum of 35 percent of its lending outside the EU to climate change by 2020. In doing so, the lending activity in these fields is guided by the EIB's Energy Lending Criteria (2013), which are expected to be revised in 2019, the EIB Climate Strategy (2017), the Climate Strategy for the ACP and OCT regions¹ (2018) and the External Lending Mandate Climate Strategy (2015).

The EIB uses a broad range of instruments to finance energy projects. We also mobilise private investment. Instruments range from direct public and private sector lending, project finance, financial sector support through lending and risk sharing to guarantees and the funding of micro-finance entities and private equity funds. We also offer technical assistance for sustainable investments, and we sometimes offer interest rate subsidies.

We have significant expertise in the energy sector, so we are an ideal partner to help Sub-Saharan African countries improve energy supply and to help the world attain SDG 7. The Cotonou agreement will end in 2020, but the EIB will maintain its support in the region for decades.

The EIB has six regional offices in Sub-Saharan Africa (shared with EU offices) and cooperates extensively with multilateral, regional and national development banks.

Based on its role as the “the EU Bank,” the EIB aims for greater coordination with the EU, Member States and the private sector on three main EU policy objectives: supporting the SDGs, increasing the financing of climate action, and tackling the causes of irregular migration and forced displacement. The EIB is ready to take a more prominent role in the coordination of European development policies and to explore more ways to partner with other organisations and to co-finance projects, making better use of limited public resources.

¹ Africa, Caribbean, Pacific and Overseas Countries and Territories.

SECTION I: OBJECTIVE

Europe's role in Sub-Saharan Africa and South Africa

The Cotonou agreement follows successive trade and development aid partnerships between Europe and the ACP group of states (Yaoundé and Lomé Conventions). The objective of the agreement is the alleviation of poverty, particularly through infrastructure and socio-economic development.

More recently, the Addis Ababa Action Agenda adopted in July 2015, the Sustainable Development Goals adopted in September 2015 and the Paris Agreement on Climate Change of December 2015 have become important determinants of development cooperation in Sub-Saharan Africa and beyond for the EU. This is in particular reflected in the EU Global Strategy adopted in June 2016 and the New European Consensus on Development of June 2017. The New European Consensus on Development calls for greater coordination between the EU and Member States, the EIB and the private sector on the three main EU policy objectives: SDGs, climate action and migration.

The EIB was mandated by its owners as early as 1962 to finance projects outside the European Community. This marked the beginning of the extension of EIB's activities around the globe to support emerging and developing economies in Africa, Asia and Latin America. Since then the EIB has become an important provider of finance and technical assistance in the partner countries of the EU. In 2017 the EIB's lending outside the EU amounted to EUR 7.9 billion, which represents just over 10 percent of the Bank's total new lending. Lending in Sub-Saharan Africa amounted to EUR 1.3 billion.

The EIB is playing a growing role in policy dialogue with regional organisations and countries, in close collaboration with the European External Action Service and the European Commission. The Bank is also part of the reflection on economic diplomacy and internationalisation of EU companies. The EIB is an active partner and integral part of the EU toolbox in making the EU Global Strategy and the European Consensus on Development a reality.

Focusing on energy and climate finance

In Sub-Saharan Africa, the largest infrastructure deficit is in the power sector. Whether measured in terms of generation capacity, electricity consumption, or security of supply, Africa's power infrastructure delivers only a fraction of the service found elsewhere. The 48 countries of Sub-Saharan Africa (with a combined population of about one billion) generate roughly the same energy as Spain (with a population of 45 million). Power consumption, at 124 kilowatt hours per capita per year, is only a tenth of that found elsewhere in the developing world, barely enough to power one 100-watt incandescent bulb for three hours a day. The lack of access to modern and reliable energy is one of the most important bottlenecks for development of higher value added services and industries across Sub-Saharan Africa. Improving energy security is a vital tool for reducing vulnerabilities to external price shocks and for building the foundations for sustainable growth.

Furthermore, Africa is the continent most vulnerable to climate change. It also has the least capacity to adapt to it. At the same time, Sub-Saharan Africa has a significant, and largely unexploited potential in the area of renewable energy sources – high solar irradiation, hydro potential, geothermal resources and wind – that can be developed at competitive costs compared to fossil fuel-based alternatives.

Development of the energy sector is a key priority of the Joint Africa-EU strategy² and the EU Agenda for Change³, which emphasise the importance of promoting access to energy, energy security and regional cooperation across Africa, as well as improved energy efficiency and the increased use of renewable energy. It is also crucial to achieve the SDGs, in particular SDG 7 (ensure access to affordable, reliable, sustainable and modern energy for all), and is in line with the Sustainable Energy for All initiative (SE4All) to end energy poverty. Finally, such development goes hand in hand with increasing renewable energy generation capacity as targeted by the Africa Renewable Energy Initiative.

Access to energy impacts many sectors

Access to modern energy services, predominantly electricity, is necessary for economic development. Energy also is important for socio-economic development. Development involves a number of other steps besides those associated with energy, notably the evolution of education and labour markets, financial services to support capital investment, modernisation of agriculture, and provision of infrastructure for water, sanitation, and communications. Academic research shows a causal relationship between energy and economic growth. Unless energy supply improves, economic growth and socio-economic development will suffer.

EIB activity and sources of capacity

The EIB is a major investor in energy projects, which account for a significant part of the Bank's lending. In 2017 almost 15 percent or EUR 10.3 billion of the EIB's financing was for energy sector projects: EUR 8.8 billion within the EU and EUR 1.5 billion outside the EU, including some EUR 230 million in Sub-Saharan Africa.

To achieve its mission in Sub-Saharan Africa, the EIB uses a wide range of funding and risk bearing instruments, including senior debt, equity, quasi equity, funding in local currency, access to European Development Funds and donor funds for blending, technical assistance and interest rate subsidies. These resources are deployed in cooperation with other international financial institutions, leveraging the Bank's unique expertise and relationships established over more than 60 years of operations in the EU and other regions.

Since June 2003, the Bank's financing in Sub-Saharan Africa is carried out under the Cotonou ACP-EU Partnership Agreement. In South Africa the EIB is primarily active under the External Lending Mandate from the European Commission. Funding is provided from the EIB's own resources and benefits from a European Union comprehensive guarantee for sovereign and sub-sovereign lending and political risk guarantee for private sector counterparts. Additional funds are available under selected EIB own-risk facilities, such as the Climate Action Environment Facility.

² The Joint Africa-EU Strategy was launched at the Africa-EU Summit in Lisbon in 2007 and sets out the intention of both continents to move beyond a donor/recipient relationship towards long-term cooperation on jointly identified, mutual and complementary interests.

Ref.: https://ec.europa.eu/europeaid/regions/africa/continental-cooperation/joint-africa-eu-strategy_en

³ The Agenda for Change, adopted in 2011, is the basis for the EU's development policy.

Ref.: https://ec.europa.eu/europeaid/policies/european-development-policy/agenda-change_en

SECTION II: MARKET NEEDS

Access to electricity and renewable energy

Combined data of the International Energy Agency (IEA) and the World Bank based on country-by-country household surveys and government reported values for household electrification show that the average access to electricity rate in Sub-Saharan Africa stood at some 43 percent of the population in 2016, leaving an estimated 590 million people without access to electricity. There is a strong divide between urban areas, where the electrification rate is 71 percent, and rural areas, where the electrification rate is less than 25 percent⁴.

	Electricity generation 2012-2014			Electrification rate 2016 (%)		
	TWh* total	TWh renewable energy	% renewable energy	rural	urban	total
East Africa						
Eritrea	0.4	0	0%	17	86	33
Ethiopia	8.7	8.64	99%	29	85	45
Kenya	8.8	6.6	75%	60	78	65
Sudan	10.4	7.95	76%	31	71	46
Central Africa						
Cameroon	6.3	4.58	73%	21	94	63
Congo	1.7	0.97	57%	16	56	43
DR Congo	8.2	8.21	100%	1	35	15
Gabon	2.3	0.89	39%	38	97	90
South Sudan	0.5	0	0%	1	4	1
West Africa						
Benin	0.2	0	0%	11	56	32
Cote d'Ivoire	7.7	1.84	24%	31	88	62
Ghana	12.6	8.23	65%	71	95	84
Niger	0.7	0	0%	1	54	11
Nigeria	29.3	5.45	19%	34	86	61
Senegal	3.6	0.45	13%	43	90	64
Togo	0.1	0.083	83%	5	74	35
South Africa						
Angola	8	4.53	57%	6	69	35
Botswana	1.7	0	0%	32	69	55
Mauritius	2.9	0.59	20%	100	100	100
Mozambique	15.9	15.29	96%	15	57	29
Namibia	1.5	1.46	97%	34	78	56
Tanzania	5.9	2.06	35%	17	65	33
Zambia	13.4	13.22	99%	6	67	34
Zimbabwe	9.6	5.43	57%	11	81	34
Total	160.4	96.473	60%			

*TWh: Terawatt hour

⁴ OECD / IEA: Energy Access Outlook 2017 – From Poverty to Prosperity
IBRD / The World Bank: State of Electricity Access Report 2017
IBRD / The World Bank: Tracking SDG7: The Energy Progress Report 2018

Sub-Saharan Africa can be divided into three groups: countries with access rates above 50 percent (17 countries⁵), countries with access rates between 25 percent and 50 percent (17 countries⁶) and countries with access rates below 25 percent (15 countries⁷). The level of economic development, a stable investment climate, clear grid expansion plans, a clear framework for regulation and legislation and the possibility of regional interconnections generally support the electrification rate, while a large portion of the population living in remote rural areas and high growth rates of the rural population contravene efforts to increase the electrification rate.

According to IEA statistics on the 24 largest countries of sub-Saharan Africa (excluding South Africa), 60% of the current average generation mix was renewable from 2012-2014. Most of it is coming from large scale hydropower plants.

Regional view: What are the needs in energy finance?

East Africa ⁸

- Relatively conducive business environment. Has attracted relatively large investment flows into its energy sector over the last decade.
- Tanzania and Kenya benefit from relatively well developed Electrification Masterplans, that include a systematic attribution of areas to the different electrification instruments: grid extension/densification, thermal and renewable power plants, mini-grids, distributed off-grid solutions. Such clarity helps to attract investments.
- The distributed off-grid sector (in particular Solar Home Systems) has first taken off in East Africa, some off-grid areas in Tanzania and Kenya are very well served and potentially saturated, however vast geographies remain untapped and provide large opportunities for distributed off-grid financing through private sector operations. At the same time there are very low income households that cannot bear the full cost of these systems.
- The renewable energy sector in Kenya continues to be amongst the most active in Africa across technologies such as wind, geothermal, small-scale hydro, photovoltaics and biofuels.
- Suffers from weak electricity utilities. Credible turn-around programmes together with capacity building and advisory support should be considered by suitable donors, but remain difficult.

Horn of Africa ⁹

- One of fastest growing regions in Africa with Ethiopia at 10.9 percent and Djibouti 6.8 percent in 2017¹⁰.
- Somalia does not possess national transmission systems. Local populations are served by small, mostly diesel-powered, generation.
- High solar potential in region and in addition Ethiopia with extensive hydro potential estimated at 20 Gigawatts.
- Weak legal and regulatory frameworks in energy sector.
- Potential for mini-grids based on renewables (including battery storage) to replace expensive imported diesel.

⁵ Cameroon, Equatorial Guinea, Gabon, Kenya, Nigeria, Ivory Coast, Ghana, Senegal, Cape Verde, Sao Tome and Principe, South Africa, Botswana, Comoros, Mauritius, Namibia, Seychelles, Swaziland.

⁶ Congo, Djibouti, Eritrea, Ethiopia, Rwanda, Sudan, Benin, Togo, Gambia, Mali, Mauritania, Angola, Lesotho, Mozambique, Tanzania, Zambia, Zimbabwe.

⁷ Central African Republic, Chad, Democratic Republic of Congo, Burundi, Somali, South Sudan, Uganda, Burkina Faso, Guinea, Guinea-Bissau, Liberia, Niger, Sierra Leone, Madagascar, Malawi.

⁸ Tanzania, Kenya, Uganda, Rwanda, Burundi, Seychelles, Sudan

⁹ Ethiopia, Somalia, Djibouti, and Eritrea

¹⁰ African Development Bank – Energy Power Outlook 2

Central Africa ¹¹

- Political instability and the difficult financial situation of the vertically integrated, publicly owned utilities are causing the low access to electricity and the high costs of access. Central Africa is the only region in which currently projected investments until 2030 will not keep pace with projected population growth, leading to an increase in the number of people without access to electricity.
- Several countries have large hydropower resources which will host regionally interconnected hydropower projects (Cameroon, Central African Republic, Democratic Republic of Congo, Republic of Congo, South Sudan), a few will utilise gas resources for power generation (Equatorial Guinea, Republic of Congo), others will develop a mixture of distributed fossil and solar energy (Chad, São Tome and Principe).
- Low rates of electrification.
- Potential for mini-grids based on renewables (including battery storage) to replace expensive imported diesel.

West Africa ¹²

- A fragmented region with strong differences in energy resource endowments and energy sector development. Regional electricity interconnection and system integration bears great promises as it allows to exploit affordable renewable energy potentials in some areas to the benefit of the entire region. Reinforcing regional network integration, as championed by the West African Power Pool for part of the Economic Community of West African States region, is a priority area that requires significant funds – mainly through public sector funding.
- Significant, low-cost hydropower potential can be responsibly developed through private and public sector projects, provided that it can deliver to the large regional demand. In Nigeria, natural gas is abundant and the government is negotiating funding of the region's first nuclear power plant.
- Vast areas cannot be expected to be electrified by grid extension and densification in the short to medium term (or are suffering from dysfunctional electricity utilities). In these areas distributed generation (primarily Solar Home Systems, but also potentially mini-grids) is the most promising immediate solution and a dynamically growing sector. Off-grid companies are mostly private sector ventures, many of whom use Pay-as-you-go payment approaches. These have recently attracted significant amounts of equity investments and start to attract asset financing solutions by which receivables from off-grid customers are securitized and sold to investors.

Southern Africa ¹³

- Economic performance was modest with real GDP estimated to have grown at an average of 1.6 percent in 2016.
- Southern Africa has more installed grid generation capacity than the rest of Sub-Saharan Africa. Of Southern Africa's total 58 Gigawatts, 80 percent is in South Africa alone. The rest of Southern Africa has only 12 Gigawatts, mostly hydropower with some coal, oil, and gas¹⁴.
- An active Southern Africa Power Pool, the most advanced in the region carrying out international energy trades and operational short-term energy markets.
- Energy sector development is focused mainly in renewable energy and transmission and distribution projects. An example is the financing, alongside the International Finance Corporation (IFC), of the first phase Scaling Solar Zambia, a photovoltaic plant of 34 Megawatts located close

¹¹ Cameroon, Central African Republic, Chad, South Sudan, Democratic Republic of Congo, Equatorial Guinea, Gabon, Republic of the Congo, and São Tomé and Príncipe

¹² Benin, Burkina Faso, Cape Verde, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Liberia, Mali, Mauritania, Niger, Nigeria, Saint Helena, Ascension and Tristan da Cunha, Senegal, Sierra Leone and Togo

¹³ Namibia, Botswana, Lesotho, Swaziland, Zimbabwe, Mozambique, Madagascar, Mauritius, Malawi, Zambia, Angola

¹⁴ Energy challenges in SSA – Oxfam 2017.

to Lusaka. Hydropower projects in Mozambique and Zambia and transmission interconnections between Mozambique-Malawi, Mozambique-Zambia and Zambia-Tanzania are under development.

South Africa

- Most developed economy in Africa. Its needs, as well as constraints, to EIB financing are markedly different from other Sub-Saharan countries. Electrification rates are high (approximately 85 percent).
- Electricity tariffs are regulated and cost covering.
- The regulatory regime is robust and supports independent power producers in renewable energy.
- Shortage of generation capacity requires new power plants.
- The Renewable Energy Independent Power Producer programme is successful.
- New generation (coal and renewables), transmission and distribution investments required.
- Local content requirements restricts EIB lending.

Sustainable Development Goals

In the Energy Access Outlook 2017, the International Energy Agency estimates that the access to energy in Sub-Saharan Africa will grow to 60 percent in 2030, up from 43 percent in 2016. This will require annual investments of USD 6 billion or cumulative investments of USD 84 billion over 14 years. During this period some 410 million people will have gained access to electricity. On the other hand, because of the growth of the population, some 600 million people, mostly in rural areas, will not have access to electricity under this scenario by 2030. This is slightly above the 590 million people without power in 2016.

While several countries in Sub-Saharan Africa, including Ethiopia, Gabon, Ghana, and Kenya, are on track to reach universal electricity access by 2030, progress across the region is uneven, and the number gaining access fails to keep pace with population growth. Central Africa is projected to have the highest rate of growth in the number of people without access to electricity.

The Energy Access Outlook 2017 further estimates that for reaching universal access to electricity in Sub-Saharan Africa by 2030 in line with SDG 7, an additional annual investment of USD 26 billion or cumulative additional investments of some USD 370 billion over 14 years would be required.

For the Energy Access Outlook 2017 the IEA has also computed the most cost efficient way of providing access to electricity by type of access (on-grid, mini-grid, off-grid) and by fuel source. Under current policies some 73 percent of additional connections would be on-grid, 9 percent through mini-grids and 18 percent off-grid. 32 percent of this would be fuelled by hydropower and 30 percent by solar photovoltaics.

For achieving universal access to electricity by 2030 in Sub-Saharan Africa, the distribution of most cost efficient types of access according to the IEA changes considerably because of the inclusion of remote rural areas. In this scenario 30 percent of the connections would be through mini-grids, 24 percent off-grid and only 46 percent on-grid. Due to this changed balance solar photovoltaics would contribute 58 percent and hydropower 20 percent to the electricity generation mix.

SECTION III: ACTION ON THE GROUND

Development Strategy

Energy efficiency: the big picture

Electricity generation has to be greatly expanded to meet current needs and growing demand in Sub-Saharan Africa. In line with its commitment to climate action and the need to ensure affordability, the EIB supports the development of cost-effective renewable resources, including solar, wind and hydropower. The EIB generally concurs with the IEA's projection for the energy sources mix of electricity in Sub-Saharan Africa of hydropower (30 percent), photovoltaics (30 percent) and a mixture of other renewables and fossil fuels (40 percent), although these figures mask significant differences of the energy mix at a country level.

Sub-Saharan Africa has enormous potential in the area of renewable resources. Around 90 percent of the continent's economically feasible hydropower potential (equal to a tenth of the world's total) remains unexploited. There is also significant potential in solar and wind power. The EIB focuses on large regional and national generation and transmission projects that tap into these abundant resources to stimulate economic development.

Investments in energy networks and their upgrades are required, both to support the integration of renewable sources and to ensure the quality, efficiency and security of supplies. The EIB strongly supports energy projects that promote regional integration, not least because regional cooperation on energy can alleviate the 'small market problem' facing many countries.

The off-grid solar sector is particularly important to achieving universal access and rural electrification goals for Sub-Saharan Africa and has seen an impressive growth in the past few years, which is set to continue in the future. The Bank is offering various financing and technical assistance structures to provide the most effective means of support for this sector.

Investments in energy efficiency, including domestic, industrial and public usage, help to increase energy availability and reduce energy bills. This in turn promotes wider access (also through off-grid solutions), economic competitiveness and growth and thus has an important role to play. But unlike the investments in more developed economies, which focus on energy efficiency through the renovation of buildings and the modernisation of industry, energy efficiency investments in Sub-Saharan Africa will have to focus on the promotion of greenfield, energy efficient infrastructure, industrial processes and equipment, and consumer products and appliances. Resource efficiency considerations are incorporated into all EIB projects in African countries, not only those in the energy sector.

Significant hydrocarbon discoveries have recently been made in a number of Sub-Saharan Africa countries. Natural gas has an important role in meeting growing energy demand while ensuring affordability and minimum environmental impact. Some of these discoveries also have potential implications for the EU's energy supply.

Access to energy and climate action

The EIB's energy lending criteria adopted in 2013¹⁵ stresses the need for investment in energy networks, renewable energy and energy efficiency. These remain the EIB's energy priorities. In addition, the EIB Climate Strategy adopted in 2015¹⁶ seeks to reinforce the decarbonisation path of EIB investments. It strives to steer the Bank's Climate Action qualitatively towards particular initiatives and

¹⁵ <http://www.eib.org/en/infocentre/publications/all/eib-energy-lending-criteria.htm>

¹⁶ <http://www.eib.org/en/infocentre/publications/all/eib-climate-strategy.htm?f=search&media=search>

those projects, that have the highest impact and contribution to the EU 2030 Climate and Energy Framework, the EU Adaptation Strategy and the External Lending Mandate Climate Strategy.

Within the Multi-annual Financial Framework 2014-2020, the European Union has committed to allocate 20 percent of its budget to climate change-related expenditures, as measured by the Rio Markers approach¹⁷ and has committed some EUR 14 billion, or EUR 2 billion annually, in grants to support climate related action in developing countries.

The Bank has made a commitment that, by the year 2020, at least 35 percent of its lending outside EU will be targeted at climate mitigation and adaptation as defined in the joint multilateral development banks' methodology for tracking climate change.

The EIB screens all projects with the aim of maximising climate action. All electricity generation projects must align with the Bank's Emissions Performance Standard (EPS)¹⁸.

Drivers and barriers for climate finance

With EUR 130 billion invested globally in climate action over 2012-2017, the EIB has a leading role among multilateral development banks in climate finance. The EIB Group's investment to climate action, mitigation and adaptation reached 28% of its total annual lending in 2017. In order to sustain this growth in volume and the impact of its lending, the EIB has initiated a market and gap analysis in support of its climate strategy.

The primary aim of this analysis is to identify the main barriers and drivers of investment and identify areas for improvement. The analysis will build on previous assessments of EIB's climate action activities, in particular the synthesis report "Evaluation of EIB financing of climate action (mitigation) within the EU 2010-2014" (2015)¹⁹. More specifically, the analysis will identify climate finance opportunities across EIB geographies to:

- Support the diversification of EIB climate action in terms of country, region and sector distribution
- Increase the impact and relevance of the EIB's climate action finance
- Enable the EIB to reach and go beyond its climate action targets

The analysis will review the Bank's three main areas of activity -- lending, blending and advising -- to identify projects and financial instruments that are particularly successful in climate action or in crowding-in external finance. The analysis will also cover technical and financial advisory services to identify the most effective way to build a strong pipeline of climate action projects for the EU and the rest of the world until 2025.

Specifically, the gap and market analysis, which will be finalised in early 2019, will include the following:

- Climate action trends – identification and analysis of recent trends with the global, multilateral development banks and EIB climate finance landscape;
- EIB climate action gap analysis – identification of barriers and drivers for climate action investment by geography and sectors;
- Concessional finance for climate action – recommendations for the establishment of Climate Action Concessional Finance Trust Fund.
- Recommendations for meeting EIB climate action targets.

¹⁷ OECD Rio Markers approach is used by the Commission in the area of external aid: DG DEVCO, DG NEAR use Rio Markers for reporting on international climate and biodiversity related expenditure. Ref: http://www.oecd-ilibrary.org/environment/climate-finance-in-2013-14-and-the-usd-100-billiongoal_9789264249424-en Annex A and <https://europa.eu/capacity4dev/public-environmentclimate/minisite/tools-and-methods/short-guide-use-rio-markers>

¹⁸ The EPS threshold is set at a level which reflects the EU's and EU Member States' existing commitments to limit EU carbon emissions as established in current energy and climate legislation.

¹⁹ http://www.eib.org/attachments/ev/ev_climate_action_eu_2010-2014_en.pdf

Procurement and local content

A constraint for EIB lending for public sector investments and public-private partnership schemes is the policy-based local content requirement in the procurement of these projects, which is increasingly applied in the region. Local content requirements typically foresee hiring locals, using local goods and services, etc. This requirement cannot be reconciled with the Bank's Guide to Procurement, which applies the principles of EU procurement to the projects financed by the Bank. These principles require that projects are procured in a fair, transparent, non-discriminatory manner. In particular, local content requirements may be discriminatory. The EIB is working with the European Commission to harmonise EU policies with the policies of other multilateral and national development institutions.

Gender equality and social aspect of access to energy

It is important that women have the same access to energy services as men. When women have access to energy, they have more time, health significantly improves for them and their children, as does education. Energy also diversifies women's opportunities, leading to better incomes and reduced poverty.



As part of its Strategy on Gender Equality and Women's Economic Empowerment, the EIB Group seeks to enhance energy operations for gender equality. We embed a gender perspective throughout the investment or project cycle and identify opportunities within projects to improve gender equality.

Products and countries

Different electricity access solutions involve different actors and promoters. Investment in on-grid electricity typically consists of large scale power plants and electricity network projects, promoted by public sector utilities, regulated private companies or in the form of public tenders for project finance under public-private-partnership regimes. Mini-grids and distributed generation on the other hand are small to mid-sized local investments promoted at municipal level or by private companies. Off-grid solutions take place at the level of small enterprises or private households.

The EIB supports the balanced development towards higher electricity access rates in Sub-Saharan Africa with a broad range of financing solutions that match the different segments of actors and promoters and the different levels of credit risk associated with the investments. Some examples of the financing solutions offered by the EIB for investment into networks and interconnections, renewable generation capacity, access to energy and off-grid solutions - and of their impact - are given below.

Senior loans

Senior loans are the more traditional financing instrument targeting larger infrastructure projects and predominantly public sector borrowers or utilities in Sub-Saharan Africa.

Access to energy - KenyaVision 2030

As part of its medium and long-term development plans for the country – KenyaVision 2030 – the Kenyan government is planning to ensure universal electricity access for the country's population in the coming years, and is aiming to achieve this through diversifying the production mix and a comprehensive electrification programme.



The Last Mile Connectivity Programme will see power lines extended into rural areas of 32 of the 47 counties in Kenya. It is set to connect over 300 000 households to the grid, thus bringing power to around 1.5 million Kenyans. This is the equivalent to more than the population of Mombasa, the country's second largest city. It makes the 2020 completion target ambitious but achievable, thanks to the use of tried and tested equipment that can be rolled out quickly.

On the power generation side, the EIB has also invested in an extension to the Olkaria I geothermal plant, with the installation of an additional turbine, which will add 70 MW to the facility's total output, bringing it to a level potentially providing power to 529 000 households. Compared to the likely alternative sources of power, the project represents a reduction in annual greenhouse gas emissions equivalent to around 179 000 tonnes of carbon dioxide.

Networks and interconnections – CLSG Interconnector

The EIB has supported regional energy investment through development and expansion of the West African Power Pool since 2005 and is providing a EUR 75 million 25-year loan for the EUR 370 million CLSG Interconnector project. The EIB has supported the development of the project for more than 10 years. The 1 303 km electricity interconnector between Cote d'Ivoire, Liberia, Sierra Leone and Guinea will support economic development, reduce the need to use expensive generators and allow existing and future hydropower projects to benefit the region. The scheme will improve the lives of millions of people across West Africa.



The project is also financed by the African Development Bank, the World Bank and KfW, as well as the four countries involved. The EU-Africa Infrastructure Trust Fund is also providing grant funding totalling EUR 27 million that will support technical assistance for engineering, feasibility studies and rural electrification. Favourable lending conditions allow transmission tariffs to remain lower. The CLSG

Interconnector project is an excellent example of the joint effort and cooperation of development agencies and governments.

Project finance and guarantees

Public-private partnerships in the energy sector and project finance operations, more specifically, involve long-term contractual relationships between public and private market actors for the provision of energy services.

The EIB has focused on transactions where it can offer significant value in this specialised sector, such as:

- Transformational projects like **Scaling Solar Zambia**, one of the first competitively tendered projects on the continent. The EIB is one of the first co-financiers in Scaling Solar, a World Bank and IFC programme that follows a standardized documentation and tender package approach that will help African countries quickly and efficiently build privately financed solar photovoltaic projects at optimised costs. The Scaling Solar programme has demonstrated the significant economic benefits achievable by mobilising market competition and has yielded record-low tariffs in Zambia, and more recently in Senegal. Following the successes in Zambia and Senegal, Ethiopia and Madagascar are already adopting the Scaling Solar method and additional markets are likely to follow.
- Large projects where the EIB can play a leading role, like **Lake Turkana Wind** (Kenya), the largest wind power generation project in Sub-Saharan Africa outside South Africa. The Bank mobilised concessional financing from the EU to close a critical risk capital financing gap while acting as an anchor lender and offering political risk coverage to commercial lenders; and
- Innovative structures like the **Africa Energy Guarantee Facility**, where the EIB supports a leading reinsurer to boost its investment insurance capacity for private financiers of sustainable energy projects, while improving local insurer capacity to serve the energy sector with technical assistance. In this structure, a mezzanine portfolio guarantee of up to USD 50 million allows Munich Re to offer up to USD 1 billion in reinsurance exposure for local investment insurers (see box below).



Lowering the risks of green energy investments

Energy projects in Sub-Saharan Africa often face high real or perceived public counterparty risks that deter private sector investments. Insurance offers a way to hedge against such risks, making investments more attractive. However, effective insurance of this kind is rarely available in this context. The Africa Energy Guarantee Facility responds to this gap. It is an innovative, first-in-its-kind guarantee initiative, expected to play a catalytic role in unlocking private sector investment in Africa. It supports an EU-based reinsurer, Munich Re, in the provision of political and (sub) sovereign risk insurance services for the energy sector in the region, working through local primary insurers.



The operation was initiated by the EIB and forms part of the Bank's response under the United Nations' SE4All initiative. The EIB's leading role and its USD 50m investment have been critical in attracting other partners and is on track to catalyse up to USD 1bn in reinsurance capacity to support the financing of green energy projects. Based on the preliminary pipeline of eligible energy projects, the facility could support the installation of 360 Megawatt of generation capacity from renewables, enough to serve the typical consumption of some 876 000 households, or just over 4 million people.

Mobilisation of both public and private funds as well as demonstrable development impact are also key objectives for EIB in offering project finance and guarantees. Also, guarantees can be a potent tool for improving the viability of private sector energy projects. Going forward, the EIB will continue this selective approach by supporting high impact transactions such as **Nachtigal Hydropower**, which is expected to provide up to 30 percent of Cameroon's energy needs, and **Ruzizi III**, the first regional private power project shared by Rwanda, Burundi and the Democratic Republic of Congo.

Direct lending to private firms

One key objective of EU development cooperation policy is the support of private sector development. The EIB is making efforts to directly reach the corporate sector in Sub-Saharan Africa. This is supported by the EIB's expanded local presence in the region. Energy is one of the EIB's target sectors for direct corporate lending.

Off-grid solutions - d.light

The EIB will provide EUR 25 million to improve access to energy for households and micro-entrepreneurs in Sub-Saharan Africa. The company d.light designs and distributes affordable small solar powered electronics kits (panels, batteries, bulbs and charger for appliances like radio and mobile phone) that improve the living conditions of villagers in rural Africa.



The project calls for installing about 10 million solar devices in Ethiopia, Kenya, Nigeria, Tanzania and Uganda by d.light over two and a half years. The EIB loan will finance the working capital required by d.light to effectively distribute the solar kit across the five countries. The project is expected to have significant social impact given that the users (and final beneficiaries) are typically rural and/or low income households and micro-enterprises in the five target countries.

Funds and platforms

Public financing alone is insufficient to meet the investment needs of the Sub-Saharan Africa region. The EIB develops investment vehicles and products, often in conjunction with EU or other donor funding, to catalyse private sector investment and leverage public funds in order to address the financing gap and existing market failures. By supporting equity and debt funds, financing platforms, portfolio guarantees and subordinated funding the EIB provides indirect debt or equity for projects with the aim of enhancing the credit quality of the projects or the project sponsors.

For example, the **Global Energy Efficiency and Renewable Energy Fund (GEEREF)** is a fund-of-funds, which provides global risk capital to unlock private investments in renewable energy and energy efficiency projects in developing countries and economies in transition. It was one of the first vehicles to demonstrate how to leverage public risk capital to engage the private sector in development and climate finance. Its successor, **GEEREF NeXt**, has already received an approval for USD 265 million from the Green Climate Fund.

In order to meet SE4All objectives, the EIB has also developed a number of innovative financing initiatives addressing specific gaps in the energy market, such as:

- The **Global Climate Partnership Fund (GCPF)**. The Bank has invested USD 75 million to enhance the GCPF's capacity to invest in Sub-Saharan Africa.
- The **Renewable Energy Performance Platform**, a donor platform set up by the EIB and the United Nations Environment Programme (UNEP) to facilitate the development of at least 150 MW of small-scale renewable energy projects in Sub-Saharan Africa. It provides i) access to existing risk mitigation instruments; ii) technical assistance, financial structuring and due diligence services; and iii) results-based financial support.
- As mentioned above, the Africa Energy Guarantee Facility has been designed to respond to the lack of adequate risk-mitigation products and will leverage insurance, re-insurance and banking sector expertise for eligible energy projects in Africa.

Technical assistance

Technical assistance has become an increasingly important instrument for the EIB and for both public and private project borrowers in Sub-Saharan Africa. It supports the preparation and implementation of EIB-financed projects in the Bank's priority sectors of public infrastructure and private sector development. More specifically, the Bank's technical assistance identifies market gaps and investment needs, improving project quality by providing capacity building, enhancing efficiency and project delivery with the overall objective of ensuring the project's long-term sustainability. The Bank's technical assistance programmes target upstream activities, to ensure that projects are identified, selected and designed in a cost-efficient manner, and downstream activities, to ensure implementation is carried out in a timely, efficient and productive way as follows:

- **Upstream** from projects, through exploration, market studies, the provision of regulatory frameworks, master plans or support towards the establishment of new markets or models
- Downstream, during project
 - **assessment**
 - **preparation**
 - **implementation**

Recent examples of technical assistance in the energy sector include:

Technical assistance for implementation, capacity building and sector reforms

The Energy Sector Recovery Project in Sao Tomé, funded by the EIB and the World Bank, is increasing renewable capacity and reducing losses in the network while improving overall system security and safety of supply. This will be done by rehabilitating an existing 1.9 MW hydropower plant, upgrading the low and medium voltage distribution network, and installing electricity meters.

The EIB supports the project with EUR 1 million in technical assistance for capacity building of the implementing agency, Empresa de Agua e Electricidade, as well as for sector reforms.

Transformative Technical Assistance in Namibia

In order to meet the ever increasing demand of electricity in a sustainable manner, NamPower and the Government of Namibia conducted detailed studies on developing power stations using local fuel sources.

These studies identified biomass from invader bush and solar energy as the most promising options. NamPower, on behalf of the Namibian government, is now progressing with the development of biomass and concentrated solar plant power stations by conducting feasibility studies financed by the EU-Africa Infrastructure Trust Fund and managed by the EIB.

Sustainable bonds

Substantial investments are required for developing countries to meet the SDGs. Traditional funding sources can only cover a fraction of the required investment. There is a critical role for local and international capital markets to help fund the SDGs by transforming savings into targeted long-term funding. At the same time, across the world, investor interest in environmentally and socially responsible investing is rapidly growing. The issuance of themed bonds with the proceeds targeting projects with green or social outcomes is also growing in many regions.

In this context, and building on pioneering expertise and experience with Green Bonds, the EIB has developed an innovative instrument called Sustainability Awareness Bonds. SDG-themed bonds are bonds issued by (most likely, at first, policy-driven) financial institutions based in developing countries, where the proceeds from the bonds are used exclusively for projects with social objectives and aligned to certain SDGs.

Under the scheme, the EIB will support selected emerging market-based financial institutions to access capital markets and issue SDG-themed bonds through (i) technical assistance capacity building for the financial intermediary, (ii) the purchase, as an anchor investor, of a portion of bond issue, crowding-in private investors who take comfort from EIB's presence. Because the bonds incorporate an obligation to use the proceeds for specific SDG-eligible purposes, the result is increased financing flowing to the SDGs.

EIB local presence

Over the last years the EIB has expanded its physical presence in Sub-Saharan Africa. Currently there are EIB offices in Addis Ababa, Abidjan, Dakar, Nairobi and Yaoundé for East, West and Central Africa and in Pretoria for Southern Africa. The staff members in regional offices help to assess markets, organise projects, analyse work and communicate better with local partners. In a number of cases the EIB offices are located within EU delegations, which enhances dialogue and reinforces synergies between the two providers of EU development cooperation. The Addis Ababa office, meanwhile, brings the EIB closer to the African Union headquarters, and enables the Bank to have better ties with that organisation. The West African regional office has moved from Dakar to Abidjan in the interest of proximity to the headquarters of the African Development Bank, a partner of real importance on the continent.

Measurement of results

Using its Results Measurement Framework, the EIB tracks project results outside the EU, the contribution to EU and country objectives and the difference that EIB involvement makes relative to what local markets offer. This strengthens the appraisal of projects, supports monitoring throughout the project cycle and complements the EIB's due diligence process. The EIB works with other development agencies and financial institutions to further improve the coordination and harmonisation of the results indicators used. Project performance against the estimates provided is monitored at different stages of a project's life. For direct investments, which are typically infrastructure projects, results are monitored when the project is completed and again three years after completion. For intermediated operations, results are monitored at the end of the allocation period in the case of credit lines, or at the end of the investment period for equity funds. Equity fund results are monitored again at the end of the fund's life.

Technical assistance operations are also assessed. Measuring these results enables the Bank to refine and improve the process, and to understand what kinds of operations work best in any given situation.

International Cooperation

European Commission and EU Member States

Project level

The EIB's focus on renewable energy takes into account the energy sector's pivotal role for development, the EU response to the UN's SE4All initiative and the SDGs. The EIB is scaling up efforts in the energy sector significantly, notably through dedicated use of grant-loan blending and initiatives to attract private sector investment. Within Sub-Saharan Africa this includes a number of facilities to support SE4All that have benefitted from reallocated European Development Fund and Member State funding.

Institutional and policy level

The EIB works with the European Commission and the European External Action Service to promote development policies abroad. The Bank will continue to play a significant role in Sub-Saharan Africa and beyond, thereby helping the Agenda for Change, the EU Private Sector Development strategy and the New European Consensus on Development.

European External Investment Plan

The European External Investment Plan, formulated in 2016 to coordinate all EU instruments, has three pillars:

- 1: Mobilising finance
- 2: Making finance reach the real economy
- 3: Improving the investment environment

For Pillar 1, the European Commission has established the European Fund for Sustainable Development (EFSD) guarantee to support projects with a particularly high development impact. The EIB ensures the integrity of the EFSD guarantee in terms of banking and impact-related aspects.

The EIB also contributes to the implementation of EFSD-supported programmes. Since January 2018, the EIB has submitted seven proposals across regions, including an important proposal together with the Agence Française de Développement to foster renewable energy projects in Sub-Saharan Africa.

Strong links with other development finance agencies

Project level

The EIB has a long history of strong cooperation with European Bilateral Development Agencies and multilateral development banks outside of the EU. During the period 2014-2017 the EIB has financed 90 projects in the Sub-Saharan Africa region, lending in excess of EUR 3.9 billion. Of these, 57 projects were co-financed with European Bilateral Development Agencies and multilateral development banks. In the energy sector the EIB has financed 15 projects in the region, lending over EUR 1.1 billion. All 15 projects were co-financed with European Bilateral Development Agencies and multilateral development banks.

Furthermore, the EIB, the Agence Française de Développement and KfW jointly engaged in the Mutual Reliance Initiative in 2013. The initiative increases synergies between the participating institutions during the project cycle and enhances the combined financing activities.

The relationship between the EIB and the European Development Finance Institutions (EDFI) is intended to achieve high developmental investments through cooperation.

Cooperation between the EIB and the EDFI²⁰ primarily concerns joint financing of projects and programmes to promote the sustainable development of the private sector. Two recent initiatives are the European Financing Partners, where the EIB has contributed over EUR 300 million since 2004 and the Interact Climate Action Facility (ICCF), a EUR 300 million climate change fund set up in 2011 with a EUR 50 million commitment from the EIB. The ICCF seeks to promote the use of renewable energy and clean technologies as well as energy efficiency in developing and emerging countries by providing long-term financing to smaller projects. Since its establishment in 2011, nearly EUR 150 million have been approved or is under appraisal by ICCF in Sub-Saharan Africa, of which around 40 percent is in wind power generation and 25 percent in solar power generation.

Furthermore, since 2014, the EIB has been entrusted by the European Commission with the management of the EU-EDFI Private Sector Development Facility (EEDF) which provides partial credit guarantees for eligible sustainable energy and energy access projects promoted by EDFIs. EEDF has so far guaranteed off-grid energy projects in Tanzania.

Institutional and policy level

The EIB is strongly committed to policy coordination and cooperation with European bilateral development agencies and other multilateral development banks. This is realised through various alliances and federations, like the EIB co-founded Long Term Investors Club²¹.

²⁰ EDFI was founded in 1992 and currently represents 15 member institutions. Ref.: <https://www.edfi.eu/>

²¹ A network of 18 major financial institutions and institutional investors. Ref.: <http://www.ltic.org>

SECTION IV: GOING FORWARD

Policy development

The EIB's energy lending policies, such as the Energy Lending Criteria, are designed to ensure that the Bank's activities support EU policies and are focused on areas with the greatest investment needs or where the EIB can have the highest impact.

The EIB's Energy Lending Criteria explain:

- what energy projects are eligible
- how energy projects will be assessed and prioritised
- how the EIB supports the EU's energy policy.

The EIB's current Energy Lending Criteria were published in 2013. It is expected that they will be revised in 2019. This revision will reflect the climate targets from the Paris Agreement as well as the 2030 energy and climate framework agreed within the EU. Although this revision will cover all EIB energy operations, it will focus on energy projects in Sub-Saharan Africa.

Strategic focus

As discussed above, a number of countries in Sub-Saharan Africa are on track towards providing universal access to energy by 2030 in line with SDG 7, while others are less advanced and substantial additional resources will be required. Thus developing and improving the basic energy infrastructure (generation, transmission, distribution and access) in Sub-Saharan Africa will be a priority of the EIB. A particular focus will be given to renewable energy resources and cross-border projects, as regional cooperation can alleviate the small-market problem facing many countries.

In terms of lending volume, the EIB expects to continue financing investments in the electricity sector of Sub-Saharan Africa primarily through senior debt. This traditional financing instrument is well suited to large-scale investments such as utility scale grid connected power plants, transmission lines and distribution networks, which will constitute the bulk of the energy infrastructure needs. Beyond this the EIB will continue to employ its substantial sector expertise, know-how and capacity to support the SDG 7 with a variety of specific instruments for different project sizes and risk levels. Senior debt, mezzanine debt, guarantees and equity are well suited to project finance operations associated with independent power producers, which are increasingly active in the power generation sector. Local currency senior and mezzanine debt, guarantees and equity are well suited to support small and medium enterprises that provide off-grid energy solutions.

Outlook

As the largest multilateral lender, the EIB will keep playing a key role in global development. The Bank is the world's largest lender by volume for climate action and one of the largest lenders for energy projects. The EIB will remain committed to private sector development and will have a wide range of instruments for such projects over the coming years.

The EIB's large team of sector experts, engineers and economists have substantial experience in the developing world but are also in a unique position to transfer their strong sector expertise from advanced markets inside the EU, for example in the field of renewable energy. The Bank also has more than 55 years of experience in Africa.

Supported by the Investment Facility under the framework of the Cotonou Agreement and by the External Lending Mandate, which will both expire in 2020, the EIB has been able to support inclusive and sustainable economic development in the beneficiary countries hand-in-hand with the EU Member

States and the European Commission. The EIB will continue this valuable work for decades and will concurrently play a leading role in the fight against climate change in support of the EU's commitments under the Paris Agreement.

The EIB also has a substantial track record of supporting the European bilateral development agencies and banks. It is vital that the coordination with European bilateral development agencies, the European Commission and the European External Action Service is further enhanced. The EIB is ready to take a more prominent role in the coordination of European development policies and to explore more ways to partner with other organisations and to co-finance projects, making better use of limited public resources. The EIB will continue to play a key role in wider initiatives, such as the European External Investment Plan, in order to support private sector development and attract more capital from the private sector.

Coordinated development efforts will have the greatest chances of success and the biggest impact on people's lives across the world.

EUROPEAN INVESTMENT BANK

Energy Finance in Sub-Saharan Africa



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