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Sector Report

Power in Africa

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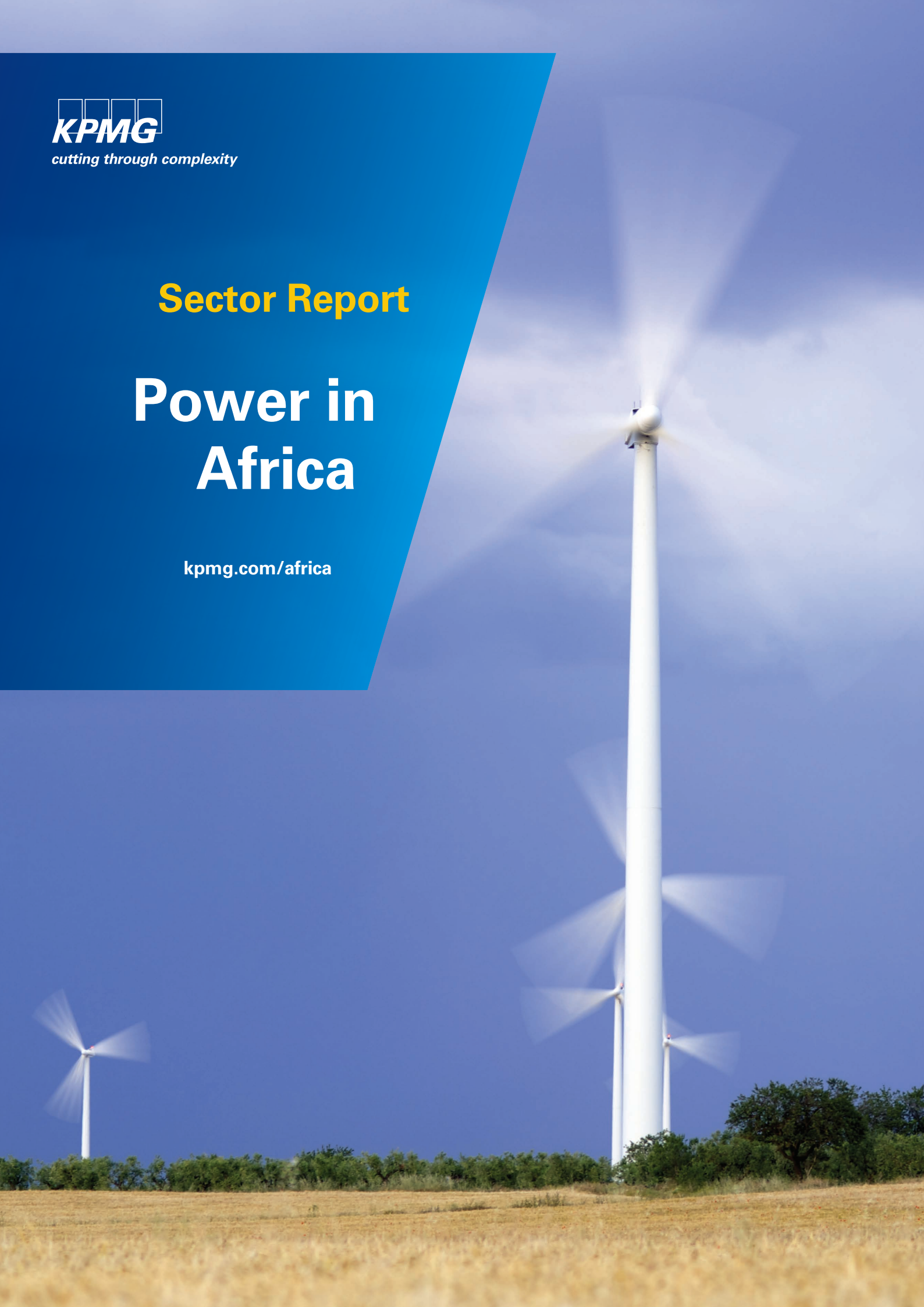

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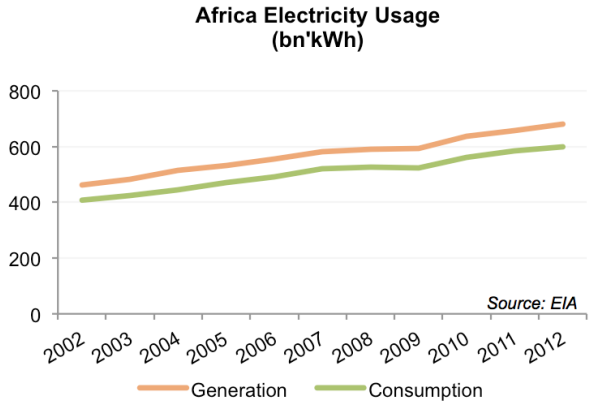
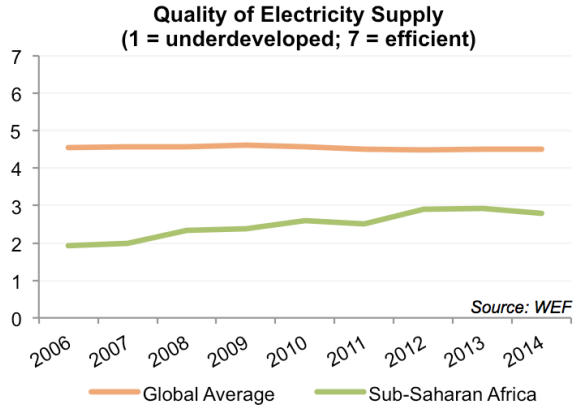
Introduction

Infrastructure investment is currently a key driver behind the commendable GDP growth rates observed in numerous African countries, and investments in energy generation will hold a particularly symbolic position in these development strategies. Due to undeveloped private sectors and the political capital that is gained through providing such a perceivable service, governments have been willing to bear the investment, financial and operational risks involved in such large projects – albeit under significant capacity constraints. Electricity is crucial in most production processes, and the inability to access a reliable energy source deters foreign investment and limits the development of domestic economic activities. However, the African continent lacks adequate energy infrastructure, and severely underperforms in the provision of power in a global context. Furthermore, actual energy production figures for sub-Saharan Africa are likely to be substantially lower than the theoretical capacity due to inadequate maintenance, outmoded equipment, fuel shortages, as well as general inefficiencies. According to the International Renewable Energy Agency (IRENA), Africa currently has 147 GW of installed capacity, a level comparable to the capacity that China installs in one to two years. In addition, average per capita electricity consumption in sub-Saharan Africa (when excluding South Africa) is just 153 kWh/year, which is roughly 6% that of the global average. Furthermore, IRENA notes that the continent will need to add around 250 GW of capacity between now and 2030 to meet growing demand. This implies that capacity additions will have to roughly double to around seven GW annually.

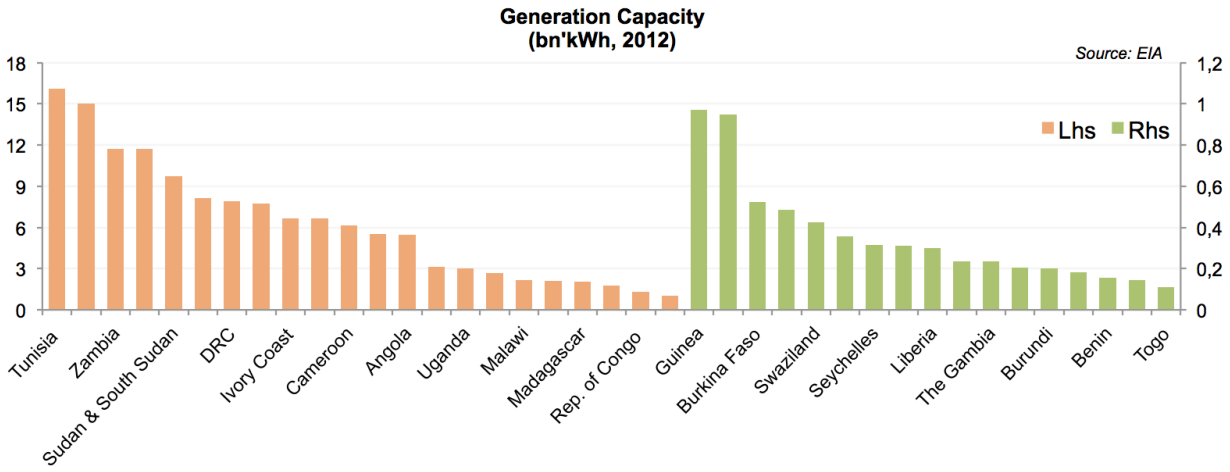


This substantial investment requirement has resulted in many countries increasing scope for private sector participation in energy provision. However, openness to private energy provision differs significantly between countries, while other idiosyncratic factors also affect the attractiveness of entering these energy markets. Lack of policy coordination between government departments or between departments and agencies can hinder the implementation of energy projects. Due to the magnitude of investment required, any policy shifts that even delay the implementation of these projects can be very costly to private sector participants.

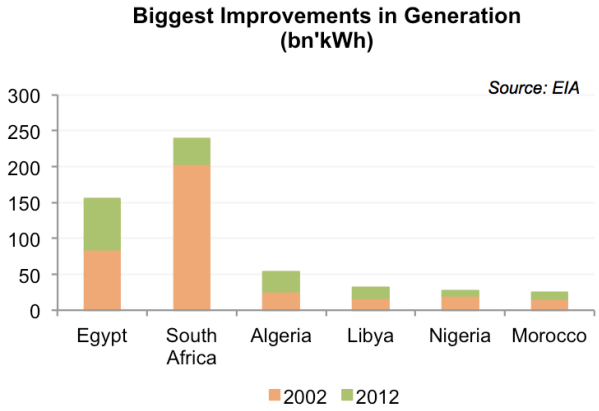
Africa's electricity generation has steadily increased, rising by 48% between 2002 and 2012 to reach just over 680 billion kWh in 2012. In turn, electricity consumption has shown a similar rise, increasing by 47% over the period to reach 600 billion kWh. The gap between generation and consumption, equivalent to nearly 12% of total generation, is an indication of wastages due to inefficient distribution and a general lack of supply quality. More specifically, sub-Saharan Africa notably underperforms when considering the general quality of electricity supply, according to the most recent World Economic Forum (WEF) figures. While the quality differential between sub-Saharan Africa and the global average has decreased over the past decade, the region continues to perform poorly in this regard. It should also be noted that a substantial amount of energy produced in most African countries is either directly produced by or directed towards large commercial enterprises in extractive industries. This means that the actual electricity that is consumed by the general population is significantly lower than the continent's actual generation figures. In addition, the inadequate transmission and distribution networks only allow electrification in urban centres, and most of the land-area, and in some cases most of the population, has no access to electricity.



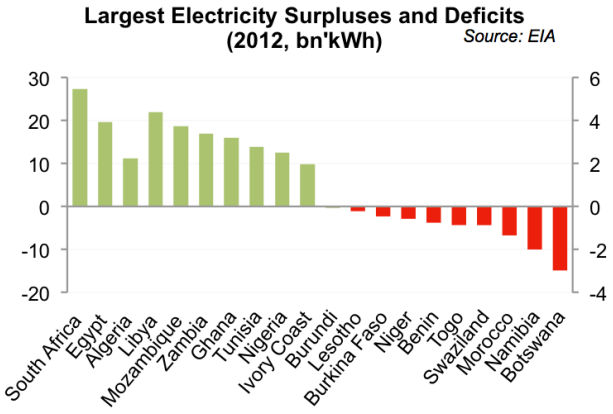
Current Environment



Electricity generation varies significantly between African countries. The continent's two largest electricity generators, South Africa and Egypt, accounted for nearly 60% of the continent's total generation in 2012. In turn, the 27 countries with the worst generation figures on the continent, representing more than half the countries in Africa, only contribute around 1% of the continent's overall generation. North Africa dominates the continent in terms of electricity generation from a regional perspective. However, South Africa remains the continent's largest electricity producer, alone accounting for around 35% of Africa's electricity generation. Other notable producers include Mozambique, Zambia, and the Democratic Republic of Congo (DRC). It should be noted that the extractive sectors play dominant roles in these economies, and much of the generated electricity directly flows to these operations, bypassing a significant part of the population. Furthermore, East Africa's most developed economy, Kenya, as well as Ghana on the west coast of Africa perform commendably in terms of electricity generation in an African context. However, with an estimated annual per capita electricity usage of 150 kWh in Kenya and 342 kWh in Ghana, the countries perform very poorly when considering the estimated global average annual figure of 2,550 kWh.



It is interesting to note that the countries with the highest electricity generation figures in 2002 (South Africa, Egypt, Algeria, Nigeria, Libya and Morocco) have also been the best performing with regard to increasing generation over the past decade. More specifically, Egypt increased its electricity generation by over 80% between 2002 and 2012, which also reflects the largest nominal increase in generation (+70 billion kWh). South Africa was the second largest generation expander over the 2002-12 period, adding nearly 36 billion kWh to its overall generation figure. However, Africa's most developed economy continues to struggle with electricity shortages, as electricity generation figures have lagged behind increasing demand, while maintenance issues keep actual generation far below installed capacity and negatively affect supply quality. In turn, Algeria more than doubled its electricity generation over the period, reaching nearly 54 billion kWh in 2012. Furthermore, the country that has shown the largest improvement in electricity generation on a proportional basis is Rwanda, with the country increasing generation by nearly 214% between 2002 and 2012 (albeit still at a marginal 0.3 billion kWh in 2012). However, not all African countries have been able to improve electricity generation figures. More specifically, some countries including Botswana, Zimbabwe, Swaziland, Sierra Leone and Guinea have seen a decrease in electricity generation between 2002 and 2012. In Botswana, electricity generation dropped by more than 70% between 2002 and 2012, while Zimbabwe's generation has dropped by around 6% over the period. While electricity consumption in Botswana actually increased over the period, indicating a notable rise in electricity imports, electricity consumption in Zimbabwe dropped by nearly 33% over the period. The significant drop in electricity generation in Botswana can be attributed to problems with the country's Morupule power station – the primary source of domestically generated electricity. Numerous units are consistently shut down due to technical issues, while one of the units (with a capacity of 120 MW) has been idle since 2012.



Note: In the accompanying graph, the three largest energy producers, namely South Africa, Egypt and Algeria, are all represented on the left-hand axis, while the remaining countries in the sample are shown on the right-hand axis.

Due to the significant variation in electricity generation figures across African countries, trade in electricity has become an increasingly important source of energy for some countries. Electricity consumption is much higher than generation capacity in some countries, and these nations are forced to supplement domestic production with imported electricity to maintain current consumption levels. In 2012, Botswana recorded the largest electricity deficit in Africa, according to Energy Information Administration (EIA) figures. The deficit amounted to over 90% of the country's total electricity consumption over the year. This is due to a drop in electricity generation combined with a rise in electricity consumption over the past decade. Other notable deficits include Swaziland (67% of total consumption), and Namibia (53%).

Morocco, in turn, currently imports some 95% of its energy needs, and this accounts for over a quarter of its imports. While the majority thereof is in the form of petroleum products, the country also imports electricity equivalent to 5% of the country's total electricity consumption. Still, due to a relatively efficient transmission and distribution network, electrification is much higher in Morocco compared to other African countries. In turn, some African countries record electricity surpluses, allowing them to export electricity to neighbouring countries. South Africa and some North African countries record the largest electricity surpluses on the continent. However, it should be noted that the size of South Africa's electricity surplus relative to its consumption is not particularly high, and the country needs to maintain a surplus in order not to overload the grid when demand fluctuates (i.e. between winter and summer). In addition, the Southern African nation has numerous electricity export commitments to neighbouring countries. The Southern African Power Pool (SAPP) is a cooperation of the national electricity companies in Southern Africa under the auspices of the Southern African Development Community (SADC). The members of SAPP have created a common power grid between their countries and a common market for electricity in the SADC, with South Africa, Zambia and Mozambique being the largest energy producers in the pool. Looking north, in addition to exports to regional African economies, some North African countries also export electricity to Europe. However, it should be noted that geographic constraints and distribution losses limit the extent to which some African countries can capitalise on electricity surpluses, with outages still taking place in these countries.

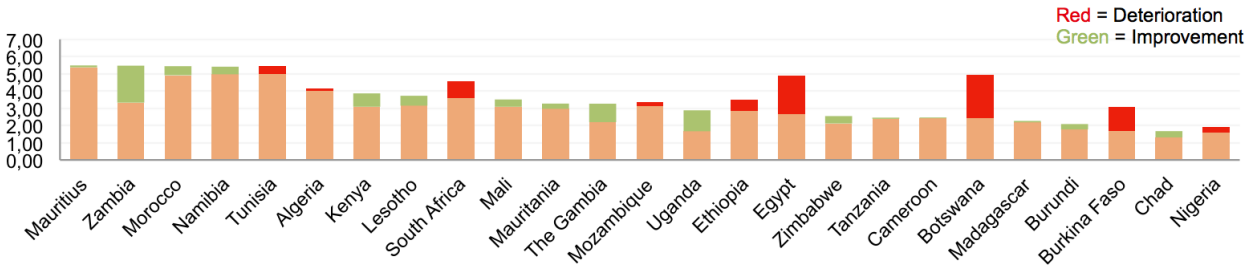
Quality of Supply

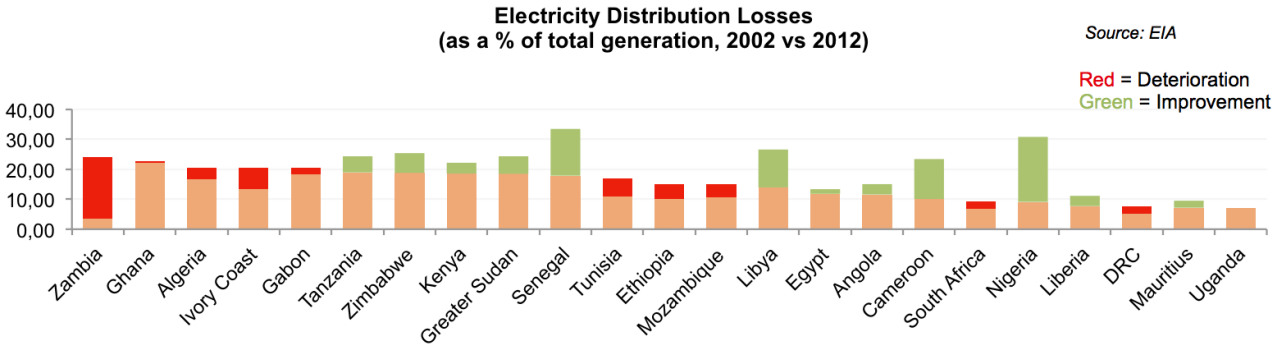
While electricity generation has increased in most countries across the continent, distribution issues and disruptions limit the extent to which the general population benefit from increasing capacity. In many countries, electricity provision is generally limited to larger urban areas and cities, with the overall electrification rate remaining low. In addition, electricity disruptions have detrimental effects on industry and contribute to overall uncertainty in the business environment. The following graph compares the results from the World Economic Forum's (WEF) 2014/15 Global Competitiveness Report (GCR) with that of the GCR 2006/07 to illustrate any deterioration or improvement in the quality of electricity supply score. We can see that some countries, most notably Zambia, Uganda, Gambia and Kenya have made significant strides in improving their scores over the period. In turn, countries such as Botswana, Egypt, Burkina Faso and South Africa have recorded marked deteriorations in the quality of electricity supply over the period. The political uprising in Egypt in 2011 had a significant effect on services provision in the country, which also had a notable effect on the country's quality of electricity supply. In turn, inadequate planning & maintenance have put South Africa in a dire energy situation, with the country continuously experiencing electricity disruptions. In addition, this has spilt over into Botswana, as South Africa is a primary source of electricity imports into Botswana.

When looking at global rankings with regard to the quality of electricity supply (out of 144 countries), the best performing countries in the region in the most recent report were Mauritius (45th), Morocco (48th), Namibia (52nd), and Tunisia (65th), while the worst performing countries were Guinea (144th), Nigeria (141st), Chad (140th), and Burkina Faso (139th). Other large African economies that performed poorly include Angola (138th), Tanzania (125th), and Ethiopia (118th). Furthermore, in its Doing Business 2015 report, the World Bank measures the ease with which businesses in numerous countries can access electricity. The "getting electricity" indicator captures the procedures, time and cost involved for a business to obtain a permanent electricity connection to supply a standardised warehouse. In this regard, Africa performed relatively poorly, with only 12 countries managing to rank inside the top 100 (out of 198 countries). In fact, 26 African countries, including the continent's two largest economies, namely South Africa (158th) and Nigeria (187th), did not even breach the top 150 countries. The best performing countries in the region were Tunisia (38th), Mauritius (41st), Cameroon (52nd), and Rwanda (62nd), while the worst performing countries were Madagascar (189th), Nigeria (187th), Central African Republic (CAR, 186th), and Uganda (184th). Other large African economies that performed poorly include Angola (157th), Kenya (151st), and Algeria (147th).

Quality of Electricity Supply in Africa 2007 vs 2015
(1 = extremely underdeveloped; 7 = extensive & efficient)

Source: WEF





Electricity distribution losses remain a key issue in many African countries, with a substantial amount of generated electricity not reaching intended locations. Significant energy losses continue to occur between sources of supply and points of distribution in sub-Saharan Africa. In addition to the lack of adequate distribution infrastructure, electric power actually getting to end-users is also less than what is actually produced as a result of damaged power lines, transmission technical losses, and theft of electric power. The accompanying graph shows the amount of electricity distribution losses as a proportion of total electricity generation (i.e. the higher the figure, the higher the losses). In addition, the graph also shows the change between distribution losses (as a proportion of total electricity generated) between 2002 and 2012. The graph shows that Zambia has seen a significant deterioration in the proportion of electricity losses, increasing from 4% in 2002 to 24% in 2012. While this has been accompanied by a significant rise in generation capacity, the rise in proportional losses indicates that the increased generation infrastructure has not been accompanied by an equivalent increase in distribution infrastructure. Zambia has the highest distributional loss proportion in the sample. While some other countries have higher proportions (such as Botswana, which exceeds 100%), the fact that these countries are net importers of electricity distort the link between generation and distribution. Other countries with high distribution loss figures are Ghana (23%), Algeria (21%) and Ivory Coast (20%), with the latter two having seen a notable deterioration in these figures between 2002 and 2012.

In turn, countries that have seen notable improvements in distribution efficiency include Nigeria (losses dropping from 31% in 2002 to 9% in 2012), Senegal (from 33% to 18%), and Libya (from 27% to 14%). The countries with the lowest distribution loss proportions in the sample are Uganda (7%), Mauritius (7%), and the DRC (8%). However, with regard to the DRC, much of the electricity generation capacity is constructed with the specific aim of proving an extractive project (particularly mining) with sufficient electricity to operate. Consequently, these projects do not require substantial distribution infrastructure, and distributional losses are thus kept to a minimum. Looking forward, electricity distribution infrastructure and efficiency remain key with regard to electrification. The inadequate transmission and distribution networks in most African countries only allow electrification in urban centres, and in many countries the majority of the population still has no access to electricity.

Key drivers

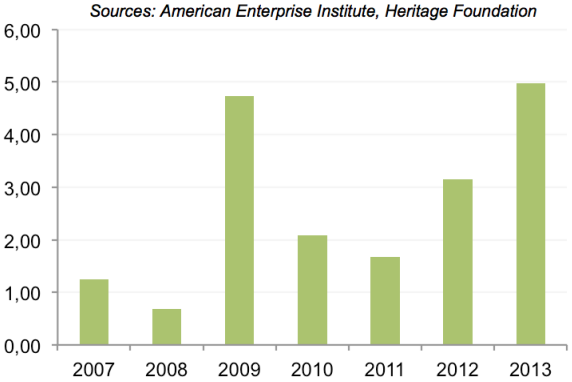
Renewable Energy

Hydropower has dominated renewable energy investment across the continent, but current projects (with total capacity of around 24 GW) only generate 5% to 10% of the total technical potential, equivalent to 10% to 20% of the total economically feasible potential, according to IRENA. In turn, the onshore wind resource in Africa is in the order of 1,750 GW, significantly more than the continent's electricity demand for the foreseeable future. Furthermore, the availability of high-quality geothermal resources in Africa is limited relative to that of wind and solar, but the potential is still in the order of 7 GW - 15 GW. Geothermal resources are concentrated in the East African Rift, especially in Kenya and Ethiopia, and could provide an excellent source of low-cost, baseload electricity.

Looking at geothermal, Kenya is now the 7th highest producer of geothermal power globally after it recently unveiled the second phase of the Olkaria geothermal plant, which added an extra 140 MW to the plant's capacity. Olkaria is now the biggest single-turbine geothermal plant in the world, with a capacity of some 280 MW. Kenya is among the world's most active regions for geothermal development, and figures from the national statistics bureau show that 381.6 MW of geothermal power was generated in December alone. Due to the poor rainfall in recent months, geothermal now accounts for an estimated 51% of the national generation mix, displacing hydro as the country's primary energy source. Kenya has since submitted a bid to host the global geothermal summit in 2020, and is competing with United States and Japan, among others. The East Africa region more generally will be a key focus for geothermal development, with Ethiopia, Tanzania, Rwanda and Uganda all pushing similar geothermal programmes.

Chinese Investment in Hydropower in SSA (bn)

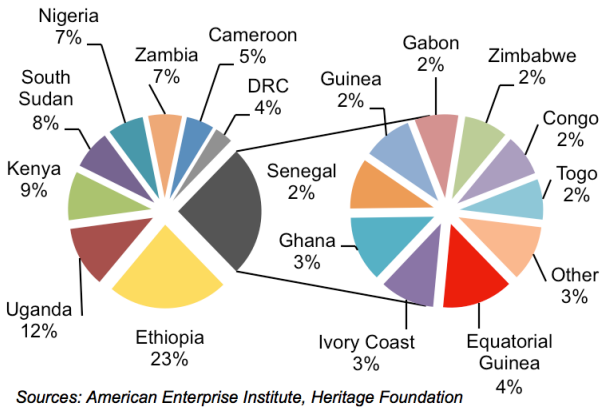
Sources: American Enterprise Institute, Heritage Foundation



Despite recent developments in geothermal energy in East Africa, many of the largest renewable energy projects relate to harnessing the potential of Africa's great rivers. Many African countries have exploited their good relations with China to make use of Chinese knowledge in dam building as well as Chinese funding to fund these hydro energy projects. The Ethiopian government has been particularly active in this area, with major projects involving most of the rivers flowing through the country – most notably the 6,000 MW Grand Ethiopian Renaissance Dam (GERD). Uganda, Mozambique and Ghana are also among countries that have major hydroelectric schemes under way or planned. However, the most ambitious of hydro energy projects on the continent is the Grand Inga hydroelectric project in the DRC. Grand Inga will generate 40,000 MW, and will be constructed in six phases, the first of which being the Inga III dam. The dam is a priority project for a number of African development organisations, including the New Partnership for Africa's Development (NEPAD), the Southern African Development Community (SADC), and the East African Power Pool (EAPP). While South Africa and the DRC signed a cooperation treaty to jointly develop the Inga III dam in May 2013, construction is planned to commence only in 2016.

Furthermore, solar power is the most widely available source of renewable energy in Africa, with most countries on the continent boasting significant solar potential. Many African countries receive on average 325 days of bright sunlight per year. This gives solar power the potential to bring energy to virtually any location in Africa without the need for expensive large-scale grid level infrastructural developments. The distribution of solar resources across Africa is fairly uniform, with more than 80% of the landscape receiving almost 2,000 kWh per square metre of solar energy per year. Africa currently has one utility-scale photovoltaic (PV) plant (generating 7.5 MW in Cape Verde), and while the total installed PV capacity in Africa is not known with any certainty, it is thought to be in the order of 160 MW. Installed capacity in Africa is currently low, but the potential for growth is good given that PV panels are a very good solution for the off-grid market.

Chinese Hydropower Investments in SSA (% of total over 2007-13 period)



Sources: American Enterprise Institute, Heritage Foundation

Off-Grid Initiatives

The geographic size and infrastructural needs across Africa increase the attractiveness of developing off-grid or isolated mini-grid systems to reach and supply remote villages and rural areas. According to a New Vision report, over 600 million people in sub-Saharan Africa live off the electric grid and spend around $11bn annually on kerosene, batteries and candles for light. Diesel generators provide power in many unconnected areas across Africa, but hydrocarbon generators can be very expensive to acquire and to operate, while pollution also becomes an issue. The use of decentralised systems may also have additional cost benefits. The cost per unit of energy delivered depends heavily on the length of the system and the demand density. According to IRENA estimates, as a rule of thumb, investment requirements for distribution networks are on average similar to those required for the power supply units, effectively doubling the investment needs. The larger the supply unit, the larger the required grid to distribute the power. Consequently, although the unit cost of fossil-fuel based generating plant is relatively low, it is offset by the grid costs, potentially making off-grid solutions with renewables the most economic approach. While a centralised grid may be the cheapest solution for a large city, an off-grid or mini-grid system will usually be more economical for a remote dwelling or community.

There are some difficulties in adopting isolated-grid systems. Spesifically, off-grid systems based on solar or wind require electricity storage to make them truly useful. While various electricity storage systems exist or are under development, they are currently expensive and tend to be more suited to large-scale applications. However, rapidly falling prices for solar generation technology and developments in electricity storage are providing the potential for small-scale, off-grid power networks. Looking at the potential of solar mini-grids, according to IRENA, rapid cost reductions and capacity additions are being achieved for solar PV, due to technological developments and an improving learning rate. As a result, PV solutions for rural areas can play a vital role in enhancing off-grid energy access, according to the agency. In turn, small-wind is also emerging as an off-grid solution, with the scale of a wind turbine typically suitable for a number of households or for a small village.

Looking at recent implementations, more than 840 households and small factories have been connected to solar grid systems in Tanzania's Tabora, Dodoma and Katavi regions. Large numbers of solar panels feed batteries housed in shipping containers, with the power then carried out to the community on distribution lines similar to those used by the state-run power utility, Tanesco. To date, some 14 solar containers or "solar generators" have been installed in the region, each with the capacity to supply electricity to 60 households or businesses. With the total cost of $6m for the 14 generators (including maintenance and repairs for five years), this roughly translates to a cost of just over $7,000 per household, which is relatively inexpensive when compared to the required investments in generation capacity and in the distribution network to connect these households onto the country's main energy grid. Access to the solar generators is currently free of charge, but arrangements are being made to ensure users contribute to the project's maintenance costs. According to the ministry of energy, after the pilot phase of the project ends in July, the government plans to install 600 more solar generators in villages around the country. Similar projects are being implemented in Senegal, Mali, Cameroon and Gambia.

In addition, Kenya plans to raise the share of renewables in 12 isolated mini-grids with a total capacity of 11 MW by installing 3 MW of solar and wind to complement the existing diesel generators in these grids. The Kenyan government also plans to construct 27 new isolated mini-grids with a total installed capacity of 13 MW. Furthermore, Greenlight Planet, a US based company that distributes solar energy products for off-grid homes in developing countries, is increasing its presence on the African continent. The company recently made a $10m investment in Uganda, and the company expects to reach 100 million off-grid households by 2020.

Private Provision

The international private sector will play an increasingly important role in addressing the African continent's energy deficit. A key driver behind this development is the mining sector's increasing demand for energy, with lack of electricity currently a salient impediment to the expansion of the sector across the continent. According to a World Bank report recently released at the Mining Indaba in Cape Town, the mining sector's demand for power in sub-Saharan Africa is likely to triple between 2000 and 2020, reaching over 23,000 MW. Consequently, mining demand could overtake non-mining demand for power in some countries. However, many mining companies still supply their own electricity with diesel generators rather than buying power from the grid, or by investing in longer-term generation capacity. This self-supply situation is very costly to mining companies, accounting for up to 30% of a company's costs if it does not have access to grid power, according to the World Bank report. In a positive development, an increasingly prevalent scenario across sub-Saharan Africa is mines self-supplying with more sustainable energy sources and then selling the additional energy to the grid, or alternatively serving as anchor customers for independent power providers (IPPs). Power-mining integration can bring substantial cost savings to mines, electrification to communities, and investment opportunities to the private sector, according to the World Bank. This will require considerable cooperation between numerous parties, including the public sector, mining companies, as well as the private sector more generally. Still, the mining sector's demand for energy together with the potential alleviation of public investment requirements in energy infrastructure could provide sufficient incentive for the various parties to support these projects.

There has also been a general increase in private sector participation in energy provision in Africa beyond the mining sector. The UK-listed private equity group Actis plans to set up a $1.9bn renewable energy business in Africa. Actis will partner with wind and solar developer Mainstream to form a company called Lekela Power. Lekela aims to deliver 700 MW – 900 MW through several projects over the next three years. Actis has stated that it plans to withdraw from its investment after five years. Actis already has an existing African power company, Globaleq Africa, with operations in five countries, namely Tanzania, South Africa, Cameroon, Ivory Coast and Kenya. Actis also listed Ugandan power company Umeme in both Uganda and Kenya after acquiring the state utility in 2005. The company's operations will start with three wind farms in South Africa, as well as solar and wind projects in Egypt and Ghana. According to Actis, the company then plans to look east, noting that in addition to solar potential in Kenya and Uganda, Ethiopia has been very active on the state-procurement side in energy. In addition, US buyout group Carlyle has launched a nearly-$700m fund to invest in the region, while rivals Kohlberg Kravis Roberts (KKR) and Blackstone have also struck regional deals. Furthermore, the first $1bn-plus Africa-focused private equity fund has recently been raised by Helios Investment Partners, a London-based group. It is largely expected that most if not all of these companies will pursue investments in energy provision across the continent.

Moreover, energy provision remains a key area where public-private partnerships (PPPs) can flourish. More specifically, the US backed 'Power Africa' initiative recently released its first progress report, showing considerable private sector participation. The five-year, $7bn initiative was launched in 2013 with the aim of supporting economic growth and development by increasing access to reliable, affordable, and sustainable power in Africa. The programme is a multi-stakeholder partnership between the governments of the US, Tanzania, Kenya, Ethiopia, Ghana, Nigeria and Liberia, the US and African private sector. These countries met a number of critical criteria, including a commitment to tough policy reforms in their energy sectors to improve their business climates, and have increased efforts to attract and leverage private sector resources to increase the continent's energy supply. According to the most recent Power Africa annual report released July 2014, in just one year the initiative has already helped facilitate transactions which are expected to produce additional generation capacity of nearly 2,800 MW – more than 25% of the 10,000 MW goal. In addition, projects expected to generate over 5,000 MW are currently being considered, which would bring the total power generated to more than 7,800 MW. The initiative has been able to achieve a leveraging ratio of around three to one, meaning the $7bn under the programme could potentially result in $18bn in private sector financing. Overall, the first year's results represent projects with a potential to power more than five million connections to African homes, businesses, schools, and clinics.

Other foreign governments are also collaborating with the international private sector in the provision of electricity to Africa. Norway's state-owned development fund, Norfund, plans to double or even triple its investments (currently at around $250m) in sub-Saharan Africa's power sector by 2020. Norfund is already collaborating with the Norwegian company Stratkraft in energy provision on the continent, and has partnered with Britain's development fund, CDC, in an attempt to provide an additional 5,000 MW of new capacity in Africa. Looking forward, Norfund is seeking to develop power projects in partnership with private investors.

Regulatory environment

The regulatory environment in Africa's energy sector is quite complex and uncoordinated, differing significantly between countries. Currently, around 30 African countries have established independent electricity regulators, including Ethiopia, Kenya, Uganda, Rwanda, Egypt, Senegal, Nigeria, Ghana, Gambia, Burkina Faso, Mali, Cameroon and Ivory Coast. Effective regulation is seen as key to infrastructure reform and attracting private investment. Some countries including Kenya, Ghana, Nigeria and Uganda have also unbundled their state-owned utilities, while others, including Tanzania and South Africa have not unbundled. In the most recent Power Africa update, the report notes:

"The structure of the power sector in sub-Saharan Africa will evolve country by country, and will change over time as private sector elements emerge and state-owned institutions transition to a focus on oversight and sector governance. This transition will take time, but will benefit from lessons learned globally, the knowledge of local and international experts, the unique resources and advantages of each country, a willingness to consider long-term sector growth, and the efficiencies of regional planning and solutions."

Recent Developments

Multilateral and bilateral donors are working closely with Liberia and Kenya in their efforts to adopt new frameworks for energy legislation. Power Africa in close collaboration with the government of Liberia is helping to improve the regulatory and legal environment necessary to attract private sector partners in the West African nation. In turn, Kenya has made significant strides in improving its energy investment environment, particularly in renewable energy.

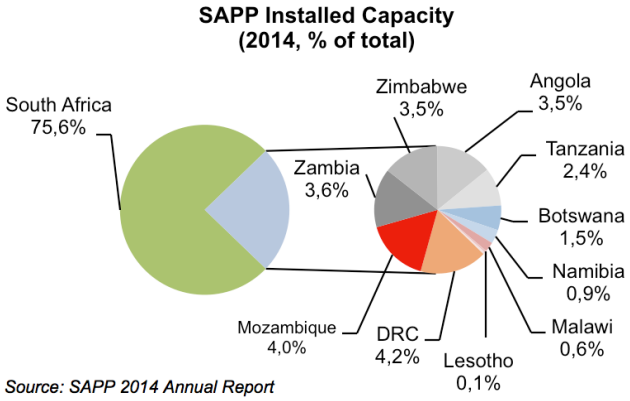
In Tanzania, Power Africa is supporting the "Big results now!" programme in which government ministries are charged with driving progress on specific power projects, while Ghana is employing technical and organisational assistance to improve the viability of its utilities. More specifically, the Millennium Challenge Corporation has undertaken a nearly $500m compact with the Ghanaian government which will underpin major reforms in the energy distribution sector.

In late February, the Ghanaian president, John Mahama, announced that 3,665 MW of power generation capacity – more than double the amount of existing capacity – would be added to the national grid over the next five years. Importantly, according to Oxford Business Group, the 3,665 MW of new capacity will come from various sources including independent power producers (IPPs) and plants under development by the Volta River Authority (VRA). The country is struggling with a power crisis, with the economy enduring almost daily power cuts. Companies that will undertake the power provision include Jacobsen, CenPower, Amandi, and General Electric.

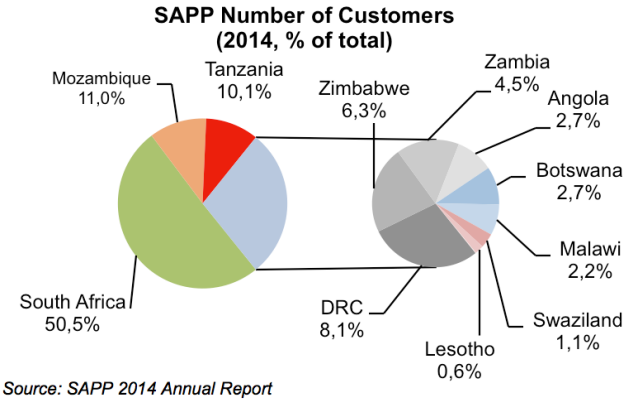
In South Africa, Energy Minister Tina Joemat-Pettersson has announced plans to accelerate and expand the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) by pushing for an additional 6,300 MW of renewable energy to be added to the programme. Owing to the competitive nature of the 77 bids received during the fourth REIPPPP bid window, the ministry is considering naming additional preferred bidders over and above the 13 selected on April 11. The 13 projects already identified are expected to reach financial close during the fourth quarter and should be operational by November 2016. The Minister has requested a report from the Independent Power Producer Office regarding an additional allocation of megawatts from the fourth bid window by the end of April, with the aim of announcing the findings by the end of May this year.

Furthermore, in Nigeria, Power Africa is supporting the privatisation of existing and new generation and distribution projects in the Power Holding Company of Nigeria and the Niger Delta Power Holding Company. The initiative's participation in the privatisation evaluation processes ensures transparency, credibility, and adherence to the rules of the solicitation.

Eskom's Energy Woes



Source: SAPP 2014 Annual Report



Source: SAPP 2014 Annual Report

South Africa's struggling power utility Eskom has had a detrimental effect on the domestic economy, and these effects could increasingly spill-over north of the country's borders. While the utility has an installed maximum capacity of just over 44,000 MW, the available capacity is closer to 30,000 MW. This still exceeds the total combined installed capacity of the rest of Southern Africa. In Q1 2015, 28.85% of Eskom's generation capacity, that is 12,149 MW, was on average unavailable, which is more than the entire East Africa region's installed capacity. In order to avoid a complete black-out (a shutdown of the entire energy grid), Eskom has been forced to adopt load-shedding, which has harmed the domestic economy. Public Enterprises Minister Lynne Brown has estimated that load-shedding costs the economy between R20bn and R80bn a month. Eskom enforced load-shedding 31% of days in the first two months of the year, and while March only saw three days of load-shedding, Eskom confirmed the use of its contractual right to 'interrupted load supply' – effectively meaning it cuts supply to large industrial users. Load-shedding has also affected neighboring countries, with 10% of electricity exports to Lesotho and Swaziland normally cut during certain phases of load-shedding, while exports to Namibia and Botswana are also potentially affected during these periods.

The Southern African Power Pool (SAPP) is a cooperation of the national electricity companies in Southern Africa under the auspices of the Southern African Development Community (SADC). The members of SAPP have created a common power grid between their countries and a common market for electricity in the SADC. While South Africa is by far the largest energy producer in the pool (with almost 76% of SAPP's installed capacity), the Southern African giant's ongoing woes with its national power utility have seen the country frequently make use of the regional facility to supplement its energy supply. The SAPP warned in March last year that the regional electricity network's reserve margins will be tight towards 2017 and below best-practice levels, largely due to South Africa's inability to meet its domestic electricity demand. That said, the region as a whole has seen considerable increases in power demand over the past decade, with insufficient generating and transmission capacity added over the same period. This has resulted in a supply deficit which is set to get worse, before improvements are seen.

Outlook

Africa's energy deficit will continue to hamper the continent's overall development going forward. Inadequate, unreliable and expensive energy provision will continue to elevate the cost of doing business in most countries, while also limiting the pace at which economic development can take place. However, in many countries the ideological debate around public vs. private provision of energy will be displaced by efforts to mobilise the maximum amount of resources to address the continent's considerable infrastructure shortfall. This will require a favourable investment environment, clear policy and legal framework, coherent power sector planning, and transparent & credible regulatory oversight. Energy policy will need to create effective partnerships that link public and private sector goals and resources, connecting investors and entrepreneurs to business opportunities throughout the sector. There has been some success, with private participation significantly increasing in some energy sectors, in both the generation and distribution of energy. In addition, the energy sector has benefited from focused coordination between multilateral and bilateral donors active in supporting power sector investment and reforms throughout sub-Saharan Africa. This is expected to continue, with a general improvement in energy sector regulation expected in many African countries. Continued investment from the both the private and public sector in traditional on-grid and pioneering off-grid solutions, and continued support and coordination from multilateral and bilateral donors are needed to support African nations in meeting the continent's rising energy needs.

Sources of Information

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