# ICED Discussion Paper

## Surplus power generation capacity in sub-Saharan Africa

ICED
Infrastructure & Cities for Economic Development

## Overview

For many years it has been a given that countries in sub-Saharan Africa (SSA) have needed more power generation capacity. A key focus for donors and International Financial Institutions (IFIs) has been to promote interventions designed to create an enabling environment in which the required investments in generation are possible. In many cases this has been successful with private sector investment in power generation, especially renewable power generation, having stepped up. China has also been active, with several large-scale power generation projects either now operational or under construction.

As a result of these trends, some countries may have surplus power generation capacity over the coming years; indeed, some countries already have a surplus. This discussion paper:

- Identifies the countries and regions within SSA where a surplus is most likely,
- Discusses the causes of the surplus capacity identified and some of the effects that may result over the coming years, and
- Proposes strategies and solutions that might help to mitigate the effect of surpluses in the short-term and reduce the risk of such surpluses recurring in future.

## Analysis of the issue

We have prepared a simplified projection of the future evolution of electricity supply/demand balance across SSA using the following approach:

- Power Africa's transmission roadmap[1] presents analysis of the surplus or deficit in each country in 2018. This provides a starting point for our analysis.
- Power generation capacity is assumed to evolve as shown in Cross-border Information's African Energy Data Book[2].
- Demand is assumed to grow in line with GDP, as projected in the latest (April 2019) IMF World Economic Outlook.
- The surplus/deficit projections consider the availability of different types of generator to meet peak demand using derating factors[3].

Individual components of this analysis could be challenged. For example, there is no bottom-up analysis of energy access policies that might result in faster demand growth. However, the analysis does provide an indication of how the supply/demand balance is expected to evolve cross SSA over the next few years.

Figure 1 presents the outputs from this analysis for 2018 (left panel) and 2021 (right panel). The shading of each country indicates the % peak surplus or deficit and the number printed indicates the absolute surplus or deficit in MW terms. Negative numbers indicate a deficit. Figure 2 presents an aggregated time series of the surplus or deficit at a regional level.

[1] Power Africa (2018): *Transmission Roadmap to 2030*

[2] Cross-border Information (2018): *African Energy Data Book*

[3] The derating factors have been calibrated regionally to match Power Africa's peak demand assessment for 2018.

*Figure 1 Electricity supply surplus / deficit in 2018 (left) and 2021 (right) in MW*

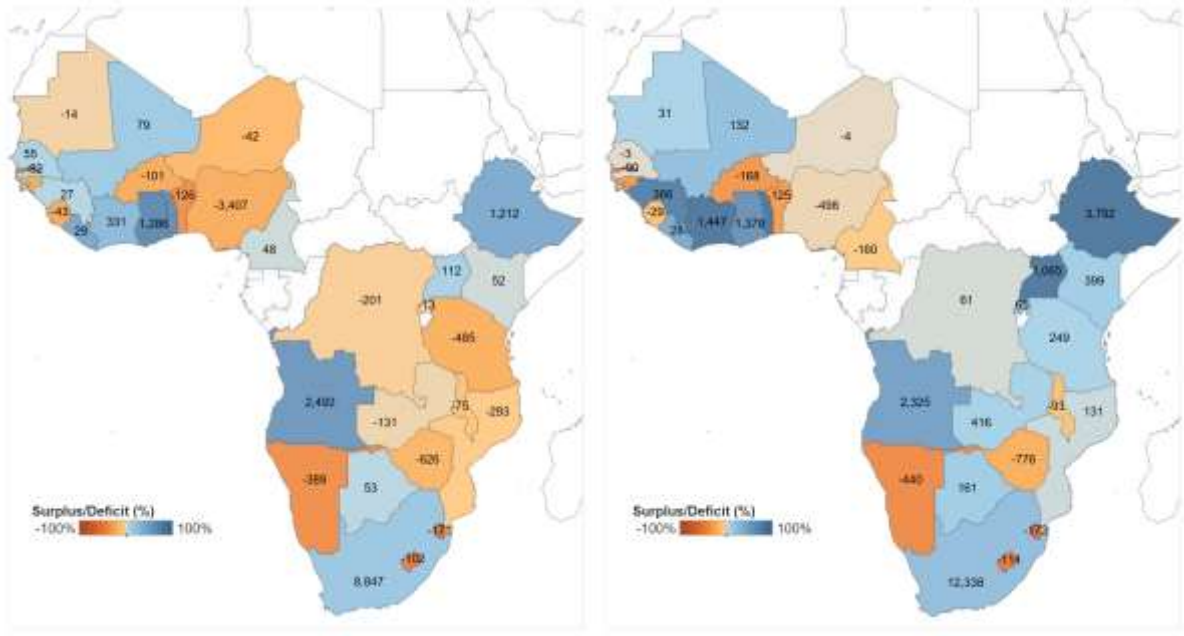
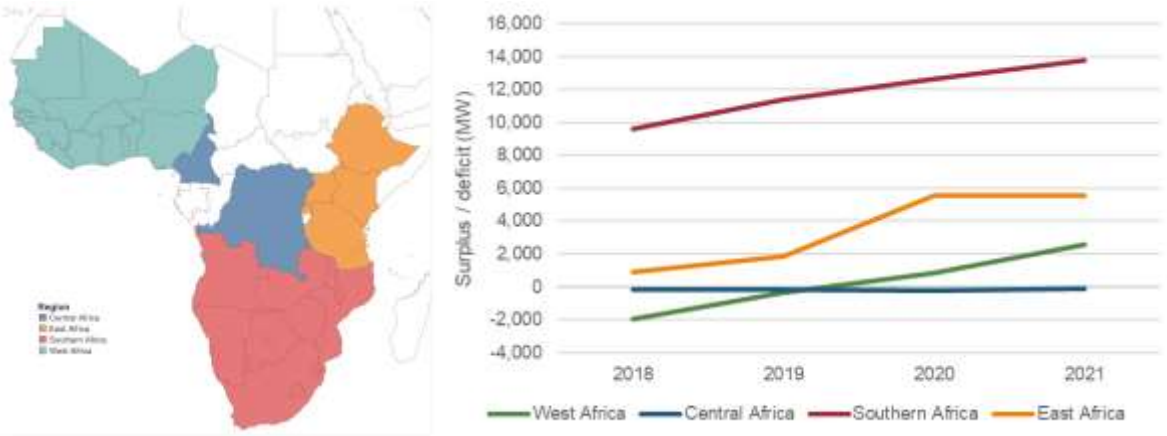



*Figure 2 Projected aggregated regional electricity supply surplus / deficit*

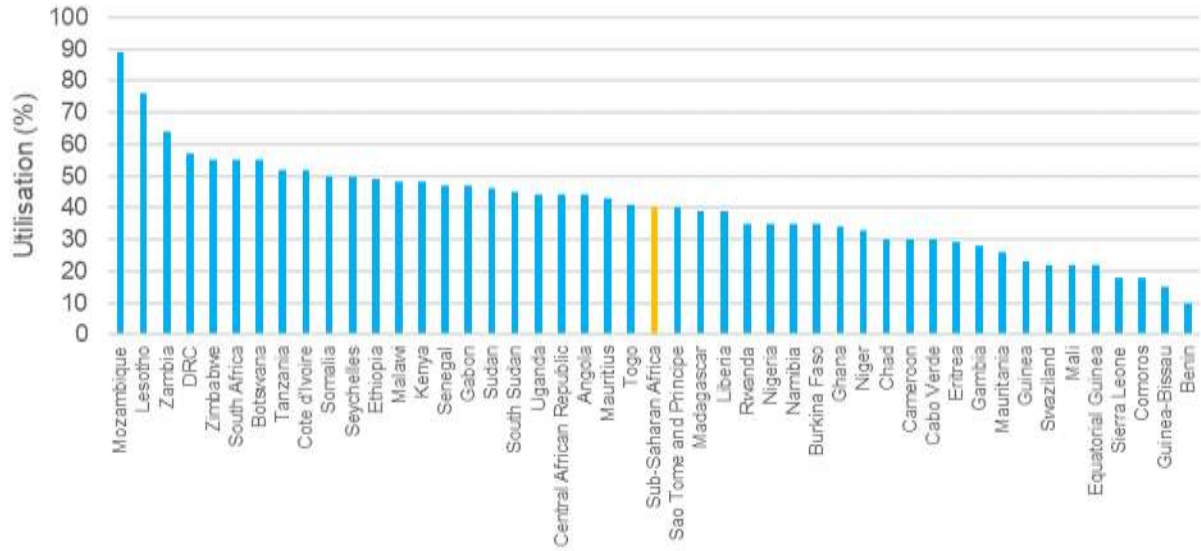



A few broad observations can be made from this analysis:

- There will always be individual countries with a supply or deficit of electricity. The 2018 analysis shows how in much of Africa these balances have been complementary, although in practice technical and market constraints means that electricity is not always exchanged to reconcile these differences.
- Over the next few years, capacity surpluses are expected to become more widespread across all parts of SSA.
- In Southern Africa, South Africa's surplus is expected to grow at the same time as deficits in neighbouring countries decline. The extent to which South Africa truly has surplus capacity will depend on the extent to which the reliability of Eskom's older thermal plants improves. Recently, poor reliability has been a major contributor to widespread load shedding in South Africa.
- East Africa is expected to develop a surplus of power generation capacity. This surplus will be particularly acute in Uganda and in Ethiopia, where new hydro plants have either been commissioned or are under construction.
- West Africa will also develop a surplus of power generation capacity, with this being focused on Ghana and Côte d'Ivoire.

Beyond these 'hotspots', the utilisation of power generation capacity across SSA is low. Figure 3 shows the percentage of electricity generation compared to potential output across SSA. These utilisation numbers date from 2015 but are indicative of sub-optimal use of the generation resources available. Note that the surplus of power generation capacity observed has not translated to demand being met: access remains low and reliability of electricity supply remains poor in most countries across SSA.

*Figure 3 Utilisation of power generation capacity across SSA*




## Case study: Over-supply in Ghana

Ghana suffered from serious power supply shortages earlier in the 2010s, partly as a result of drought conditions, which resulted in the *dumsor* crisis and rolling black outs. The Government procured a number of new IPPs in response to this crisis. However, the procurements were not supported by a sector plan and there was no transparent procurement process by which successful IPP projects were selected. Ghana continues to see new capacity come online today as a result of procurement decisions made during the *dumsor*.

The surplus capacity that has resulted in Ghana is now being felt. Analysis by the World Bank suggests that excess capacity payments resulting from the surplus could cost Ghana up to $680m p.a. (almost 2% of GDP) from 2019, with this cost recurring every year until the mid-2020s. Under some scenarios, Ghana's power sector could suffer from a shortfall of ~$1bn p.a. Ghana already suffers from high public debt, and the power sector is likely to contribute to additional fiscal stress over the coming years.

Ghana is trying to reduce the financial burden associated with this over-supply through export of electricity to neighbouring countries. However, only modest exports have been agreed so far; partly a result of the large size of Ghana's surplus, partly a result of differences in price expectations with potential counterparties.

Over-supply is not unique to SSA. Many countries will have some additional capacity that is only used in an emergency and electricity might monitor security of supply to ensure that the electricity system maintains a minimum peak capacity margin. For example, in the UK National Grid's analysis indicates that the de-rated electricity margin in Winter 2018-19 was 7.1 GW, compared to a total peak demand of >60 GW. However, there are some key differences to note between this situation, which is common in developed countries, and that developing in SSA:

- Even if modest in absolute MW terms, in percentage terms the surpluses shown in Figure 1 are much greater than those typically seen in more developed markets. The financial burden associated with this large surplus is therefore disproportionately large.

- Because there are not liberalised wholesale electricity markets in SSA most thermal power IPPs have PPAs that include an availability payment, which is paid regardless of whether the generator is required or not. This ensures that the IPP covers its fixed costs. However, it significantly increases the financial risk to the utility if it procures too much capacity.
- The presence of liberalised wholesale electricity markets also means that most investments in new power generation capacity are the result of market signals, not centralised procurement decisions. The financial risk of an over-supplied market lies with investors, rather than consumers[4].

# Cause and effect of the issue

The risk of over-supply noted above can be analysed further with reference to the Whole System Approach (WSA). The WSA provides a framework that describes the whole energy system as a series of components and sub-components. These can help with identifying where the underlying issues are that have led to over-supply. The causes identified are summarised below in Table 1. The table indicates which WSA sub-components are relevant in each case.

*Table 1 Causes of over-supply in sub-Saharan Africa*

| Cause | Description | WSA sub-components |
|---|---|---|
| Supply-side prioritised over the demand-side | • There has been a focus on adding MW of power generation capacity, without equal focus on the investments in distribution that would be required to deliver the power generated to end consumers.<br>• In part, this is because supply-side interventions are often the easiest and least complex to execute successfully.<br>• Governments and regulators have generally not allowed tariffs to rise (and or raised the required funds through taxation) to the level that would be required to facilitate investment in distribution.<br>• While the population with energy access has increased, a large proportion of the population across SSA remains without access to electricity.<br>• National policy on which areas should be covered by the grid and which should be served by off-grid solutions is often not clear.<br>• Where new users are connected to the grid, their demand has been very low. This has contributed towards to the lower than expected demand growth noted above.<br>• Poor reliability, partly a result of the lack of investment in distribution cited above, acts as a barrier to increased demand for electricity from manufacturing and industrial energy users. | 1.1. Demand-side participation<br>2.1. Energy access policy<br>2.5. Role of regulation<br>3.3. System operation<br>4.5. Network infrastructure<br>4.6. System flexibility and electricity storage |
| Deficiencies in planning and procurement processes | • In many countries power generation capacity has been approved by senior politicians, without rigorous analysis of the economic business case for the capacity having been performed.<br>• This has been the case in, for example, Ghana and in Uganda.<br>• The capacity procured does not always align with published power sector plans.<br>• Furthermore, published power sector plans are not updated regularly in many cases. Frequently demand forecasts are unrealistically high, suggesting that more generation capacity is required than is the case.<br>• Planning is also not always joined up within the sector, with transmission and distribution planning not always being consistent with the need to evacuate the output from new generators and to distribute that power to end consumers. | 2.7. Planning and forecasting<br>3.1. Procurement |
| Sector decision-making is national rather than regional | • Sector plans and procurement decision are almost always made at the national level.<br>• Further, most countries across SSA aim to be exporters of electricity. Many governments have a political desire to be self-sufficient in energy supply rather than pooling resources to achieve economies of scale.<br>• The market for exported power is not always validated before new power generation capacity is approved.<br>• Large power generation projects, sized to maximise value-for-money, are often too big for the small SSA markets that they are intended to serve. | 2.7. Planning and forecasting<br>3.2. Market arrangements and route-to-market |

[4] Note that in many developed countries this risk is gradually shifting back to consumers as a result of capacity markets being introduced to support the energy transition.

| Cause | Description | WSA sub-components |
|---|---|---|
| Poor alignment of risk and reward | • IPPs normally benefit from a security package that means they are not exposed to demand risk, e.g. using take-or-pay clauses.<br>• Further, government guarantees and PRGs mean that IPPs face no disincentive to proceeding with projects that do not make economic sense and/or would result in an unsustainable fiscal burden for a country. | 2.8. Market design<br>3.1. Procurement<br>3.2. Market arrangements and route-to-market<br>4.7. Non-renewable energy<br>4.8. Renewable energy |

This analysis identifies some of the WSA sub-components where support could be provided to reduce the risk that over-supply is a recurring issue in the sector in future. In addition to this analysis of the causes of over-supply, it is important to note that there are **potential follow-on consequences of over-supply in the market.** These consequences include:

- **Increased fiscal pressure on national government's budgets** – The PPAs signed by utility offtakers will generally include a fixed capacity price (to cover the fixed and capital costs of a generator) and a variable energy price (to cover the actual cost of generation). In the event of over-supply, if an asset is 'stranded', the offtaker will still be obliged to pay the fixed or capacity charge in the PPA. Depending on the specifics in a given country, this could place a significant strain on utility finances in the absence of an increase in end consumer tariffs to recover this cost. Many utilities already require substantial operating subsidies from central government to remain financially viable. For these utilities any additional financial strain would in effect translate to additional fiscal pressure on the central government budget. Where utilities benefit from an explicit or implicit subsidy the beneficiaries of this subsidy are households are businesses that have access to grid power, and those who consume most power. Therefore, such subsidies are generally regressive.
- **Reduced freedom in planning to meet other policy objectives** – Some countries with excess capacity might not need new power generation capacity for many years. In some cases, this might place constraints on a country's ability to cost effectively meet other policy goals. For example, a country's scope to increase its renewable generation capacity might be limited if it does need new generation capacity. Building new capacity regardless risks worsening the potential cost pressures highlighted above.

# Mitigation strategies and long-term solutions

Considering the analysis of causes of over-supply presented above, Table 2 presents some of the interventions that could be considered to tackle the challenges associated with over-supply. These can be broadly categorised under two headers:

- Strategies for **absorbing the surplus capacity**, thus increasing the revenue flowing into the system and supporting financial viability of the utilities.
- Strategies that **tackle the root causes** of over-supply, with the objective being to reduce the risk that similar over-supply challenges occur again in the future.

The table presents intervention options under these two categories and signposts to the relevant sub-components of the WSA, where further guidance on these areas can be found.

*Table 2 Intervention options for addressing over-supply of power generation capacity*

| Intervention option | Description | WSA sub-components |
|---|---|---|
| ***Absorbing surplus capacity*** | | |
| Refocus on the demand side and help governments develop a plan to expand energy access | • Many countries do not have a comprehensive plan for how they will meet SDG 7: the goal of extending clean and affordable energy access to all by 2030.<br>• Expanding energy access can help to increase demand by creating new electricity consumers. Clearly on-grid access has the greatest potential to absorb surplus capacity, but even new off-grid connections helps to create new electricity consumers who are then likely to migrate to an on-grid connection at a later date.<br>• However, because new users of electricity normally use very low volumes, this strategy is unlikely to create significant new demand in the short term. | 1.1. Demand-side participation<br>2.1. Energy access policy<br>2.7. Planning and forecasting<br>4.2. Decentralised mini-grids<br>4.3. Decentralised stand-alone systems<br>4.5. Network infrastructure |
| Identify opportunities to grow productive demand for electricity | • Increased productive demand for electricity might be one way to accelerate demand growth.<br>• By speaking to business organisations and to entrepreneurs it might be possible to identify key bottlenecks to increasing demand from energy-consuming enterprises.<br>• In some cases, entrepreneurs running small artisanal enterprises might not be aware of the opportunities to grow their business through increasing productivity with electrical appliances.<br>• A research exercise to understand where such opportunities exist followed by an education campaign to promote those opportunities might help to grow demand. | 1.1. Demand-side participation<br>2.1. Energy access policy<br>2.4. Industrial development strategy |
| Identify opportunities to improve the reliability of electricity supply, targeted at increasing manufacturing and industrial loads | • Often electricity supply reliability is a major issue that prevents large industrial loads – which would help to absorb excess supply – from moving to the country.<br>• It might sometimes be possible to tackle this in a focused area; for example, in a business park.<br>• There might also be system level interventions that could help to improve reliability more widely; for example, improving system operations by ensuring that ancillary services are procured to maintain grid stability.<br>• Successfully tackling some of these challenges clearly has wider benefits, such as the job creation that could result from making the country a more attractive destination for manufacturing and industrial energy demand. | 1.1. Demand-side participation<br>2.4. Industrial development strategy<br>3.3. System operation<br>4.5. Network infrastructure<br>4.6. System flexibility and electricity storage |
| Identify and tackle barriers to electricity trading in the region, with the aim of exporting surplus power to neighbouring countries | • Identify where there are economically attractive opportunities to export surplus power; for example, if there are nearby countries with power deficits where alternative supply options would be more expensive.<br>• Identify where there are barriers to electricity trade. These might include technical barriers such as poor interconnection infrastructure and commercial / market barriers such as the lack of an effective and liquid regional electricity market.<br>• Technical assistance could be provided to governments and regulators to improve the policy and regulatory environment for electricity trade. Support could also be provided in identifying opportunities for, and structuring transactions to procure interconnector / transmission capacity to facilitate trade.<br>• One any barriers to trade have been tackled support could be provided in optimising, structuring, and negotiating any export deals with neighbouring countries. | 2.5. Role of regulation<br>2.7. Planning and forecasting<br>2.8. Market design<br>3.1. Procurement<br>4.5. Network infrastructure |

| Intervention option | Description | WSA sub-components |
|---|---|---|
| ***Tackling the root causes of over-supply*** | | |
| Improve planning processes so that future supply-side procurements are better matched to demand | • Planning exercises are often performed by external consultants rather than owned and understood locally. Building local capacity so that more of this analysis can be performed by in-country experts could help to improve local ownership of plans.<br>• Further, these planning exercises are often seen as 'one-off' events rather than as a continuous and iterative process that responds to differences between the assumptions made in modelling and the facts on the ground. Improving processes so that plans are continuously updated could help reduce the risk of over-supply in the future as planning would consider factor such as lower than expected demand.<br>• Planning is often performed for a country in isolation, which means that opportunities to procure power from or to sell power to neighbouring countries are often not dynamically modelled as part of that exercise. Better consideration of regional factors in planning could reduce the risk of over-supply.<br>• In the short to medium-term, planning exercises might need to consider any conflict between over-supply and the need to meet other policy targets. For example, meeting renewable energy targets might require building additional power generation capacity that a country does not need. The costs of this (e.g. fiscal pressure) should be considered alongside any benefits. | 1.1. Demand-side participation<br>2.7. Planning and forecasting |
| Improving procurement checks and balances so that capacity procured is always subject to rigorous economic analysis and approvals | • If plans are regularly updated so that they incorporate up-to-date assumptions, new power generation procurements should ideally be driven by and consistent with sector plans.<br>• Roles and responsibilities associated with power sector procurement should be clearly defined. In particular, it should be clear how procurement decisions are signed off, and who initiates procurement exercises.<br>• Where possible, competitive procurement should be used to improve value-for-money achieved. Support could be provided to the relevant institutions to improve procurement processes and/or to introduce competitive tendering procedures. | 2.5. Role of regulation<br>2.7. Planning and forecasting<br>3.1. Procurement<br>4.7. Non-renewable energy<br>4.8. Renewable energy |

In the longer term the risk of over-supply would be much reduced if generators themselves were exposed to this risk. This will only happen with the establishment of liberalised energy markets. However, it is generally accepted that most of the electricity sectors in SSA are too small for effective wholesale markets to be set up[5].

## Concluding remarks

The potential for over-supply of power generation capacity is a growing challenge across many countries in SSA. DFID is well-placed to help countries address these challenges and to ensure that countries are better prepared to ensure that similar issues are avoided in future. A Whole System Approach is required to tackle the challenge of over-supply. More attention is required on the demand-side, in particular to grow demand for productive use, and to improve sector planning processes.

[5] Rudnick and Velasquez (2018): *Taking Stock of Wholesale Power Markets in Developing Countries, A Literature Review*: this paper suggests that unbundling should generally not be considered in markets smaller than 1,000 MW, let along wholesale competition

# Data annex

| Country | 2018 Surplus/Deficit (MW) | 2018 Surplus/Deficit (%) | 2018 Available capacity (MW) | 2018 Peak demand (MW) | 2019 Surplus/Deficit (MW) | 2019 Surplus/Deficit (%) | 2019 Available capacity (MW) | 2019 Peak demand (MW) | 2020 Surplus/Deficit (MW) | 2020 Surplus/Deficit (%) | 2020 Available capacity (MW) | 2020 Peak demand (MW) | 2021 Surplus/Deficit (MW) | 2021 Surplus/Deficit (%) | 2021 Available capacity (MW) | 2021 Peak demand (MW) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **West Africa** | **-1,970** | **-11%** | **15,877** | **17,847** | **-371** | **-2%** | **18,106** | **18,477** | **805** | **4%** | **19,941** | **19,137** | **2,570** | **13%** | **22,351** | **19,781** |
| Benin | -126 | -44% | 158 | 284 | -84 | -28% | 218 | 302 | -104 | -32% | 218 | 322 | -125 | -36% | 218 | 343 |
| Burkina Faso | -101 | -29% | 248 | 349 | -122 | -33% | 248 | 369 | -144 | -37% | 248 | 391 | -168 | -40% | 248 | 415 |
| Cote d'Ivoire | 331 | 34% | 1,306 | 975 | 412 | 39% | 1,460 | 1,048 | 957 | 85% | 2,080 | 1,123 | 1,447 | 120% | 2,648 | 1,202 |
| Gambia | -82 | -54% | 69 | 151 | -72 | -48% | 79 | 151 | -90 | -60% | 61 | 151 | -90 | -60% | 61 | 151 |
| Guinea Bissau | -15 | -28% | 38 | 53 | -18 | -32% | 38 | 56 | -20 | -35% | 38 | 58 | -23 | -38% | 38 | 61 |
| Ghana | 1,286 | 79% | 2,914 | 1,628 | 1,343 | 76% | 3,114 | 1,771 | 1,264 | 67% | 3,138 | 1,874 | 1,378 | 70% | 3,335 | 1,957 |
| Guinea | 27 | 8% | 377 | 350 | 31 | 8% | 402 | 371 | 279 | 71% | 672 | 393 | 366 | 88% | 783 | 417 |
| Liberia | 29 | 50% | 87 | 58 | 29 | 50% | 87 | 58 | 28 | 47% | 87 | 59 | 28 | 48% | 88 | 60 |
| Mali | 79 | 21% | 464 | 385 | 144 | 36% | 548 | 404 | 153 | 36% | 577 | 424 | 132 | 30% | 577 | 444 |
| Mauritania | -14 | -5% | 250 | 264 | 1 | 0% | 265 | 264 | 31 | 12% | 295 | 264 | 31 | 12% | 295 | 264 |
| Nigeria | -3,407 | -28% | 8,904 | 12,311 | -2,052 | -16% | 10,523 | 12,575 | -1,629 | -13% | 11,265 | 12,894 | -498 | -4% | 12,710 | 13,209 |
| Senegal | 55 | 9% | 667 | 612 | 35 | 5% | 690 | 654 | 46 | 7% | 750 | 703 | -3 | 0% | 750 | 753 |
| Sierra Leone | -43 | -29% | 105 | 148 | -13 | -8% | 143 | 156 | -21 | -13% | 143 | 164 | -29 | -17% | 143 | 172 |
| Niger | -42 | -20% | 168 | 210 | -56 | -25% | 168 | 223 | 9 | 4% | 246 | 237 | -4 | -2% | 246 | 250 |
| Togo | 53 | 74% | 124 | 71 | 49 | 66% | 124 | 75 | 45 | 58% | 124 | 79 | 129 | 156% | 212 | 83 |
| **Central Africa** | **-153** | **-4%** | **4,055** | **4,208** | **-168** | **-4%** | **4,101** | **4,270** | **-239** | **-6%** | **4,101** | **4,340** | **-99** | **-2%** | **4,317** | **4,416** |
| Cameroon | 48 | 3% | 1,475 | 1,427 | -13 | -1% | 1,475 | 1,488 | -84 | -5% | 1,475 | 1,559 | -160 | -10% | 1,475 | 1,635 |
| Democratic Republic of Congo | -201 | -7% | 2,580 | 2,781 | -155 | -6% | 2,626 | 2,781 | -155 | -6% | 2,626 | 2,781 | 61 | 2% | 2,842 | 2,781 |
| **East Africa** | **878** | **12%** | **8,254** | **7,376** | **1,828** | **23%** | **9,655** | **7,828** | **5,516** | **66%** | **13,824** | **8,308** | **5,570** | **63%** | **14,383** | **8,813** |
| Ethiopia | 1,212 | 48% | 3,743 | 2,531 | 1,380 | 51% | 4,106 | 2,727 | 3,604 | 123% | 6,535 | 2,930 | 3,792 | 121% | 6,928 | 3,137 |
| Kenya | 52 | 3% | 1,929 | 1,877 | 271 | 14% | 2,258 | 1,987 | 451 | 21% | 2,556 | 2,105 | 399 | 18% | 2,635 | 2,235 |
| Rwanda | -13 | -7% | 171 | 184 | -24 | -12% | 174 | 199 | 40 | 19% | 255 | 215 | 65 | 28% | 297 | 233 |
| Tanzania | -485 | -26% | 1,384 | 1,869 | -414 | -21% | 1,529 | 1,944 | 337 | 17% | 2,362 | 2,025 | 249 | 12% | 2,362 | 2,113 |
| Uganda | 112 | 12% | 1,026 | 914 | 616 | 63% | 1,588 | 972 | 1,083 | 105% | 2,116 | 1,032 | 1,065 | 97% | 2,161 | 1,096 |
| **Southern Africa** | **9,605** | **18%** | **63,355** | **53,750** | **11,382** | **21%** | **65,742** | **54,360** | **12,648** | **23%** | **68,084** | **55,436** | **13,776** | **24%** | **70,450** | **56,674** |
| Angola | 2,492 | 66% | 6,269 | 3,777 | 2,521 | 66% | 6,315 | 3,793 | 2,412 | 62% | 6,315 | 3,903 | 2,325 | 58% | 6,315 | 3,989 |
| Botswana | 53 | 7% | 815 | 762 | 293 | 37% | 1,085 | 792 | 194 | 24% | 1,019 | 825 | 161 | 19% | 1,019 | 858 |
| Lesotho | -102 | -58% | 73 | 175 | -109 | -60% | 73 | 182 | -109 | -60% | 73 | 182 | -114 | -61% | 73 | 187 |
| Mozambique | -293 | -10% | 2,754 | 3,047 | -415 | -13% | 2,754 | 3,169 | -468 | -14% | 2,828 | 3,296 | 131 | 4% | 3,559 | 3,428 |
| Namibia | -389 | -45% | 481 | 870 | -401 | -45% | 481 | 882 | -412 | -46% | 488 | 900 | -440 | -47% | 488 | 928 |
| South Africa | 8,847 | 23% | 47,341 | 38,494 | 10,551 | 27% | 49,506 | 38,956 | 11,527 | 29% | 51,067 | 39,540 | 12,338 | 31% | 52,590 | 40,252 |
| Malawi | -75 | -14% | 466 | 541 | -97 | -17% | 466 | 563 | -77 | -13% | 514 | 591 | -93 | -15% | 531 | 624 |
| eSwatini | -171 | -70% | 75 | 246 | -170 | -69% | 75 | 245 | -170 | -69% | 75 | 245 | -173 | -70% | 75 | 247 |
| Zambia | -131 | -4% | 2,833 | 2,964 | -222 | -7% | 2,834 | 3,056 | 411 | 13% | 3,554 | 3,143 | 416 | 13% | 3,649 | 3,233 |
| Zimbabwe | -626 | -22% | 2,247 | 2,873 | -570 | -21% | 2,152 | 2,722 | -659 | -23% | 2,152 | 2,811 | -776 | -27% | 2,152 | 2,928 |