Demand forecasts for telecom infrastructure equipment and services in Sub-Saharan Africa

2020 edition


Image courtesy of CCE

Significant capex programmes were planned for many African countries during 2020 but were derailed by COVID-19 supply chain disruptions and local lockdowns. Now, with lockdowns eased and the resilience of the telecom supply chain proven, spending is coming back. TowerXchange is expecting a snap back of new tower build and investment in green tech to respond to increased demand for data across Africa. In the longer-term the situation has never been more uncertain, but in the here and now towercos and MNOs have to maintain network availability and boost capacity.

Ahead of the 8th Annual TowerXchange Meetup Africa Borderless coming up on 13-14 October 2020 online, TowerXchange take a deep dive into the sub- Saharan African region, exploring the appetite for passive infrastructure equipment and services in 24 countries. Our guide updates months of interviews and market studies to provide you with a comprehensive overview of where the key opportunities lie for the supplier ecosystem.

Read this article to learn:

- Where the volume of new build will be highest across Africa
- Countries, MNOs and towercos requiring significant investment in cell site energy
- Country-by-country requirements for site upgrade and turnkey infrastructure services
- Expected investment in RMS, access control and site management systems
- Where the most imminent opportunities exist for small cells and DAS deployment
- Who are the leading MNOs, towercos and ESCOs in each country

Keywords: Access control, Africa, Africa & ME Research, African Towers, Africell, Afrimax, Airtel, Aktivco, Al Karama Towers, American Tower, Angola, ANTOSC, Atlas Tower, Azam Telecom, Azur, Batteries, Blue Sky Towers, Burkina Faso, Cameroon, Camtel, Capacity Enhancement, Capex, Chad, Coast to Coast, Comco, Congo B, Construction, Cote d'Ivoire, DAS, Decommissioning, DRC, Eagle Towers, Eaton Towers, Econet, Eighty Four Dynamics, Energy, Energy Efficiency, Energy Storage, Energy Vision, ESCOs, Etisalat, Expresso, Gabon, Gabon Telecom, Ghana, Glo, Globacom, GreenWish Partners, Gyro Towers, Helios Towers, Hybrid Power, IHS, IPT PowerTech, Kenya, LPP, Madagascar, Malawi, Managed Services, mCel, Millicom, Monitoring & Management, Moov, Movitel, Mozambique, MTC, MTN, Namibia, NetOne, Network Rollout, Nexttel, Niger, Nigeria, O&M, Off-Grid, Ongrid, Orange, Pan African Towerco, Paratus, Passive Equipment, Powercom, Pro High Site Communications, Rectifiers, Renewables, RMS, Rwanda, Safaricom, SahelCom, Senegal, Site management system, Sky Coverage, Small Cells, Smart, Smile, Solar, Sonatel, Sotel, South Africa, Supercell, Tanzania, Tatem Telecom, Telecel, Telecom Namibia, Telkom, Telkom Kenya, Telma, Telmob, Tigo, TOM, TowerCo of Madagascar, TTCL, Uganda, Unitel, Viettel, Viva, Vodacom, Zain, Zambia, Zamtel, Zantel, Zimbabwe

Demand forecasts: telecom infrastructure in SSA

Vendor opportunity matrix	Energy	Data collection & utilisation	Tower manufacture	Turnkey infrastructure	Small cells, DAS, IBS and OpenRAN	Advisors	Towercos	MNOs	ESCOs
Angola	High	Medium	High	Medium	Low	High	Antosc	Unitel Movitel Angola Telecom Africell	None
	Angola needs to double its site count in order to meet coverage requirements, with Unitel requiring an additional 1,000 towers and Movitel around 2,000. Fourth licence holder Africell plans to rely on shared infrastructure, but will still need 1,000s of additional sites in the medium term. Angola's first towerco Antosc recently started building sites with plans to build 400 sites in the next three years. Around 85% of sites are operating with diesel generators and Unitel are currently assessing solar hybrid solutions. It was reported that Movicel had started to explore the potential monetisation of some of their sites, thus creating opportunities for towercos and transaction advisors, but the process does not appear to have moved forward. Angola Telecom is repositioning itself as an infrastructure provider, which may see it transition to a role similar to a fibreco or towerco, a move which would precipitate further spending on new infrastructure.								
Botswana	Low	Low	Medium	Medium	High	Low	Atlas Tower Pula Towers	BTCL Mascom (MTN) Orange	None
	With around 850 towers in the country, the regulator is unhappy with coverage. With a large rural area, the Universal Service Fund is making available funding to improve coverage. In Gabarone, high levels of urban construction and development have led to interference with networks, and as such in building solutions are becoming increasingly important. South Africa's fastest growing towerco, Atlas Tower, has recently entered the market and is building up a portfolio of assets, joining local towerco Pula Towers. Botswana is large (566,730 sq km) for its population of more than two million people,, but the country does not lack liquidity for good investments. While 4G rollouts commenced as long ago as 2015, there is still need for densification sites. Econet's efforts to acquire a controlling stake in market leaders Mascom from MTN are being met by resistance from BPOPF.								

Vendor opportunity matrix	Energy	Data collection & utilisation	Tower manufacture	Turnkey infrastructure	Small cells, DAS, IBS and OpenRAN	Advisors	Towercos	MNOs	ESCOs
Burkina Faso	High	Medium	Medium	Medium	Low	Low	American Tower	Orange Onatel Telecel	Camusat/ Aktivco
	Over 60% of the population is in rural areas and with ARPU being low, Burkina Faso needs low-cost solutions along with satellite backhaul in order to improve coverage for much of the population. Over 50% of the country's towers are off-grid and Eaton had historically invested significantly in renewable and hybrid energy options, including the repair/replacement of 60 solar sites they have inherited. Camusat's Aktivco has signed an ESCO contract with Orange which covers ~300 sites, they have begun a modernisation programme. New build in the market is expected to pick up with about 100-120 new towers expected to be added per annum, with the majority built by American Tower. Huawei is installing fibre backbone in the country and extension of this will present opportunities for managed service providers. 4G is only beginning to be introduced.								
Cameroon	High	Low	Low	Medium	High	Medium	IHS Towers AMN	MTN Orange Nexttel (Viettel) Camtel	TBC
	IHS own or manage the majority of Cameroon's towers having acquired MTN's portfolio and entered into a "manage with license to lease" arrangement with Orange. Africa Mobile Networks own a portfolio of around 200 sites, with plans to grow their network further. In 2018 both MTN and Orange agreed to expand their networks as a condition of their concession renewals, requiring both to bring 4G to all key urban and economic activity areas. IHS has also secured contracts with CamTel so expect further co-locations. Around 25% of sites are off-grid with about a third of these relying on solar. Declining grid availability means back-up power is a high priority for on-grid sites. IHS Towers have hundreds of solar-hybrid sites and are continuing to deploy more across their portfolio of 2,200+ towers. Orange expects to close an ESCO partnership in Cameroon in 2020 and then embark on a site modernisation programme.								

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Chad	High	Medium	Unknown	Unknown	Low	Medium	None	Maroc Telecom Airtel Sotel	Aktivco/ Camusat
	There are an estimated 2,000 towers in Chad, a country where electrification sits at just 4%. To address power issues, Millicom has signed an agreement with Camusat's Aktivco in the country. Millicom has since completed a sale of their opco to Maroc Telecom. Airtel had previously agreed the sale of their towers in Chad to Helios prior to the transaction being cancelled because of an unfavorable regulatory environment. Millicom / Maroc and Airtel share a total of around 6mn subscribers, with state-owned Sotel having around 1% market share. A tender for a fouth operator was mooted in 2018 but appears to have come to nothing. Airtel are rolling out 4G in the capital N'Djamena as well as continuing expansion into other cities.								
Congo B	Medium	Low	Medium	Medium	Medium	Medium	Helios Towers AMN	Airtel MTN	None
	A small market with just 800 towers, of which Helios own 415. Helios Towers acquired dozens of towers during 2020, so expect a minor programme of modernisation to follow. Congo is one market in which Helios Towers has identified for hybrid solutions. Because of difficulties in acquiring permits, Helios have begun installing some IBS in Brazzaville. Africa Mobile Networks have plans to build up to 60 new sites in the country over 2020, a ~8% increase in towers targeting rural areas of the country.								
Côte d'Ivoire	High	High	Medium	High	Low	High	IHS Towers	MTN Orange Moov LPP	Camusat/ Aktivco
	With 2,705 towers, IHS has been the leading towerco in the country since acquiring towers from MTN and entering into a Manage with License to Lease deal with Orange. Orange has targeted Cote d'Ivoire for substantial new build and site upgrade work, while third-ranked MNO Moov is also seeking to expand their portfolio of ~800 sites. New build during 2020 has been somewhat muted, with IHS Towers planning an IPO and Orange working with Aktivco to upgrade its 500 sites. Overall estimations persist that the market needs a further 1,800 towers to be added between all operators within the next two to three years, although TowerXchange expects net new towers to be substantially lower than this in reality. With regards to power, Orange stated that diesel accounted for 36% and grid 64% of total energy costs in the country. IHS has over 100 solar hybrid sites and continues to rollout more across its portfolio.								

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<tr><th>Vendor opportunity matrix</th><th>Energy</th><th>Data collection & utilisation</th><th>Tower manufacture</th><th>Turnkey infrastructure</th><th>Small cells, DAS, IBS and OpenRAN</th><th>Advisors</th><th>Towercos</th><th>MNOs</th><th>ESCOs</th></tr>
<tr><td>DRC</td><td>High</td><td>Medium</td><td>High</td><td>High</td><td>High</td><td>Low</td><td rowspan="2">Helios Towers
AMN</td><td rowspan="2">Africell
Airtel
Orange
Supercell
Tatem
Telecom
Vodacom</td><td rowspan="2">Sagemcom</td></tr>
<tr><td></td><td colspan="6">DRC continued its robust growth for MNOs and towercos during 2019 and the start of 2020, with Helios reporting 200 new co-locations from H1 2019 to H1 2020. With only around 4,600 towers (of which Helios own 1,867), the country needs a doubling of its existing tower stock. DRC has a population of 85mn, but just 40% SIM penetration and 50% geographical coverage. That said, Helios has had some success decommissioning parallel infrastructure in the country. Outside of the three main cities almost all sites are off-grid with power being 2.5x more expensive in rural areas. Helios have put a major focus on reducing diesel consumption, and has deployed 430 solar sites in the country. Orange had signed an ESCO contract with GreenWish Partners to take over management of power on 250 sites, but this arrangement has lapsed following Greenwish's exit and Orange is still looking for an ESCO partner in the DRC. Vodacom are also exploring an ESCO RFP for 200-300 sites. Vodacom have deployed 800 low cost rural sites as well as the 800 macros they retain and the 800 towers they lease from Helios. Whilst Africa Mobile Networks is deploying 750 solar powered towers in rural areas. Poor road infrastructure makes site access challenging, underscoring the importance of robust RMS and site management systems to monitor and control sites. Investment going into fibre in the country provides further opportunities for managed service providers traversing multiple forms of telecoms infrastructure. Helios built two new backbones, one for Vodacom and one for Orange, of a combined 1800km in length and are building a third 500km backbone for another MNO. Helios Towers are likely to add a large number of new tenancies during Q4 as one of the DRC's MNOs enters a new region using their sites.</td></tr>
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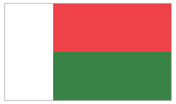
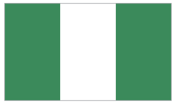
Ethiopia	High	High	High	High	Medium	High	None	Ethio Telecom	None
	Ethiopia is now expected to issue two new MNO licences by February 2021, with a 40% privatisation of Ethio Telecom following afterwards. Ethio Telecom currently operates 7,300 sites which have recently been audited by KPMG. Results of the audit will be shared with MNOs during the licence process, but structural upgrades will be required across the network. Ethio Telecom announced plans to build 850 new sites, as well as an ambition to become the sole tower-sharing entity in Ethiopia; a move the regulatory is likely to deny by supporting the introduction of independent towercos to the country. The regulator suggests 7,000 additional sites will be required over the next 5 years. Currently availability is as low as 82% in some places, and significant energy upgrades are required. A recent ESCO RFP appears to have lapsed. 4G roll-out has begun in major cities. Local partners will be essential to operate in the country, but substantial external investment will also be required.								
Gabon	High	High	Medium	Medium	Medium	Low	None	Gabon Telecom (Maroc Telecom) Airtel	Energy Vision
	A small market with 1,000 towers, most of which are in the main cities. A pioneer in digital TV, fibre and cellular coverage, Gabon is one of SSA's most progressive markets. 50% of sites in the country are on-grid, 30% off-grid and 20% are on bad grid where more than six hours of power is not usable. Energy Vision has signed an ESCO contract with Airtel. The project encompasses a full solar hybrid system with CDC batteries and has now been extended to cover a total of 280 sites of which 40% are off-grid, 10% are on unreliable grid and 50% are on-grid. Major investment is going into fibre in the country, creating opportunities for managed service providers. In September 2017, the government launched a universal service fund to bring coverage to 3,000 rural locations.								

Vendor opportunity matrix	Energy	Data collection & utilisation	Tower manufacture	Turnkey infrastructure	Small cells, DAS, IBS and OpenRAN	Advisors	Towercos	MNOs	ESCOs
Ghana	Medium	Medium	High	High	High	Low	American Tower Helios Towers African Towers	MTN AirtelTigo Vodafone Glo Surfling Blu Broadband Home	None
	77% of the country's 6,774 sites are owned by towercos, with American Tower owning over half of all sites in the west African country. Whilst there has been strict regulation governing new build, it is starting to pick up in the country with ~200 new towers being added per year, with growth of over 300 a year predicted as site typologies become smaller and networks densify. Ghanaian towerco African Towers currently operates around 65 DAS sites in the country and American Tower a further 18. Grid connection is good by SSA standards, with one towerco reporting that just 3-4% of sites are off-grid and another reporting reductions in diesel usage due to improved availability (which is trending above 20 hours a day). The business case for solar and hybrid solutions is strengthening, and deep cycle batteries are being widely deployed.								
Kenya	High	High	High	High	High	High	American Tower Atlas Towers	Safaricom Airtel Telkom	None
	One of Africa's strongest economies, the Kenyan mobile sector is continuing to show strong growth in subscriber numbers and data usage. Market leader Safaricom currently has 5,314 sites and planned to add around 400-500 in 2020. Safaricom is also exploring an ESCO RFP to take over power management on hundreds of sites with particularly challenging energy needs. The planned Airtel-Telkom merger has been cancelled which will cause disruption to planned decommissioning, but is bullish for new build which is having a resurgence in the east African country. Telkom had cancelled planned new build in preparation for the merger, but Airtel has been continuing to add sites. Around 60% of Kenya's sites are on good grid connections, 25% on bad grid, and 15% off grid. Safaricom has committed to becoming a net zero carbon emitting company by 2030, and are phasing out diesel generators wherever possible and have started to prioritise the use of solar at smaller capacity sites. Currently, the majority of Safaricom's sites use diesel generators plus battery hybrids, with some solar in the mix. A little under 150 sites still run on dual diesel generators 24/7. Whilst macrosites remain the main site topology, around 500 buildings have been identified as being suitable for DAS / IBS with a hundred or so covered already.								

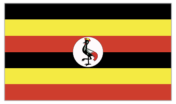
Vendor opportunity matrix	Energy	Data collection & utilisation	Tower manufacture	Turnkey infrastructure	Small cells, DAS, IBS and OpenRAN	Advisors	Towercos	MNOs	ESCOs
Madagascar	High	Medium	Medium	High	Low	Medium	TowerCo of Madagascar	Telma Airtel Orange Blueline	RFP in 2018 – no news of a confirmed contract
	TowerCo of Madagascar (ToM) own 55% of the country's stock of 2,310 towers with the towerco adding roughly 100 sites per year, a pace of build we expect to be continued or exceeded. ToM's parent MNO TELMA are the market leaders and are currently deploying 4G with Orange and Airtel also following suit. Power is a major challenge in Madagascar, with ToM putting a big focus on renewable energy at present, with solar-only sites with battery backup on 60% of their sites. Orange issued an RFP for an ESCO in 2018, but has not yet issued a contract. Airtel report 50% of their sites to be off-grid, with battery-DG hybrids in place; the MNO had looked at the ESCO model but found it couldn't compete and is currently reviewing its managed services contract to bring down costs.								
Mozambique	Medium	Medium	Medium	Medium	Low	High	None	TMCEL Movitel Vodacom	None
	Viettel-owned Movitel rolled out 1,500 sites in three years following their entrance in 2012, prompting Vodacom to add a further 800 sites. New site build has however dropped off significantly since then; extensive investment is however being diverted to fibre rollout. Whilst the power situation has improved in Mozambique, there is a large rural population and the majority of rural sites are dependent on diesel generators. mCel initiated a process to sell their 1,200 sites but attracted limited interest with the deal now being off. mCel's towers are understood to require a good deal of improvement capex as the towers have reportedly been poorly maintained. mCel and fixed line operator, TDM merged creating TMCEL. Annual floods cause challenges for tower owners, and the impacts of Cyclone Idai and Kenneth mean significant network recovery is required. 4G has been rolled out in the capital Maputo, but service is reportedly spotty and greater investment will be required to bring it up to standard.								

Vendor opportunity matrix	Energy	Data collection & utilisation	Tower manufacture	Turnkey infrastructure	Small cells, DAS, IBS and OpenRAN	Advisors	Towercos	MNOs	ESCOs
Namibia	Medium	High	Medium	High	Medium	Medium	Atlas Tower Powercom	MTC Telecom Namibia Paratus	None
	The Namibian telecom sector is in the midst of an overhaul, with a new law mandating infrastructure sharing in the country. Such a change means decommissioning services will be in greater demand than tower building (although some low capacity monopole structures in the country will need to be replaced). What's more, the changes may place the country's full complement of towers into the hands of a dedicated infrastructure provider, creating demand for investments in ERP systems and an improved NOC. Namibia's climate is ideal for solar and faltering South Africa energy supply, from where Namibia imports 25% of its energy, is increasing demand for power solutions. Atlas Tower now operates in the market. Telecom Namibia-owned Powercom owns 311 sites, and is exploring working with an ESCO to offload energy management. MTC has announced a programme to build hundreds of sites, particularly with the goal of extending its 3G network into rural areas, and the regulator is assessing how many new sites are required to achieve complete coverage, which should both boost demand for towers.								
Niger	High	Medium	Medium	Medium	Low	Low	American Tower	Airtel Moov Orange Sahelcom	Camusat/ Aktivco
	Similar to Burkina Faso, where American Tower has a footprint following the acquisition of Eaton Towers' sites, Niger is characterized by a low ARPU and high percentage of the population living in rural areas, thus necessitating solutions to provide low cost coverage. Over 50% of the country's ~1,800 towers are off-grid leading Eaton to examining renewable energy options (including the repair/ replacement of 200 solar sites the company has inherited) and Orange signing a ten year ESCO contract with Camusat's Aktivco, governing ~500 sites. New build requirement in the market is thought to be relatively conservative although Airtel's turnaround in Africa means that some new build activity is now coming American Tower's way and with Airtel securing the country's first 4G license, expect technology amendments.								

Vendor opportunity matrix	Energy	Data collection & utilisation	Tower manufacture	Turnkey infrastructure	Small cells, DAS, IBS and OpenRAN	Advisors	Towercos	MNOs	ESCOs
Nigeria	High	High	High	High	High	Medium	IHS Towers American Tower Pan African Towers Secured Towers Limited Communication Towers Nigeria BCTek Engineering Hotspot Networks + others	Airtel 9mobile Globacom MTN Smile Bitflux InterC Network ntel Spectranet	IPT PowerTech MP Infra Biswal Uppercrest Makasa Sun Mantrac Renewables Watts
	Nigeria needs to double its tower count, adding another 30,000 sites. IHS own 16,481 Nigerian towers, over half of the country's existing stock. Build to suit by IHS has been muted as it gears up for an IPO in Q4 2020. American Tower own 5,349 sites following a major capex programme, but plans to add 500 sites in 2020 were disrupted by the failure of a local tower supplier following COVID-19 supply chain disruption. Both towercos will have capex backlogs which will need to be fulfilled from Q4 2020 and into 2021. Middle-market Pan African Towers is adding over 60 towers a quarter, but following this year's slowdown expect to add 150 sites in the final quarter of 2020. 75% of Nigeria's sites remain off-grid with on-grid availability as low as four hours per day. IHS and American Tower have active programmes to hybridise sites to reduce reliance on diesel. Pan African Towers is upgrading power at 700 sites with a Canadian ESCO partner Renewable Watts. The Government is doubling the tariff for electricity, so expect further investments in hybrid solutions including diesel generators, batteries and solar PV. 5G rollout is unlikely to start until the end of 2021, but 4G investment continue apace. Rural specialist AMN plans 2,000 sites in the country over the medium term, most of which are greenfield developments.								
Rwanda	Medium	Low	Medium	Medium	High	Low	IHS Towers	MTN Airtel KT Rwanda Networks	None
	IHS own over 948 towers, believed to represent around 80% of the total sites in Rwanda having acquired portfolios from Airtel and MTN. A small market, major focus is on consolidation but some BTS activity is coming up for the towerco. The company has invested heavily in power systems on its sites already but is looking into a solar farm to supply the grid with power. IHS has already invested in state of the art monitoring systems across its sites and so procurement in this area is not a priority. Of all the SSA regions, Rwanda is showing some of the strongest promise in small cells and DAS making it a key target for such companies looking to enter Africa. IHS have explored shared DAS.								

Vendor opportunity matrix	Energy	Data collection & utilisation	Tower manufacture	Turnkey infrastructure	Small cells, DAS, IBS and OpenRAN	Advisors	Towercos	MNOs	ESCOs
Senegal	High	High	High	High	Medium	Low	Helios Towers	Sonatel Free Expresso	None
	Senegal has around 4,000 towers at present, with the majority owned by Sonatel, and a little over 600 owned by Expresso Senegal. In 2020 Helios Towers agreed to acquire 1,220 towers in Senegal through a sale and leaseback transaction with Free Senegal, the second largest mobile operator in Senegal. The deal also includes 400 committed build-to-suit towers, over the next five years. If Sonatel and Expresso turn to Helios Towers for BTS then the total number of new sites over the next five years could be as many as 2,000. There are around 4,500 subscribers per tower which is high, meaning there is lots of investment needed to roll-out 4G. The grid is very good in Senegal by African standards with around 21 or 22 house of grid per day. This means that the gaps in coverage can be covered by battery technology, and in some cases diesel gensets.								
South Africa	High	High	High	High	High	High	Gyro Towers American Tower Atlas Tower Helios Towers Eagle Towers Sky Coverage Blue Sky Towers Pro High Site Communications Global Towers Comco + others	Vodacom MTN Cell C Telkom Rain	Abbott Technologies
	The situation in South Africa has never been more fluid. Capex plans for 2020 were up on 2019 but had stalled in the face of COVID-19. Vodacom and Telkom have restarted new build, but demand from MTN remains muted. Site upgrades to cope with the additional capacity required thanks to a shift to home working is also providing lots of work. Cell C looks likely to exit the market as an independent MNO, which will produce further demand for decommissioning. The exit has also caused American Tower to improve its relations with other MNOs, with increased BTS heading to the towerco. Deterioration of the grid is leading to increased spend on backup generators and batteries, as both capex and as energy as a service. Slow grid interconnection times also means that diesel generators are sometimes used for up to 18 months as primary power. These trends are all pushing fuel theft and site access control further up the priority list.								

Vendor opportunity matrix	Energy	Data collection & utilisation	Tower manufacture	Turnkey infrastructure	Small cells, DAS, IBS and OpenRAN	Advisors	Towercos	MNOs	ESCOs
Tanzania	**High**	**Medium**	**Low**	**High**	**High**	**High**	Helios Towers	Vodacom Millicom Zantel Airtel Viettel TTCL Azam Telecom	None
	With 3,668 towers, Helios Towers own 44% of the country's 8,422 towers, and a significant decommissioning programme continues. Airtel has for a third time listed its towers for sale, having resolved a dispute with the government. Airtel's previous agreement to sell its Tanzanian tower to American Tower is believed to have foundered due to the requirement for large companies to list locally in Tanzania, a requirement which has now been lifted for towercos. Airtel's sites are in need of modernisation, lacking sophisticated access control systems and a successful sale will precipitate upgrades. Halotel built a network of 1,500 sites since 2015, but relied on guyed-masts, such sites will require upgrading or replacement if they are to be made suitable for sharing. 4G licenses were only issued in 2017, so rollout is still ongoing. The country needs an estimated 2,000-3,000 new sites to be added in the next two to four years, although investment has slowed and focus is currently on capacity rather than coverage. Helios report that approximately 80% of their towers in the country are on-grid, with grid availability currently around 20 hours per day, and conditions are conducive to solar hybridisation. Helios set up four pilot sites for hybrid technologies at an average cost of $12,500 per site and have identified a further 1,200 sites in Tanzania, Congo Brazzaville and the DRC which are candidates for hybrid technologies. Grid connection is also a focus for Helios in Tanzania. Inbuilding and DAS are starting to be deployed. Vodacom has committed to a significant 4G programme in the country, which will push up new build and amendment revenues.								

Vendor opportunity matrix	Energy	Data collection & utilisation	Tower manufacture	Turnkey infrastructure	Small cells, DAS, IBS and OpenRAN	Advisors	Towercos	MNOs	ESCOs
Uganda	High	Medium	High	Medium	Low	Medium	American Tower Ubuntu Towers	MTN Airtel Africell Smile UTL	None
	There are still around an additional 3,000 towers to be added to Uganda's total of 3,993, with the total tally growing around 10% per year. Maintenance costs in the country are high (approximately double those in Ghana). Around 27% of sites are off-grid, with about half of new build being off-grid. Grid outages are common, even in Kampala, meaning that lots of investment is going into hybrid solutions. Eaton had a pilot study underway to assess hybrid solutions under both capex and opex models, with capex looking like the most likely. Uganda was Eaton's only market without significant RMS installed, and acquisition by American Tower is likely to precipitate investment in upgraded site access and monitoring. A new towerco called Ubuntu Towers was formed by some ex-Eaton employees in 2020. Changes to MNO licences has caused some disruption, but this is likely to be temporary.								
Zambia	High	Medium	High	High	Low	Low	IHS Towers	Airtel MTN Zamtel UZI Zambia (Unitel)	None
	Another market in which IHS have a significant market share, owning over 80% of the country's total stock. The towerco plans to become diesel neutral in the next few years suggesting significant investment in hybrid solutions are to be expected on its 1,757 sites. IHS currently operates over 200 solar hybrid sites. Huawei are rolling out the first 400 sites under Universal Service Fund money as part of the country's bid to improve rural coverage. Unitel acquired a fourth operating license in March 2018 as UZI Zambia, a move which will precipitate further site rollout and investment in network infrastructure as it invests a promised US$350mn.								
Zimbabwe	High	High	Medium	Medium	Low	Medium	Eighty Four Dynamics	Econet NetOne Telecel	Distributed Power Africa (Econet)
	Whilst the grid in Zimbabwe is widespread, power outtages are commonplace. Market leaders Econet have recently formed their own ESCO business - Distributed Power Africa. The MNO has committed to going green and will deploy solar hybrid solutions at all new sites going forward. The MNO is in the process of assessing suppliers to convert 300 existing sites to hybrid systems. Their ESCO business is also targetting other sectors, working with mines and commercial buildings to provide power. Econet Wireless and NetOne signed a network sharing deal in 2019, and continued economic pressures have seen capex reducing year on year. New build volumes will suffer relative to our past baseline of +100 per year.								