GOGLA

The Voice of the Off-Grid Solar Energy Industry

Global Off-Grid Solar Market Report Semi-Annual Sales and Impact Data

January - June 2020, Public Report

LIGHTING GLOBAL | WORLD BANK GROUP | EFFICIENCY FOR ACCESS | Berenschot

Executive Summary

In 2020, the COVID-19 pandemic swept the globe causing unprecedented impact on families, healthcare systems and economies. It has led to a devastating loss of life and had disastrous effects on national welfare. It has also put a spotlight on the need for all people to have access to basic protections and basic services. This includes electricity. Without it, we cannot power health centres, cannot share critical information and cannot re-energise our economies. Today, nearly 800 million people still live without electricity[1] - no power to stay connected, no power to support a business, no power to turn on a light.

The off-grid solar sector is committed to combating energy poverty and driving economic activity. In 2019, it was making remarkable progress, with record-breaking sales. **Continued growth in 2020 was expected to boost the sector's 370,000 clean energy jobs[2] and enable it to power millions of new homes and businesses. However, like many other sectors, COVID-19 has led to a slowdown in progress** and threatens its ability to reach and sustain the 13% year-on-year growth rate needed to meet SDG7[3] - affordable, reliable, sustainable, and modern energy for all.

In the first half of 2020, global sales of off-grid solar lighting products fell 26% compared to the same period in 2019, with only 3 million units sold. These were the lowest volumes recorded since 2014. While all off-grid solar product categories were affected by the challenging conditions, declines in sales of entry-level products, often purchased by customers living on the lowest incomes, were most severe. Sales of portable lanterns without mobile charging dropped below 1 million for the first time since record keeping began.

Globally, all regions registered a slowdown. The worst affected was South Asia, where the challenges seen in the market in previous years were exacerbated by the COVID-19 pandemic. This led to a nearly 60% drop in sales in comparison with the first half of 2019. Prior to the crisis, the Sub-Saharan African market was expected to see strong and continued growth, yet in comparison to the first half of 2019, sales in East Africa dropped by 11%. The economic impact of COVID-19, compounded by the worst locust infestations in decades[4] and heavy flooding in key markets[5] all contributed to this decline. Sales in West and Central Africa remained relatively stable, however, this was primarily due to bulk procurements in specific countries made prior to the pandemic. Whilst the drop in Sub-Saharan Africa was still a curb on progress, public support for the sector seen in a number of countries helped to mitigate even greater impact.

Sales of efficient appliances were also affected by the COVID-19 crisis. Sales of fans saw the largest absolute decline compared to the first half of 2019, linked to stringent lockdown measures in their biggest market, South Asia. Solar water pumps and refrigeration units also saw a halt in growth. Sales of TVs showed a more positive story, with companies indicating this may be due to customers recognising the value of entertainment and access to information in the early stages of the lockdown. However, although sales volumes were equivalent to the first half of 2019, they dipped by 21% compared to July-December instead of continuing their strong upward trend.

In the months ahead, COVID-19 is expected to slow economic growth in low-income countries to the slowest pace in 25 years[6] and push over 70 million more people into extreme poverty[7]. **This causes significant concern for energy access and other development goals. In the last six months alone, an estimated 5 million people missed the opportunity to benefit from clean, safe solar electricity in their homes and businesses.** In addition, the exciting strides made by the solar water pump and refrigeration sectors - with their potential to transform agriculture and food security - have also slowed. This knock to progress has led the IEA to adjust its outlook on global

1 IEA, IRENA, UNSD, World Bank, WHO. 2020. Tracking SDG 7: The Energy Progress Report.
2 GIZ, GOGLA and Vivid Economics, 'Off-Grid Solar. A Growth Engine for Jobs. 2019
3 Lighting Global, Vivid Economics and Open Capital Advisors, '2020 Global Off-Grid Solar Market Trends Report', 2020. Full report here: https://www.gogla.org/resources/2020-off-grid-solar-market-trends-report
4 National Geographic, 'Gigantic new locust swarms hit East Africa', 2020. Full article here: https://www.nationalgeographic.com/animals/2020/05/gigantic-locust-swarms-hit-east-africa/
5 Aljazeera, 'East African countries count losses after devastating floods' 2020. Full article here: www.aljazeera.com/news/2020/05/09/east-african-countries-count-losses-after-devastating-floods
6 World Bank, 'Global Economic Prospects June 2020', 2020. Full report here: https://openknowledge.worldbank.org/bitstream/handle/10986/33748/9781464815539.pdf
7 World Bank, 'Updated estimates of the impact of COVID-19 on global poverty', 2020. Full article here: https://blogs.worldbank.org/opendata/updated-estimates-impact-covid-19-global-poverty

Executive Summary

energy access. When looking at the expected energy access contributions from multiple technologies (national grid, mini-grid, off-grid), the latest data estimates that 660 million people worldwide will still live without electricity in 2030 in a baseline scenario, or 760 million in a delayed recovery scenario.[8]

The challenges may appear overwhelming, but they can be overcome.

A number of initiatives are already underway. At the peak of the lockdown, many national governments gave off-grid solar 'essential service' status, enabling companies to continue their operations with the same exemptions as large-scale electricity utility companies. This not only kept the lights on for thousands of homes, it also expanded support for off-grid solutions outside of energy, education and environment ministries. Driven by the sector's leading investors and development partners, several industry relief efforts are also underway to provide the sector with financial, technical and operational support. At the same time, the industry itself has responded to the pandemic head on, with companies working to provide flexibility in customer financing, streamline operations and protect staff. These vital actions are a strong start. However, to regain the momentum seen in 2019, more is needed; from enhanced regulatory and policy support to the creation of dedicated initiatives to galvanise investment.

COVID-19 has slowed progress on energy poverty, yet it has also highlighted just how vital electricity is to combat the pandemic and drive recovery. To create healthier, more resilient communities and re-energise economies, the off-grid industry must get back on track. By working together, we can unlock the innovation, creativity and impact of the off-grid solar sector so it can continue to reach millions of energy poor families and help the world to #buildbackbetter.

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8 IEA, World Energy Outlook 2020, 2020. Full report here: https://www.iea.org/reports/world-energy-outlook-2020

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About the Report

Authors

GOGLA

GOGLA is the global association for the off-grid solar energy industry. Established in 2012, GOGLA now represents over 180 members as a neutral, independent, not-for-profit industry association. Its mission is to help its members build sustainable markets, delivering quality, affordable products, and services to as many households, businesses and communities as possible across the developing world. The products and solutions that GOGLA members sell transform lives. They improve health and education, create jobs and income opportunities, and help consumers save money. To find out more, go to www.gogla.org.

Lighting Global

Lighting Global is the World Bank Group's initiative to rapidly increase access to off-grid solar energy for the 789 million people worldwide living without electricity. Lighting Global - managed by the International Finance Corporation (IFC) and the World Bank - works with manufacturers, distributors, governments, and other development partners to build and grow the modern off-grid solar energy market. Lighting Global programs are funded with support from the Energy Sector Management Assistant Program (ESMAP), The Public – Private Infrastructure Advisory Facility (PPIAF), The Netherlands' Ministry of Foreign Affairs, The Italian Ministry for the Environment, Land, and Sea (IMELS), and the IKEA Foundation. For more information, please visit www.lightingglobal.org.

Efficiency for Access Coalition

Efficiency for Access is a global coalition working to promote high performing appliances that enable access to clean energy for the world's poorest people. It is a catalyst for change, accelerating the growth of off-grid appliance markets to boost incomes, reduce carbon emissions, improve quality of life, and support sustainable development. Efficiency for Access consists of 15 Donor Roundtable Members, 10 Programme Partners, and more than 30 Investor Network members. Current Efficiency for Access Coalition members have programmes and initiatives spanning 44 countries and 22 key technologies. The Efficiency for Access Coalition is coordinated jointly by CLASP, an international appliance energy efficiency and market development specialist not-for-profit organisation, and UK's Energy Saving Trust, which specialises in energy efficiency product verification, data and insight, advice, and research. For more information, please visit www.efficiencyforaccess.org.

The appliances section of this report has been funded by UK aid from the UK government. However, the views expressed do not necessarily reflect the UK government's official policies.

Berenschot

Berenschot is a leading Dutch management consultancy firm with an extensive track record in supporting industry associations on market data collection. Berenschot has been elected by clients as one of the best management consultancy firms of the Netherlands. Berenschot maintains a high standard of confidentiality, as stated in the Berenschot Terms and Conditions.

About the Report

Summary of key methodology

This report follows a consolidated methodology, including the following.

- **Eligible products include off-grid solar lighting products** (systems that include a solar panel, battery and at least one light point) **and off-grid solar appliances** (a range of energy-efficient appliances suitable for purchase by individual customers on a household or micro-enterprise level). In the case of solar water pumps, this means they must be less than 3 kW and solar-powered, while for refrigeration units, large commercial scale walk-in units are not considered.
- This report exclusively covers products sold between January 1st and June 30th, 2020 either business to business (B2B) or business to customers (B2C). For B2B sales, products are sold to distributors, governments or any other intermediary before they reach their intended end-user. This means that the product reported sold in a country may not have reached the customers yet.
- The report includes sales data from 107 companies affiliated to GOGLA, IFC Lighting Global or Efficiency for Access Coalition; please see the list of participating companies in Table 4. It is estimated that in 2020 sales of affiliates represented 28% of the overall off-grid solar lighting market.[9] For off-grid solar appliances, the proportion of the total market that is represented by our affiliates has not yet been estimated.
- Companies are classified as distributors when selling other companies' branded products, and as manufacturers when they are selling their own-brand products. **Only data compiled from companies categorised as manufacturers is presented here to avoid any duplicate figures.**
- **Data on a specific region, country or product category is only included when at least three separate product manufacturers have reported sales.** Where there are fewer than three responses, no results (signalled by empty bars) are shown to protect the proprietary interests of the companies who have supplied data in support of this industry report. To differentiate, if there are no companies reporting data, the graph shows a '0'.
- **Data has been grouped into product categories to present sales in a segmented manner that provides the most value and information to the market.** This means segmenting the off-grid solar lighting products in 7 categories and each appliances product in several sub-categories varying depending on the appliance type. Please refer to Tables 6 and 7 for more details.
- **Impact is calculated using the Standardised Impact Metrics for the Off-Grid Solar Energy Sector.**[10] Each impact metric in this report combines relevant company data, such as sales and product characteristics, with coefficients and default values. Please note that the current approach is based on best available research information and data; therefore, all numbers calculated using the metrics should be interpreted as estimates.
- The impact estimates were calculated by applying these standardised impact metrics to the off-grid solar lighting products sales reported by affiliates. Please note that impact created by off-grid solar appliances is not included in this section as metrics have not yet been created for this segment.

For more details about the Methodology, please check out the 'Methodology of Sales Data Collection' section at page 109 and the 'Methodology of Impact Metrics' section at page 117.

9 Lighting Global, Vivid Economics and Open Capital Advisors, '2020 Global Off-Grid Solar Market Trends Report', 2020. Full report here: https://www.gogla.org/resources/2020-off-grid-solar-market-trends-report

10 GOGLA, 'Standardised Impact Metrics for the Off-Grid Solar Energy Sector, Version 4.0', 2020. Full report here: www.gogla.org/gogla-impact-metrics

Global Insights

Global Insights

Background

On 11 March 2020, the World Health Organization (WHO) declared the COVID-19 outbreak had become a pandemic.[11] Since then, **the pandemic has become a global challenge with unprecedented impact on families, healthcare systems, and economies**, with no signs of slowing down yet. The spread of COVID-19 in low-income countries remains high, with the number of cases still increasing exponentially in Latin America, South Asia, and Sub-Saharan Africa.

The COVID-19 outbreak has negatively impacted economic activities across the globe. Differences among individual countries have resulted from the evolution of the pandemic, variation in national response and impact on the most severely affected sectors, such as tourism, oil, and remittances. **The crisis is already having a severe impact on poverty and inequality.** The World Bank has projected that **low-income countries will experience the slowest rate of economic growth in 25 years, reflecting the pandemic's wide scale of disruptions.**[12] Per capita GDP in low-income countries is expected to shrink by 1.6% in 2020, likely causing a large share of the population to slip back into extreme poverty, while those already in extreme poverty could descend further.[13] **In June 2020, the World Bank estimated that** in a scenario in which the outbreak remains at current levels, **COVID-19 would push an additional 71 million people into extreme poverty, below the $1.90 per day income mark**.[14] This has already increased significantly from the April 2020 estimate of 40-60 million people. These disruptions are likely to exacerbate malnutrition and affect human capital development causing potentially irrecoverable losses.

The informal sector, a large employer in many low-income countries, has been highly vulnerable to the lockdowns caused by the COVID-19 pandemic, as normally workers are paid on a daily basis. This has caused **millions of workers and households to lose jobs abruptly and potentially their entire income.** It was estimated that by April 2020, almost 1.6 billion informal economy workers were negatively impacted by the pandemic, leading to a 60% income decline[15].

COVID-19 impact on progress towards SDG7 and other development goals

In the past decade, the number of people living in energy poverty has fallen. Millions of people have been able to access energy by purchasing an off-grid solar product, getting connected to mini grids or national grids. This has brought us closer to achieving Sustainable Development Goal 7 (SDG 7): affordable, reliable, sustainable, and modern energy access for all, and many other development goals. Off-grid solar solutions are proven to boost employment, economic opportunity, and welfare.[16]

Despite these efforts, **789 million people are facing or have experienced lockdown without a reliable electricity connection**.[17] They have had no power to work nor study, no power to charge a phone, not even the power to turn on a light. It is a stark reminder that energy access is a basic necessity and an even more critical need during times of crisis.

The **COVID-19 pandemic has jeopardised progress toward SDG7 and related SDGs.** The '2020 Market Trends Report' estimated that the sector needed a steady 13% growth rate per year (with 2019 as a baseline) to reach 228 million people by 2030, the expected off-grid solar contribution to meet SDG7.[18] Given the results of this first half of 2020 and the uncertainty over the second half of the year, the off-grid solar sector will not likely reach its growth target for the year. According to the International Energy Agency (IEA), **there will be a general slowdown in progress in 2020 and 2021 in achieving SDG7, also looking at grid extension, and mini grid development.** Without intervention this will leave 660 million

11 World Health Organization, 'Timeline of WHO's response to COVID-19', 2020. Full article here: https://www.who.int/news-room/detail/29-06-2020-covidtimeline
12 World Bank, 'Global Economic Prospects June 2020', 2020. Full report here: https://openknowledge.worldbank.org/bitstream/handle/10986/33748/9781464815539.pdf
13 Ibidem
14 World Bank, 'Updated estimates of the impact of COVID-19 on global poverty', 2020. Full article here: https://blogs.worldbank.org/opendata/updated-estimates-impact-covid-19-global-poverty
15 ILO, 'Impact of lockdown measures on the informal economy A summary', 2020. Full report here: https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---travail/documents/briefingnote/wcms_743534.pdf
16 GOGLA, 'Powering Opportunity', 2020. Full report here: https://www.gogla.org/powering-opportunity
17 ESMAP, 'Tracking SDG7', 2020. Full report here: https://trackingsdg7.esmap.org/
18 Lighting Global, Vivid Economics and Open Capital Advisors, '2020 Global Off-Grid Solar Market Trends Report', 2020. Full report here: https://www.gogla.org/resources/2020-off-grid-solar-market-trends-report

people worldwide without electricity access in 2030, in the baseline scenario, or 760 million in the delayed recovery scenario.[19] In the baseline scenario, this translates to 35 million more people still deprived of electricity in 2030 than the number estimated in the 2019 projections.

COVID-19 Impact on Off-Grid Solar Sector

Throughout the supply chain from manufacturing to last mile distribution, companies in the off-grid solar sector are experiencing varying degrees of vulnerability and disruption due to the COVID-19 pandemic. However, all have reported decreases in their sales volumes with knock-on effects on their cash flow, both in the off-grid solar lighting and appliances segments. An increasing percentage of companies have made, or are considering, reductions in their operations or staffing. Some have been, or will be, forced to cease operations entirely. Online surveys and one-to-one consultations run between March and July 2020 showed increasing concern and disruption. These included monthly customers surveys undertaken by 60 Decibels, funded by GOGLA in partnership with CDC and the DOEN Foundation,[20] and the 'Energy Access Industry Barometer' run by the Energizing Development program (EnDev) in collaboration with GOGLA, ESMAP/Lighting Global and several other energy access players.[21]

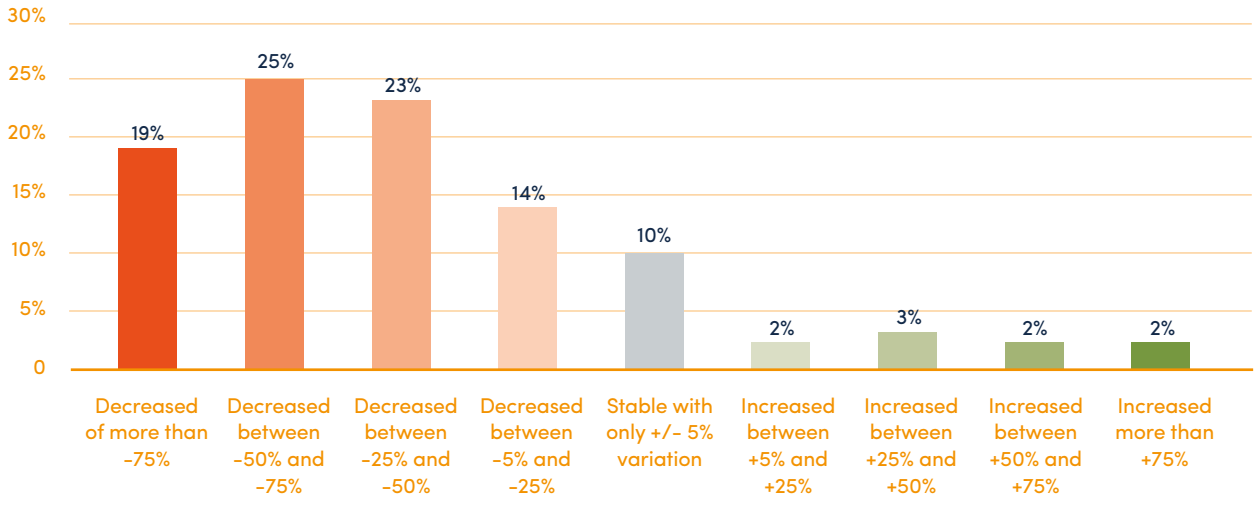
The findings of all surveys pointed to the following challenges: marketing and new sales, supply chain, availability of working capital and customers' payment collection rates.

Marketing and New Sales

In the second quarter of 2020 it was difficult for off-grid solar companies to generate new sales given the containment measures restricting movement of goods and individuals, as well as the opening times of points of sale. Among the 613 companies interviewed in the EnDev 'Energy Access Industry Barometer' survey, **81% of the companies reported decreases in sales volumes** compared to the second quarter of 2019.[22]

One of the main drivers of decreased sales is the physical restrictions on mobility for both sales agents and customers as a result of government lockdown measures. The lockdown measures were adopted in company protocols to protect the health of their staff and reduce transmission of infections. This resulted in restrictions on movements and enforced remote working from home where possible. Companies' sales agent networks and retail shops ceased operations, disrupting business operations for new sales and after-sales support.

Figure 1 - Variation on Sales Volumes in Q2 2020 compared to Q2 2019 for Energy Access Companies



19 IEA, World Energy Outlook 2020, 2020. Full report here: https://www.iea.org/reports/world-energy-outlook-2020

20 60 Decibel, 'COVID-19 Dashboard', 2020. Full dashboard here: https://singuser159k8vsm.eu.qualtrics.com/results/public/c2luZ3VzZXIxNTI-rOHZzbS1VUl8zOEtzZ3JEZW1VZVU4UzEtNWVmYjNkZDNkZTU5NmYwMDExNDBlYjBm#/pages/Page_8266db52-1c5c-4871-b9a2-c0a1a1f00b20

21 Energizing Development, 'COVID-19 Energy Access Industry Barometer', 2020. Full report here: https://endev.info/content/COVID-19_Energy_Access_Industry_Barometer_-_Presentation_of_results_in_a_webinar_hosted_by_EnDev

22 Energizing Development, 'COVID-19 Energy Access Industry Barometer', 2020. Full report here: https://endev.info/content/COVID-19_Energy_Access_Industry_Barometer_-_Presentation_of_results_in_a_webinar_hosted_by_EnDev

Another key driver of the decreased sales volumes was the shift in customer spending and ability to pay in such difficult circumstances. However, some companies anecdotally reported that **in some instances the decrease in sales was due to a lack of liquidity that stopped companies investing in new stock that would drive further sales, rather than a lack of customer demand.** Major sales channels like microfinance institutions (MFIs) have faced difficulties in India that heavily influenced the decline in sales volumes distributed in the country.

Supply Chain

A second challenge was inventory management and disruptions in the supply chain for off-grid solar lighting products and appliances. Chinese factories were closed for most part of the first quarter of 2020 for the Chinese New Year, followed by continued closures through the COVID-19 crisis; coupled with restrictions on travelling and manufacturing re-starts. This had a sizable impact on off-grid solar exports from China. **Even after production lines restarted in late March, the export of off-grid products remained low, affected by the containment measures adopted in the target markets in Africa and Asia. In some countries, ports remained closed, making product imports impossible. And where ports remained open, the clearance process became much longer due to customs often working with lower capacity.** Anecdotally, several manufacturers in the sector reported that they did not ship any products in the first half of 2020, largely because orders from their distributors dried up and the shipping logistics became increasingly challenging.

Availability of Working Capital

Companies also report significant financial challenges due to the lack of working capital. According to the EnDev 'Energy Access Industry Barometer' survey, many businesses fear for their survival. **About 43% of energy access companies indicated they are not able to cover for financial losses over a period beyond one to two months starting from July 2020, and another 27% beyond three to five months.**[23] This poses a threat to both the off-grid solar sectors' contribution toward ensuring access to affordable and sustainable energy for all and to the livelihoods of the industry's hundreds of thousands employees[24]. Supporting the sector with innovative and flexible access to working capital is key to ensure that companies can weather the pandemic, maintain staff and operational capacity, and regain ground in the bid to achieve universal electrification.

Customers' Payment Collection Rates

Payment collection rates are not a prominent aspect of this report, as only new products sold in the reporting period are considered. However, it is a critical factor to help understand the overall status of the sector, including the potential challenges for PAYGo companies in relation to their current customer portfolios. **Low-income populations have been disproportionately impacted by the COVID-19 crisis and other macroeconomic challenges associated measures, causing a rise in poverty.** In May, June, and July, 60 Decibels' monthly surveys spoke to over 5,000 customers from fourteen companies[25] in six countries (Cote d'Ivoire, Kenya, Nigeria, Rwanda, Uganda, and Zambia). In June, 66% customers reported that they were still making their energy product repayments as normal and more than half of customers were confident of their ability to do so for July. However, repayments are becoming a burden on families' finances - 10% say their repayments are a 'heavy burden' compared to the 3% 60 Decibels benchmark pre-COVID-19. This has concerning impacts for consumers - with **84% of families reporting that their financial situation worsened compared to pre-COVID-19 levels.**[26] **This is a worrying sign for PAYGo companies in terms of receivables at risk and prospective customers' diminished ability to pay.** However, as noted below, PAYGo companies are responding to this challenge proactively, by working with customers to manage repayment plans and to support them as they cope with the impacts of the COVID-19 crisis.

23 Energizing Development, 'COVID-19 Energy Access Industry Barometer', 2020. Full report here: https://endev.info/content/COVID-19_Energy_Access_Industry_Barometer_-_Presentation_of_results_in_a_webinar_hosted_by_EnDev

24 GOGLA, 'Off-Grid Solar. A Growth Engine for Jobs', 2019. Full report here: www.gogla.org/sites/default/files/resource_docs/gogla_off_grid_solar_a_growth_engine_for_jobs_web_opt.pdf

25 Participating companies were Azuri, Baobab+, BBOXX, d.light, ENGIE Mobisol, Fenix, FINCA Plus Bright Life, Greenlight Planet, Lumos, M-KOPA, Mwezi, OoluSolar, Pawame, and SUNami Solar.

26 60 Decibel, 'COVID-19 Dashboard', 2020. Full dashboard here: https://singuser159k8vsm.eu.qualtrics.com/results/public/c2luZ3VzZXIxNTI-rOHZzbS1VUl8zOEtzZ3JEZW1VZVU4UzEtNWVmYjNkZDNkZTU5NmYwMDExNDBlYjBm#/pages/Page_8266db52-1c5c-4871-b9a2-c0a1a1f00b20

COVID-19 Response of Off-Grid Solar Sector

Companies' Response

Almost all off grid solar manufacturers and distributors have reported encountering operational challenges in the first half of 2020, resulting in a slowdown in sector growth. **Companies have adopted varying strategies to cope with the COVID-19 crisis, drawing on their resilience and capacity to innovate, as well as the support of sector stakeholders and development partners. Companies focused on staying in touch with their existing clients during such challenging times, with the goal of helping them keep the lights on and maintaining after-sale services. PAYGo companies also focused on supporting their customers with flexible repayments in the wake of the pandemic.** This level of support will become increasingly hard to sustain for the companies if the COVID-19 crisis worsens.

According to the EnDev survey, **63% of PAYGo off-grid solar companies offered grace periods to their customers,** either to all, or on a case-to-case basis, in order to relieve payment burdens for the most vulnerable families. Another 22% leveraged the flexibility of their payment policies to help customers better manage their repayment timetable,[27] while others reported reducing minimum payments[28]. Companies also reported that they have been using their call centres and agents to provide health information to rural households, and to offer robust health and life insurance to their customers[29]. Several companies have taken action to provide solar products and solutions to unelectrified health centres (see Text Box).

Off-grid solar customers recognised the attentiveness companies gave them, even with reduced direct contact with sales agents. During the customer interviews conducted by 60 Decibels, 82% of the families said that they were satisfied with the communication from their off-grid solar provider and **customer satisfaction measure through the Net Promoter Score (NPS) is holding steady at 44**, comparable to the 60 Decibels benchmark pre-COVID-19.[30]

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27 Energizing Development, 'COVID-19 Energy Access Industry Barometer', 2020. Full report here: https://endev.info/content/COVID-19_Energy_Access_Industry_Barometer_-_Presentation_of_results_in_a_webinar_hosted_by_EnDev

28 Power Africa, 'Serving and Supporting Off-grid Customers During COVID-19', 2020. Full article here: https://medium.com/@PowerAfrica/serving-and-supporting-off-grid-customers-during-covid-19-8b371c81c58

29 Ibidem

30 60 Decibel, 'COVID-19 Dashboard', 2020. Full dashboard here: https://singuser159k8vsm.eu.qualtrics.com/results/public/c2luZ3VzZXIxNTI-rOHZzbS1VUl8zOEtzZ3JEZW1VZVU4UzEtNWVmYjNkZDNkZTU5NmYwMDExNDBlYjBm#/pages/Page_8266db52-1c5c-4871-b9a2-c0a1a1f00b20

Electrification of Health Clinics

Beyond household electricity access, another critical need emerged in the first half of 2020: the provision of reliable electricity to health centres, key in the response to the COVID-19 pandemic. This issue is not new but gained further traction, especially for organizations already engaged in several initiatives and projects for the electrification of public institutions. The World Bank Energy and Health teams and Sustainable Energy for All (SEforAll) jointly worked on tools to guide communications with external stakeholders. Firstly, the 'COVID-19 Response Strategy' was developed to guide the design of electrification projects of health facilities.[31] Moreover, the 'Powering Healthcare Solutions Catalogue' was prepared to comprehensively present all technical solutions by private companies, which can contribute to meet the energy needs of healthcare facilities.[32] Many of our affiliates feature prominently in the catalogue, with SHS being recognised as one of the solutions to achieve electrification of rural clinics.

Existing World Bank energy projects in Nigeria and Haiti have been repurposed to include the COVID-19 response. As part of the Nigeria Electrification Project (NEP) in partnership with REA, approximately 100 Primary Health Care (PHC) facilities have been selected for the deployment of solar hybrid power systems in the first phase through private sector players. A second phase will cover another 400 PHC centers and involve a sustainability assessment of 500 existing systems, including those deployed in the first phase. In Haiti, a $7.5 million investment from the World Bank will fund the procurement, installation and 12 months of running costs for electricity systems for four large hospitals, two regional testing laboratories, and at least six piped water systems that provide access to clean water to an estimated 27,000 people.

Another initiative in Nigeria was launched by the impact investor All On, seeded by Shell; around 180 million Naira were awarded to four investees to provide solar power for emergency health centres in support of the response to fighting the COVID-19 pandemic.[33] Our affiliate Lumos was selected amongst the four companies to deploy their solar home systems to power lights and appliances such as fans and computers, ensuring that the clinics are able to respond to the COVID-19 crisis.

Partners' Response

Development partners and sector stakeholders have also taken proactive steps to support the industry and mitigate the impacts of the pandemic. Activities have taken many forms. **There were financial and operational support and initiatives such as those spearheaded by the Energy Access Action Network** - a coalition of leading companies, investors, industry associations, and sector support providers from across the off-grid sector - and engagement with policy-makers in order to enable off-grid solar companies to continue their vital operations. **Advocacy efforts ensured that off-grid solar was deemed an 'essential service' in nine countries during the period January-June 2020**, including Cameroon, Cote d'Ivoire, Kenya, Malawi, Niger, Nigeria, Rwanda, Senegal, Togo and Uganda, enabling companies to maintain vital service to their customers.

The table below provides a snapshot overview of several support activities and initiatives. Now, the sector is calling on governments, investors and the international community to continue and enhance support in the coming months to ensure that off-grid solar and critical energy access remain at the heart of a sustainable COVID-19 recovery.

31 World Bank and ESMAP, 'COVID-19 Emergency Power Supply Response', 2020. Full strategy note here: https://www.seforall.org/system/files/2020-04/COVID19-emergency%20power-supply%20strategy-note.pdf

32 SEforAll, World Bank and ESMAP, 'Powering Healthcare Solutions Catalogue', 2020. Full catalogue here: https://www.seforall.org/powering-healthcare/solutions-catalogue

33 All On, 'All On announces COVID-19 Solar Relief Fund to power emergency health care in Nigeria', 2020. Full article here: https://www.all-on.com/media/media-releases/all-on-announces-n180-million-covid-19-solar-relief-fund.html

Global Insights

Figure 2 - Overview Partners Response to COVID-19 Crisis

Sector-wide policy intervention	• Recognition of energy as essential services in 9 countries (joint letter by ESMAP, the World Bank Group's Lighting Global program, Sustainable Energy for All, ACE TAF, Power Africa, AMDA, National Renewable Energy Associations and GOGLA) • GOGLA with Policy Tracker • ACE with report on How Governments Can Minimize the Impact of Covid-19 On Rural Off-Grid Communities	
Financial Assistance	• COVID-19 Energy Access Relief Fund (EARF) with brigding loans (coordinated by a coalition of leading companies, investors, industry associations and sector support providers from across the off-grid sector) • African Development Bank (AfDB) with co-investment / de-risking debt investment • Innovate by UK Aid with grants for innnovative projects across Asia & Sub-Saharan Africa in response to COVID-19 • EnDev with COVID-PAY window of the Sustainable Access to Renewable Energy Fund (FASER) in Mozambique • CLASP with Conversion of Results-Based Financing incentives for appliances together with funding from USAID Power Africa and Energizing Development program • Omidyar Network India with Response Funding for Covid-19 • Call to actions to funders and donors for additional $35 million of grants with open letter (signed by GOGLA, Africa Minigrid Developers Association, Alliance for Rural Electrification Clean Cooking Alliance, Global Distributor Collective and Power for All)	
Evidence gathering and know-ledge exchange	• GOGLA with COVID-19 Resource Center to gather relevant resources • EnDev Energy Access Industry Barometer survey (joint initiative with participation of Africa Minigrid Developers Association, Alliance for Rural Electrification, Ashden, Clean Cooking Alliance, Efficiency for Access Coalition Secretariat, ESMAP, Global Distributors Collective, Sustainable Energy for All and GOGLA) • 60Decibels and GOGLA with Consumer Insights during COVID-19 surveys in 6 countries with support from CDC, DOEN Foundation, Efficiency for Access Coalition and CGAP • GOGLA and ARE with Energy Access COVID-19 Relief Summit with support from GET.invest and in partnership with Africa Minigrid Developers Association, ESMAP, Global Distributors Collective, Sustainable Energy for All and the , Clean Cooking Alliance • CGAP with creation of Additional Finance Finance Working Group • Several national surveys by National Renewable Energy Associations (e.g. in Uganda by USEA, in Rwanda by EPD etc.)	
Customer Relief	• REACT Kenya Relief Fund by AECF with emergency grants to sustain renewable energy access for rural households in Kenya • Shell support to reduce customer payments	
Electrification of Health Clinics	• SEforAll and World Bank with Powering Healthcare initiative • All On with Solar Relief Fund in Nigeria	• Power Africa with Solar Electrification of Healthcare Facilities in Sub-Saharan Africa
Technical Assistance	• GOGLA with Leadership Advice Network (LEAN) • GET.invest with Finance Catalyst COVID-19 window • Private Financing Advisory Network (PFAN) with webinars, virtual Clinics, and 1-1 advice with focus on business continuity, access to special Covid-19 Relief Funds, and rescheduling and renegotiation of existing facilities. • Triple Jump & Open Capital Advisors with a webinar series on business continuity, cash flow and liquidity management • CGAP with creation of Technical Assistance Working Group • Power Africa with Southern African Energy Program	

NOTE:
This is an excerpt of partners' COVID-19 response initiatives for the off-grid solar sector. Please note that due to the proactive nature of many sector actors it does not capture all activities, however it is intended to provide an insight into their range and breadth.

Global Insights

Sales and Impact Trends

Global Key Highlights

Sales refer to all off-grid solar lighting product sales reported by participating affiliates[34] in the period between January 1st and June 30th 2020.

3.03 million
off-grid solar lighting products

2.03 million
have been sold as cash products

1.00 million
sold via Pay-As-You-Go (PAYGo)

1.98 million
portable lanterns

480,000
multi-light systems

560,000
solar home systems (SHS)

35.96 MW
newly installed capacity globally through the off-grid solar lighting products

Impact estimates as of June 2020 for off-grid solar lighting products sold to date by participating affiliates calculated using the GOGLA 'Standardised Impact Metrics for the Off-Grid Solar Energy Sector'

103 million
people currently living in a household with improved energy access[35]

59 million
people currently accessing Tier 1 energy services, based on the Sustainable Energy for All Global Tracking Framework

12 million
people currently accessing Tier 2 energy services, based on the Sustainable Energy for All Global Tracking Framework

77.9 million
metric tonnes of carbon dioxide and black carbon emissions avoided (in CO_2e), over the expected lifetime[36] of all off-grid solar lighting products sold since July 2010

2.6 million
people currently using their off-grid solar lighting products to support an enterprise - such as charging phones for a fee or operating a bar, restaurant, shop or stall after daylight hours

34 Affiliates include GOGLA members, companies selling products that meet Lighting Global Quality Standards, and appliance companies of the Global LEAP Awards or the Low Energy Inclusive Appliances (LEIA) programme.
35 In this context, 'improved' is used to reflect energy provided by less expensive, less harmful, better quality technologies such as solar, instead of baseline technologies such as kerosene lanterns, battery lights, candles etc.
36 The expected lifetime of products is based on an average of one and a half times the manufacturer's warranty.

Global Insights

Sales refer to all off-grid solar appliances product sales reported by participating affiliates in the period between January 1st and June 30th 2020.

221,000
TVs sold

238,000
fans sold

4,400
refrigeration units sold

3,400
solar water pumps sold

225,000
radios sold

5,000
other appliances[37]

© d.light

37 The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery.

Global Insights

Off-Grid Solar Lighting Products

Global sales of lighting products by our affiliates for January-June 2020 stand at 3.03 million units. This is a 32% decrease compared to the second half of 2019 and a 26% decrease compared to the first half of 2019. **It is striking that these are the lowest volumes recorded since the January-June 2014 period.** The recorded decrease is in line with the findings from the EnDev 'Energy Access Barometer survey' outlined in Figure 1 which shows that off-grid solar companies have been significantly affected by the COVID-19 pandemic.

Cash sales can be seen to have experienced larger decreases than PAYGo sales. Around 2.03 million units were sold on a cash basis with a value of $85.6 million - a 35% decrease in volume compared to both the first and second half of 2019. On the other hand, in the first half of 2020, nearly 1 million PAYGo units were sold, with a market value of $160.1 million - this is 17% less than the volumes recorded in the second half of 2019, while being nearly the same as in the first half of 2019 in volume. No comparison with the previous reporting round is offered for the cash and PAYGo market value estimated for the products due to this round's methodology shift to estimating the pricing information for products whenever missing.

A breakdown of the regional and country sales in offered in Table 1, and detailed insights per region and country can be found in the following chapters.

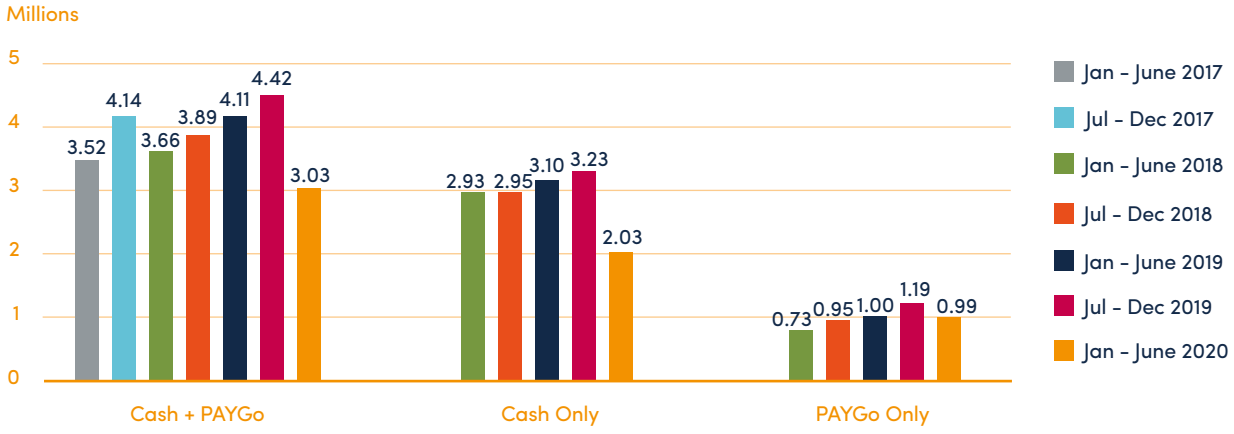
Portable Lanterns

Portable lanterns still represent the backbone of the sector's sales, with total sales of 1.98 million. This is 65% of the global total off-grid solar product sales. The percentage of lantern sales of the total sales has been on a slowly decreasing trajectory from 70+% experienced in previous years. Until 2020, this has been due to the increase in SHS sales, rather than a decrease in the sales volumes of lanterns. However, between January - June 2020, **both lantern categories have been significantly affected by the COVID-19 crisis, recording the largest absolute decreases amongst all product categories.**

Portable lanterns without mobile charging - i.e. those with an indicative wattage of 0-1.499 Wp - fell to under one million units sold for the first time since reporting began in 2015, totalling 845,000 units. This is a 37% decrease compared to the second half of 2019 and a 36% one compared to the first half of 2019.

Portable lanterns capable of charging mobile phones - i.e. those with an indicative wattage of 1.5-2.999 Wp - experienced a slightly less drastic decrease of 23% compared to the second half of 2019 and a 25% reduction compared to the first half of 2019, with 1.13 million units sold. This milder

Figure 3 - Semi-annual Evolution of Volume of Products Sold - World



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

decrease may be due to the large sales numbers in the Middle East & North Africa region for this category, usually connected to large bulk procurements for humanitarian settings. Consultation with off-grid companies and development partners suggest that the smaller dip in sales volumes in the larger lantern segment could also be a result of customers finding the additional service of charging their phone valuable, in order to remain connected with their loved ones and access information during the pandemic.

Interestingly, an increasing amount of portable lanterns with mobile charging were sold through PAYGo channels. The percentage of these lanterns sold on PAYGo rose to 22% in the first half of 2020 with over 246,000 units, from 14% in the second half of 2019, and 9% in the first half of 2019. This could be a sign that PAYGo is increasingly enabling access to smaller product categories for customers with lower financial resources.

Multi-light systems

Sales of multi-light systems reached 484,000 units between January and June 2020 to represent 16% of the global sales total. This category saw decreased sales of 38% compared to the second half of 2019, particularly significant in terms of volumes. When compared to the sales volumes recorded in the first half of 2019, this is a 20% decrease.

PAYGo sales during the period account for 56% of all multi-light systems sales, similar to the levels recorded in the first and second half of 2019.

Solar Home Systems (SHS)

SHS, larger, higher-cost products of wattage 11+ Wp, recorded sales of 563,000 units in the first half of 2020. This is a 32% decrease compared to the second half of 2019, where a new sales record was reached at 830,000 units, and a 17% reduction compared to the first half of 2019.

The 50-100 Wp systems are the top-selling SHS category with 202,000 units, seeing a minimal 9% decrease compared to the volumes of the second half of 2019 and similar sales to the first half of the same year. Companies anecdotally suggest that the comparatively low drop in sales within this category may be a result of wealthier families purchasing products in the initial stages of the pandemic to provide a back up to the grid during lockdown.

21-49 Wp systems show the next largest sales volume with 198,000 units sold between January and June 2020, a 28% decrease in sales compared to the previous reporting round and a 18% reduction compared to the same months of 2019.

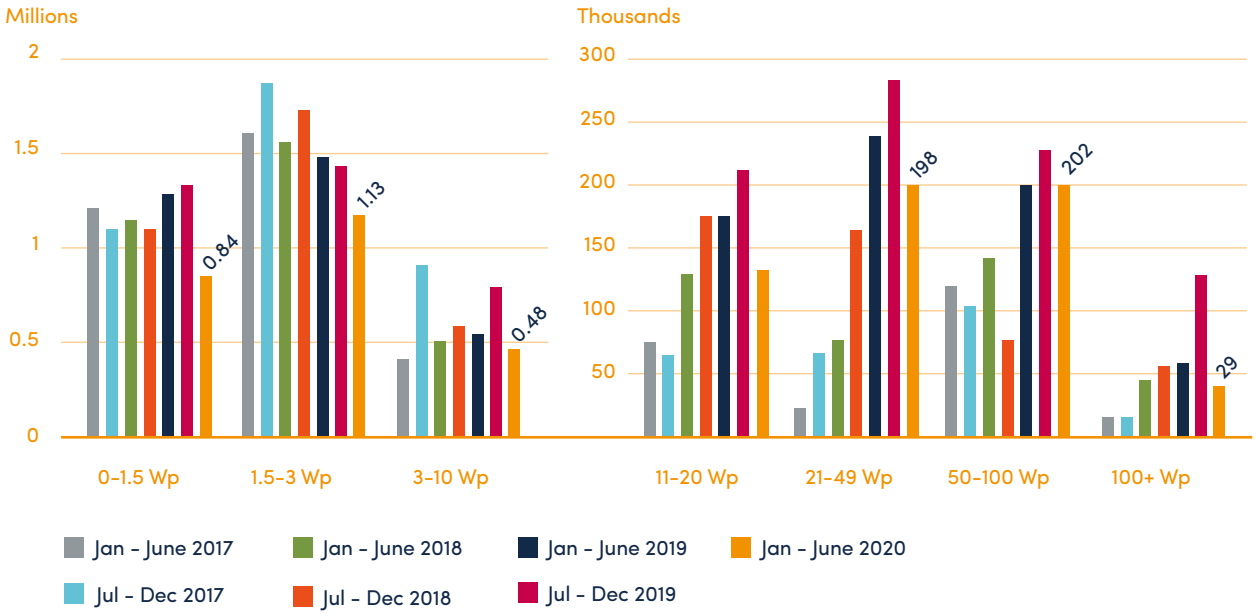
The 11-20 Wp segment sold nearly 134,000 units, seeing a 37% reduction in volume compared to the second half of 2019 and a 23% decrease compared to the first half of 2019.

The smallest sales recorded in the SHS space (30,000 units) remain in the 100+ Wp category. These experienced the largest relative reduction in this segment with a 75% plunge in sales compared to the last reporting period and a 53% decrease in comparison with the first half of 2019. This is largely due to almost zero sales of these systems in East Asia & Pacific, which had seen far higher sales in previous years.

Approximately 84% of all SHS have been sold through PAYGo financing between January and June 2020, a larger share compared to the 65% in the second half of 2019 and 76% of the first half of 2019. This indicates the importance of the product financing business model for customers accessing larger, more expensive off-grid products that many would be unable to afford in a single upfront payment. However, the PAYGo percentage has been influenced by the large decreases experienced in East Asia & Pacific countries where last round a large number of 50+ Wp systems were sold on a cash basis through government tenders.

Global Insights

Figure 4 - Semi-annual Evolution of Global Sales Volumes by Product Category - World



NOTE:
Lanterns 0-1.5 Wp include one light and no mobile charging, lanterns 1.5-3 Wp one light and mobile charging, and multi-light systems 3-10 Wp at least two lights and mobile charging. Solar home systems >11 Wp are classified based on panel wattage.

Table 1 - Sales of off-grid solar lighting products per region and country

	Sales Volumes		
Countries	**Total**	**Cash**	**PayGo**
Sub-Saharan Africa	**2.054.064**	**1.076.162**	**977.902**
East Africa	**1.556.024**	**821.540**	**734.484**
Burundi	1.141		
Ethiopia	235.401	209.601	25.800
Kenya	870.688	372.203	498.485
Madagascar	8.902		
Malawi	37.376	31.004	6.372
Mozambique	10.235	0	10.235
Rwanda	78.326	55.759	22.567
Somalia			
South Sudan			
Tanzania	129.349	79.271	50.078
Uganda	128.242	51.022	77.220
Zambia	43.368		
Zimbabwe			0
West Africa	**354.521**	**174.347**	**180.174**
Benin	20.728		
Burkina Faso	28.773	27.710	1.063
Cote d'Ivoire	21.301		
Ghana	73.295		
Guinea	2.493		
Liberia	10.441		
Mali	11.835	4.069	7.766
Niger			0
Nigeria	103.429	49.886	53.543
Senegal	17.435	4.453	12.982
Sierra Leone	37.058		
The Gambia	0	0	0
Togo	23.825		

	Sales Volumes		
Countries	**Total**	**Cash**	**PayGo**
Central Africa	**129.811**	**73.723**	**56.088**
Angola	0	0	0
Cameroon	74.177	73.657	520
Democratic Republic of Congo	54.747		
Southern Africa	**13.708**	**6.552**	**7.156**
South Africa	7.452		
South Asia	**495.259**	**487.275**	**7.984**
Bangladesh	91.875	91.875	0
India	391.940	384.258	7.682
Pakistan	11.144		
East Asia & Pacific	**73.901**	**65.026**	**8.875**
Indonesia	3.718		
Myanmar	10.926		
Papua New Guinea	24.684	22.584	2.100
Philippines	7.618		
Vanuatu	4.160		
Middle East & North Africa	**313.174**	**313.174**	**0**
Yemen, Rep.	52.708	52.708	0
Latin America & Caribbean	**42.686**	**41.230**	**1.456**
Haiti	2.246		

NOTE:
When there are fewer than three responses, no results are shown to protect the proprietary interests of the companies who have supplied data in support of this industry report. While if there are no companies reporting data at all, the graph shows a 0. Note that only an excerpt of countries is included above, excluding all the countries showing 0 sales for both cash and PAYGo.

Global Insights

Off-Grid Solar Appliances

Between January and June 2020, our affiliates reported 477,000 appliances sold globally. Fans represented 52% of the sales with 248,000 units, closely followed by TVs with 221,000 units (46% of the global total). Refrigeration units and solar water pumps represented each 1% of the global sales of appliances, with 4,400 and 3,400 units respectively.

This is slightly more than the amount recorded in the second half of 2019, while it is a 35% drop compared to the first half 2019. This slight increase may at first seem contradictory considering the effects of the COVID-19 crisis. However, when breaking down the sales per appliance type, sales decreased for **all appliances except fans, which recorded a large increase due to the prominent seasonal sales trend of this product in South Asia**. Evidently, the appliances segment of the off-grid market has also been hit by the COVID pandemic and its consequences.

A 36% increase can be observed in the cash segment compared to the second half of 2019, reflecting the increase of fans sales. Meanwhile, PAYGo sales experienced a 19% drop compared to the same period.

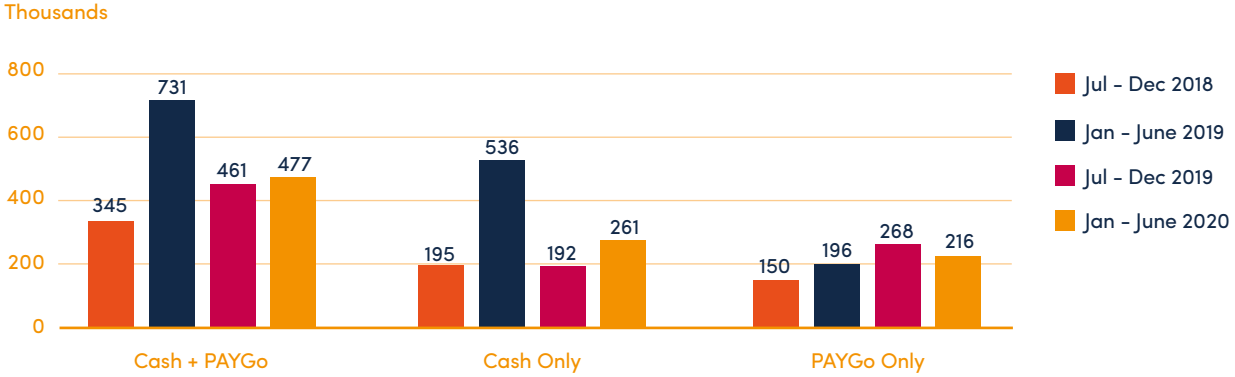
A breakdown of the regional and country sales by appliance types in offered in Table 2, and detailed insights per appliance type, region and country can be found in the following chapters

Fans

Fan sales in the first half of 2020 recorded over 248,000 units sold, a 69% increase from the second half of 2019. However, a more appropriate comparison should be drawn with the first half of 2019, as there is a strong seasonal pattern in the sale of fans - highlighted anecdotally by companies and evident in the sales data trends. Companies have indicated that fan sales are run through a pre-booking system, causing distributors to purchase fans in bulk quantities early in the year and then selling this stock to end-users from March onwards, only reordering the following year when inventories run low. **It is more insightful to compare the sales of the first half of 2020 with the volumes in the same period of 2019, which reveals a 54% drop in global sales.**

In terms of global sales, the vast majority of fans were sold on a cash basis as visible in Figure 6. The lower price of the technology, relative to other off-grid solar appliances, typically means rural customers can purchase fans without consumer financing. **Moreover, fans are not commonly sold together with a power system by the reporting affiliates - 92% of the products being sold unbundled.**

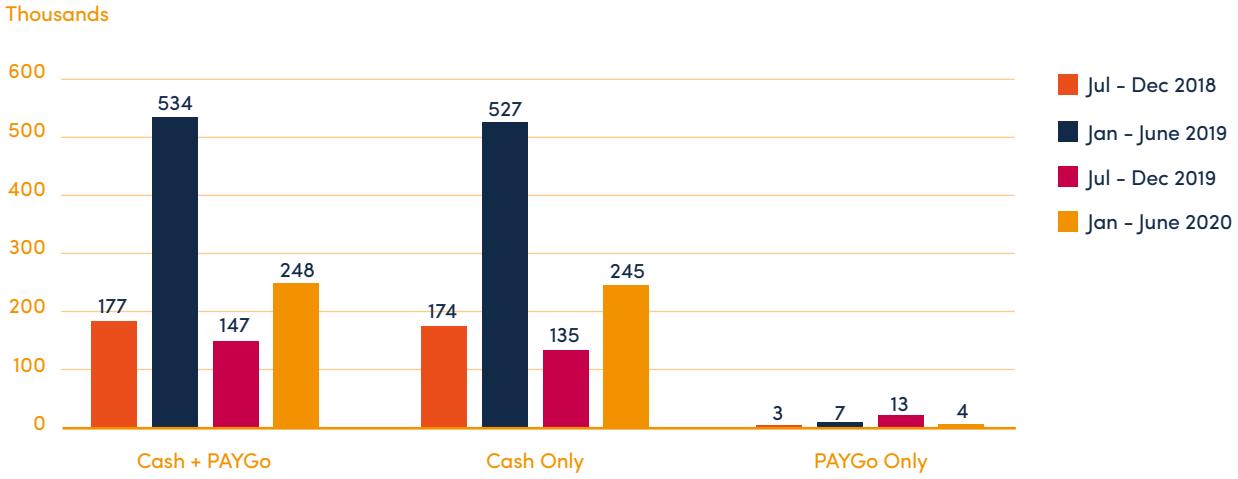
Figure 5 - Semi-annual Evolution for All Appliances - World



NOTE:
- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units.
- Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Global Insights

Figure 6 - Semi-annual Evolution for Fans - World

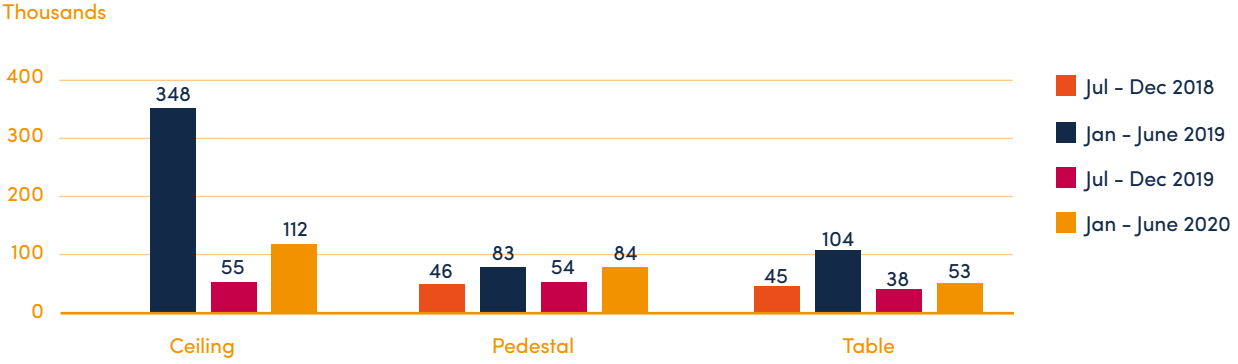


NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

In terms of the portfolio of product categories sold, Figure 7 shows that ceiling fans are again the most sold category, representing 44% of the global sales with 112,000 units. This is mainly driven by South Asia which represents 99% of the sales of ceiling fans; while in West Africa, sales of this product category remain marginal. Another 34% of the market is taken by the 84,000 pedestal fans with diameters around 18". Table fans remain the least sold fan category with 53,000 units. All table fan sales reported fall in the large category, meaning that they have a diameter larger than 12". Interestingly this is the only category in which a sizable percentage is sold bundled with a power system (31%).

All fan categories have seen increased sales compared to the second half of 2019 due to the seasonality of the businesses in Pakistan and Bangladesh. However, none of them have reached the volumes recorded in the first half of 2019 and which companies report as being linked to the COVID-19 crisis.

Figure 7 - Semi-annual Evolution of Fans by Product Category - World



Global Insights

TVs

TVs recorded 221,000 units sold in the first half of 2020, ending the trend of continued growth. Volumes decreased by 21% compared to the second half of 2019, but still saw a 16% increase compared to the first half of 2019. Anecdotally, companies reported that sales of TVs did not experience the same decrease as SHS in Sub-Saharan Africa, because customers valued the ability to access entertainment and information during the initial phase of lockdown. Note that this observation is not applicable to South Asia where sales of TVs saw decreases.

94% of TVs are sold via PAYGo (207,000 units), as opposed to only 14,000 units sold on cash. This is because the largest market for TV sales is currently in Sub-Saharan Africa where the PAYGo market is strong, while affiliates report limited sales in Asia. **80% of the TVs are sold together with a power system, and this larger investment may require consumer financing.** For example, research found that in Nigeria only 10% of households could afford a TV bundle without any consumer financing, while this percentage would grow to 40% if financing options were available.[38]

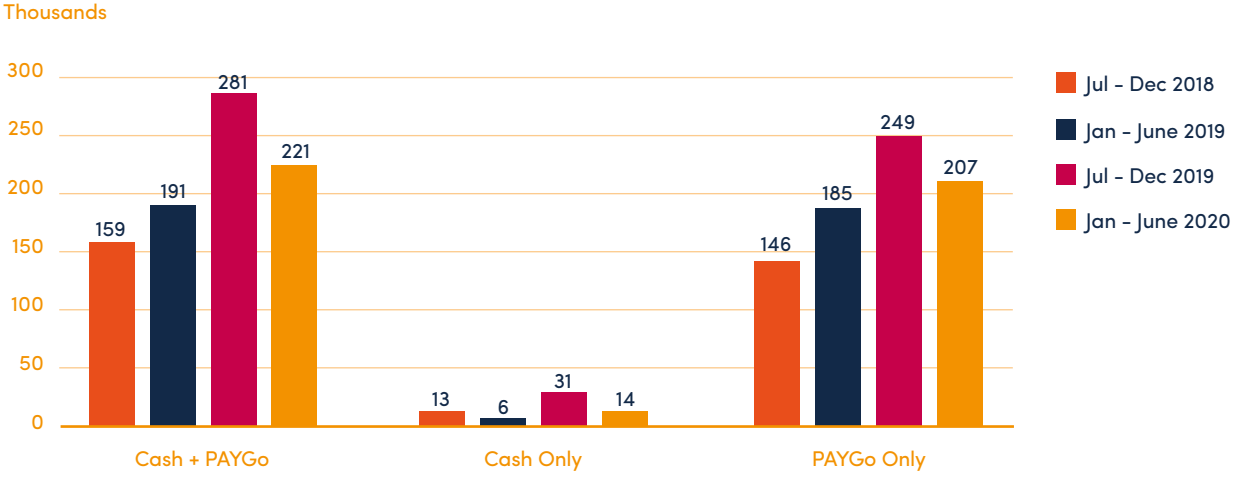
Around 20% TVs have been sold as additional products to existing SHS customers, as companies typically upsell to existing customers and enable their move up to higher tiers of energy access.

In terms of the diversity of product categories, the majority of TVs sold fall in the large category with 121,000 units, followed by the medium TVs and the extra large TVs respectively with 54,000 and 43,000 units. Between these three categories, **it is interesting to observe that the larger the TV, the less likely it is to be sold together with a power system.** Affiliates reported 97% of the medium TVs and 76% of the large TVs were sold bundled together with SHS, whilst only 69% of the extra large TVs were part of a bundle. Anecdotal reports are that this may be because companies typically sell more expensive TVs as an additional product, only after the customer has proven credit worthiness and repayment stability.

Sales of small TVs remain marginal, registering only 2,000 units. A possible explanation is that the larger sized TVs are becoming so efficient that the power consumption difference between large TVs and small TVs is minimal, while the perceived additional value is significant. This makes it possible for consumers to upgrade to larger TVs without a significant investment to expand solar panels and battery capacity.

Nearly all product categories saw a decrease in sales volumes, with large TVs seeing the largest decrease (27%) followed by medium TVs with an 18% drop. Notably, the extra large category did not register any decrease and in fact recorded stable sales.

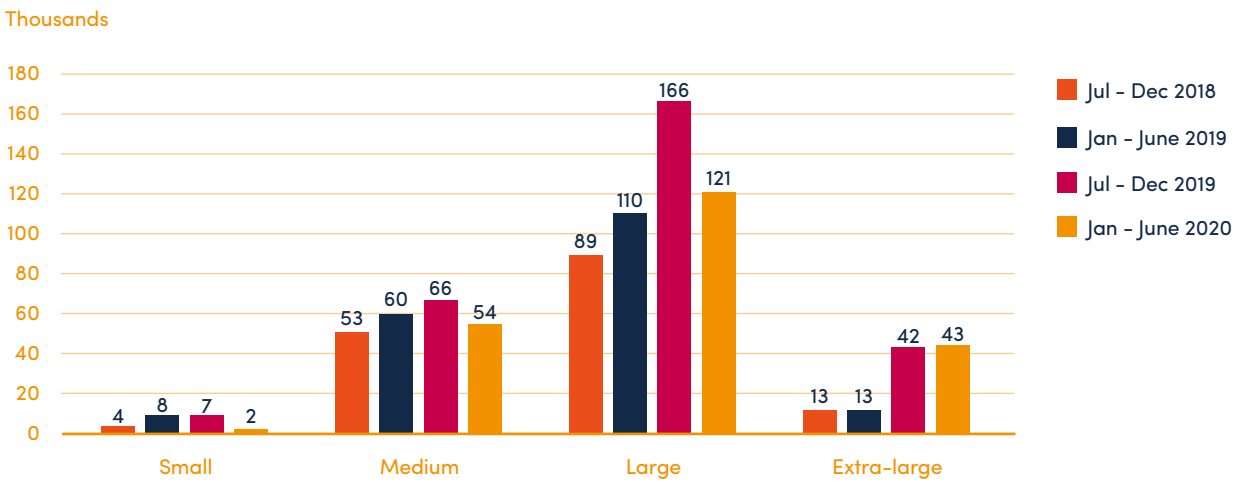
Figure 8 - Semi-annual Evolution for TVs - World



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

38 Efficiency for Access Coalition, 2019 State of the Off-Grid Solar Market Report, 2019. Full report here: https://efficiencyforaccess.org/publications/2019-state-of-the-off-grid-appliance-market-report

Figure 9 - Semi-annual Evolution of TVs by Product Category - World



Refrigeration Units (RUs)

Off-grid and energy-efficient RUs have experienced a relatively low decrease when compared to the second half of 2019, with only an 18% drop in sales. Between January and June 2020, 4,400 units were sold globally, showing a seemingly buoyant market. However, it should be noted that these volumes are still very low in absolute terms and that the relative decrease has in effect been larger, as participation by off-grid RUs companies in the sales data collection increased. With greater company participation for January - June 2020 reporting, sales would have been expected to keep growing when compared to July - December 2019.

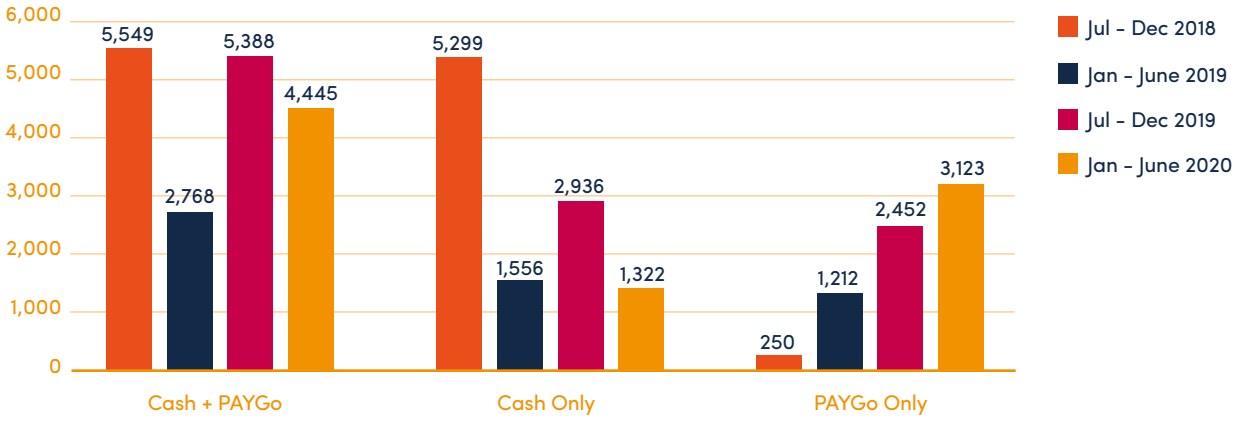
When exploring the reasons for lower than anticipated growth in RU sales the greatest decrease is seen in the cash sale segment. Commonly RUs cash sales are often made through institutional sales. As sales to institutional buyers tend to fluctuate, it is hard to determine whether the decrease is due to COVID pandemic or an absence of bulk purchases. Conversely, **PAYGo sales saw a 27% increase in volume**, clearly facilitating the adoption of this relatively more expensive appliance. One factor that has positively influenced the PAYGo segment for RUs is the 2019-20 Global LEAP Results Based Financing (RBF) incentives in Kenya, Tanzania, Rwanda, Uganda.[39] This began in October 2019 and plans to run at least until November 2020, so this will likely continue influencing sales in the coming rounds.

There is a 50/50 split between refrigeration units sold with or without a power system. This may not reflect a market trend, and it may be specific to the B2B companies reporting in this segment sales of RUs to a local distributor which then sells it to the customers bundled together with a panel and a battery. These percentages will be monitored over time to observe whether RUs are increasingly sold bundled with large SHS or not.

39 Global Leap Awards, 'Results-based financing. 2019-20 - Refrigerators & Solar Water Pumps', 2019. Full article here: https://globalleap-awards.org/results-based-financing

Global Insights

Figure 10 - Semi-annual Evolution for Refrigeration Units - World

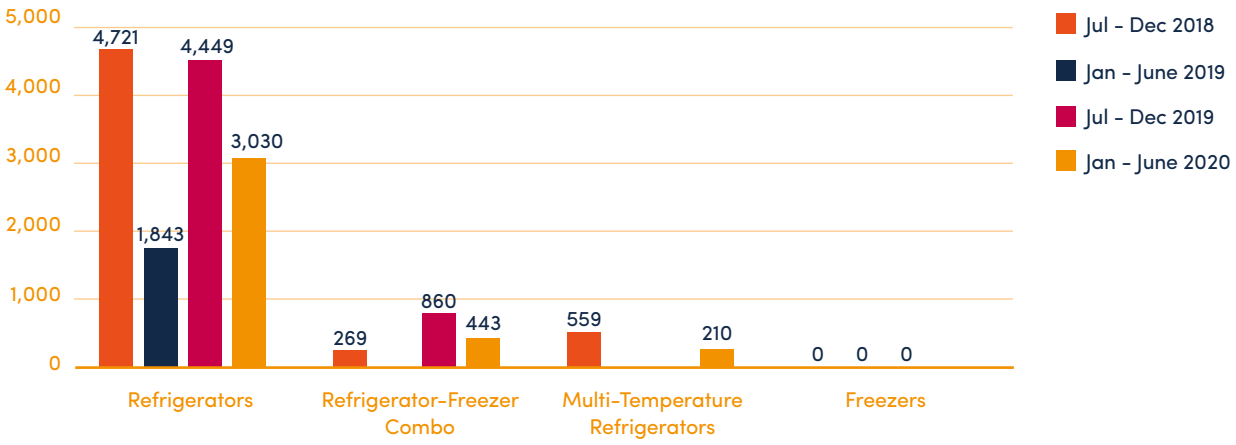


NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

In terms of product category diversity, refrigerators still dominate, representing 87% of the global sales for all RUs categories with 3,000 units. The refrigerator-freezer combination units and multi-temperature refrigerators show 400 and 200 units sold respectively. For the first time, affiliates have started reporting sales of freezers, but their volumes cannot yet be shown as there are less than three companies reporting.

When looking at the number of systems sold bundled with a power system, for refrigerators the percentage is around 36%, showing that the majority of systems are not sold with a solar panel.

Figure 11 - Semi-annual Evolution of Refrigeration Units by Product Category - World



Global Insights

Solar Water Pumps (SWPs)

SWPs experienced the largest relative decrease amongst all appliance types, suffering an 87% reduction of sales volumes and 3,400 units sold. However, this drop can at least partly be attributed to lower participation of SWPs companies in the sales data collection for January - June 2020 than for the one covering July - December 2019. Sales of SWP in the last round were also boosted due to bulk procurements connected with government programmes in South Asia, which have not materialised this round. In comparison to the volumes recorded in the first half of 2019, sales of SWPs have increased by 10% globally.

The high upfront costs of this technology still represent a barrier for wider uptake. The 2019-20 Global LEAP RBF started in October 2019 has continued its operations, subsidising the costs of SWPs in Kenya, Tanzania, Rwanda, Uganda, and Senegal.[40] More support and schemes are due to come online to facilitate the distributions of these systems.

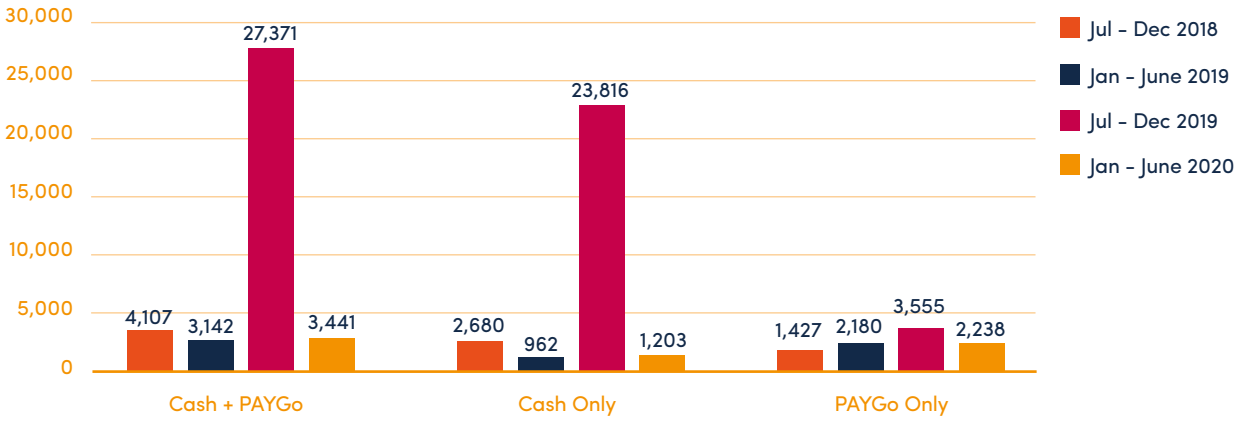
PAYGo sales represent the largest number of SWPs sales this round, reflecting mostly the reality in Sub-Saharan Africa. **80% of SWPs reported in this period were sold together with a power system, and this larger investment may require consumer financing.**

Other Appliances

Sales are also recorded for a wide variety of other solar-powered appliances, amounting to around 5,000 units. Of these, over 3,000 have been sold via PAYGo channels and bundled with a power system. These units are not **included under the 'all appliances' category and include products such as agro-processing machines, air-conditioners, irons, hair clippers, stereos, sewing machines, egg incubators and other equipment.** Currently, if separated, these volumes would not pass our confidentiality rules. For the time being, they will be reported together, while we keep monitoring progress of each appliance type.

Note that radios are excluded from both 'all appliances' or 'other appliances', as they are regularly sold bundled with lighting systems, to such an extent that their large volumes would have skewed the overall results. **More than 225,000 radios were sold globally in the first half of 2020.**

Figure 12 - Semi-annual Evolution for Solar Water Pumps - World



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

40 Global Leap Awards, 'Results-based financing. 2019-20 - Refrigerators & Solar Water Pumps', 2019. Full article here: https://globalleap-awards.org/results-based-financing

Global Insights

Table 2 - Sales of off-grid solar appliances per region and country

Country	All Appliances	TVs	Fans	Refrigeration Units	Solar Water Pumps	Other Appliances
Sub-Saharan Africa	**476.994**	**218.984**	**12.327**	**3.662**	**2.665**	**3.570**
East Africa	**164.111**	**157.098**	**1.939**	**2.586**	**2.488**	**3.535**
Ethiopia	454		0			0
Kenya	130.958	127.225		1.493	1.857	1.787
Mozambique	1.476				0	0
Rwanda	3.618	3.602	0		0	
Tanzania	13.021	12.622				
Uganda	9.200	7.983		794	334	
Zambia	5.351	5.340	0			
West Africa	**51.181**	**39.902**	**10.106**	**1.009**	**164**	**35**
Benin	6.459		0		0	0
Burkina Faso	881	816		64	0	0
Cote d'Ivoire	8.950	7.692	1.128	107		0
Ghana	1.416					0
Guinea	1.861				0	0
Liberia	282				0	0
Mali	1.254	692				0
Nigeria	11.378	4.807	6.031	537		
Senegal	10.327	9.336		40	79	
Sierra Leone	2.313	1.712			0	0
Togo	5.965		0	0		0
Central Africa	**22.174**	**21.984**		**52**		**0**
Cameroon	12	0	0			0
Congo (DRC)	22.150	21.984		35	0	0
Southern Africa	**172**	**0**				**0**
South Asia	**233.135**	**159**	**232.121**	**188**	**667**	**1.472**
Bangladesh	40.630	0	40.026			0
India	7.155		6.869	153		1.472
Pakistan	185.241				0	0
East-Asia & Pacific	**3.686**	**1.364**	**2.026**	**248**		**0**
Papua New Guinea	447		0			0
Vanuatu	1.729				0	0
Latin America & Caribbean	**198**					**0**
Middle East & North Africa		**0**			**0**	**0**

NOTE:
Note that only an excerpt of countries is included above, excluding all the countries showing 0 sales or not passing the three-data point rule for all appliances combined. When there are fewer than three responses, no results are shown to protect the proprietary interests of the companies who have supplied data in support of this industry report. While if there are no companies reporting data at all, the graph shows a value of 0.

Estimated Impact of Off-Grid Solar Lighting Products

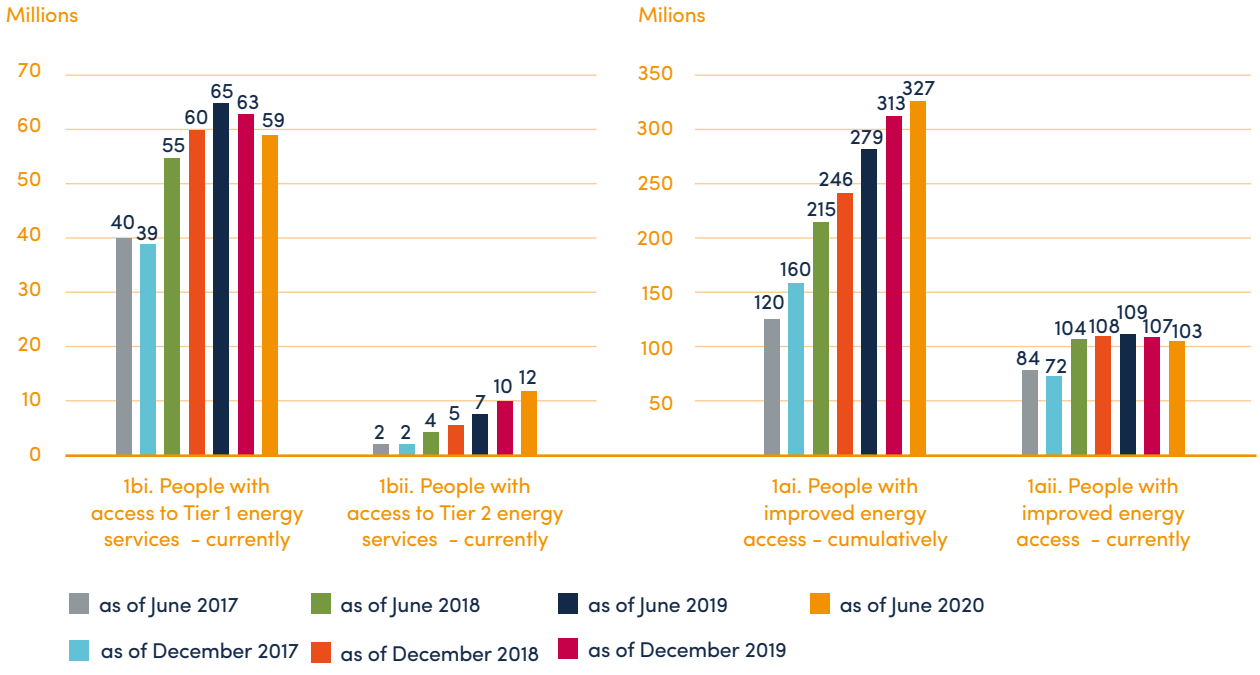
Energy Access

Off-grid solar lights sold by participating affiliates[41] have reached 327 million customers over the last 10 years. This cumulative number is expected to increase, but growth between January - June 2020 has contracted compared to previous reporting rounds. In fact, the drop in sales means **an estimated 5 million people have not been able to benefit from improved electricity access because systems have not reached them in the first half of 2020.**

The number of people currently accessing clean solar electricity stands at a little over 100 million. However, a slow but steady decrease is apparent in the past year from an estimated 109 million in June 2019 to 103 million in June 2020. Between June and December 2019, the decrease was due to thousands of the smallest solar lanterns and multi-light kits falling out of warranty (the proxy used for 'end of lifetime'), primarily in India. However, **the larger decrease in the first half of 2020 is also linked to the significant drop in new sales, as a result of the macroeconomic conditions created by the COVID-19 pandemic. Globally, this has also resulted in a drop in estimated Tier 1 access** from 63 million people in December 2019, to 59 million in June 2020, as the products offering such level of access have experienced the largest absolute decreases in new sales during this period.

For Tier 2 energy access, the narrative is more positive. There has been strong growth in the number of people currently benefiting from Tier 2 access in recent years. 12 million people now have enough energy each day to power a range of appliances, including TVs and fans. **Still, it should be noted that the growth slowed considerably in the first half of 2020**, with only a 17% increase in the Tier 2 access rate between December 2019 and June 2020, compared to a 60% increase between June and December 2019.

Figure 13 - Semi-Annual Evolution of Energy Access metrics (on the right metrics 1ai and 1aii, on the left 1bi and 1bii) - World



NOTE:
The Tiers of Energy Access are computed based on the Sustainable Energy for All (SEforAll) Global Tracking Framework. Tier 1 refers to basic energy access, including lighting and phone charging, while households with Tier 2 access receive enough electricity to additionally power energy-efficient household appliances such as TVs.

41 Affiliates include GOGLA members, companies selling products that meet Lighting Global Quality Standards, and appliance companies of the Global LEAP Awards or the Low Energy Inclusive Appliances (LEIA) programme.

Regional Impact Estimates for Energy Access through Off-Grid Solar Lighting Products

Regional impact trends vary, as they depend on the stage and evolution of each country's market, the product compositions and, of course, the ways in which each region has weathered and responded to the challenging macroeconomic conditions of 2020. **Whilst in most regions the impact created by the off-grid sector has continued to grow, this growth has slowed when compared to previous years.** Given the importance of affordable, clean solutions for achieving energy access, economic growth and welfare goals, slowdown in progress is concerning. **The 'opportunity missed' in each region is significant and showcases how critical it is for the sector to get the support it needs to get back on track in the quickest possible time.**

In **East Africa** clean energy access increased from 39.7 in December 2019 to 42.3 million people in June 2020. Comparing the same periods, Tier 1 access grew from 23.1 to 23.9 million people, whilst Tier 2 access increased from 4.2 to 5.3 million. These increases hide the challenges experienced in the region, leading to estimates that were lower than expected.

In **West Africa**, growth in energy access also grew, from 7.5 million people in December 2019 to 8 million people in June 2020. This is predominantly linked to continued growth in sales of larger off-grid solar systems. Similarly to West Africa, a slight increase in energy access was seen in **Central Africa** (from 3.2 million in December 2019 to 3.4 million people as of June 2020).

South Asia saw the greatest change in current energy access and a concerning decrease from 30.3 million people in December 2019 to 26.9 million people in June 2020. This was a result of reduced volumes of new product sales, in particular solar lanterns, which were lower than the number estimated to have reached their end of life. These lower sales numbers also led to a decrease in Tier 1 level access. The numbers for South Asia have been naturally affected by the large decreases in India experienced since 2018 and exacerbated by COVID-19, the largest country market in the region (for details see India section at page 94).

Similarly, East Asia and Pacific also saw an overall decrease in current energy access, from 4.5 million people in December 2019 to 3.8 million people in June 2020. As in South Asia, this was due to fewer clean energy products reaching energy poor homes than those which were estimated to have reached their end of life. This decrease was also seen in the number of people currently benefiting from Tier 1 energy access, from 2.4 million to 1.8 million. Tier 2 energy access in the region remained stable.

See figure 14 on next page

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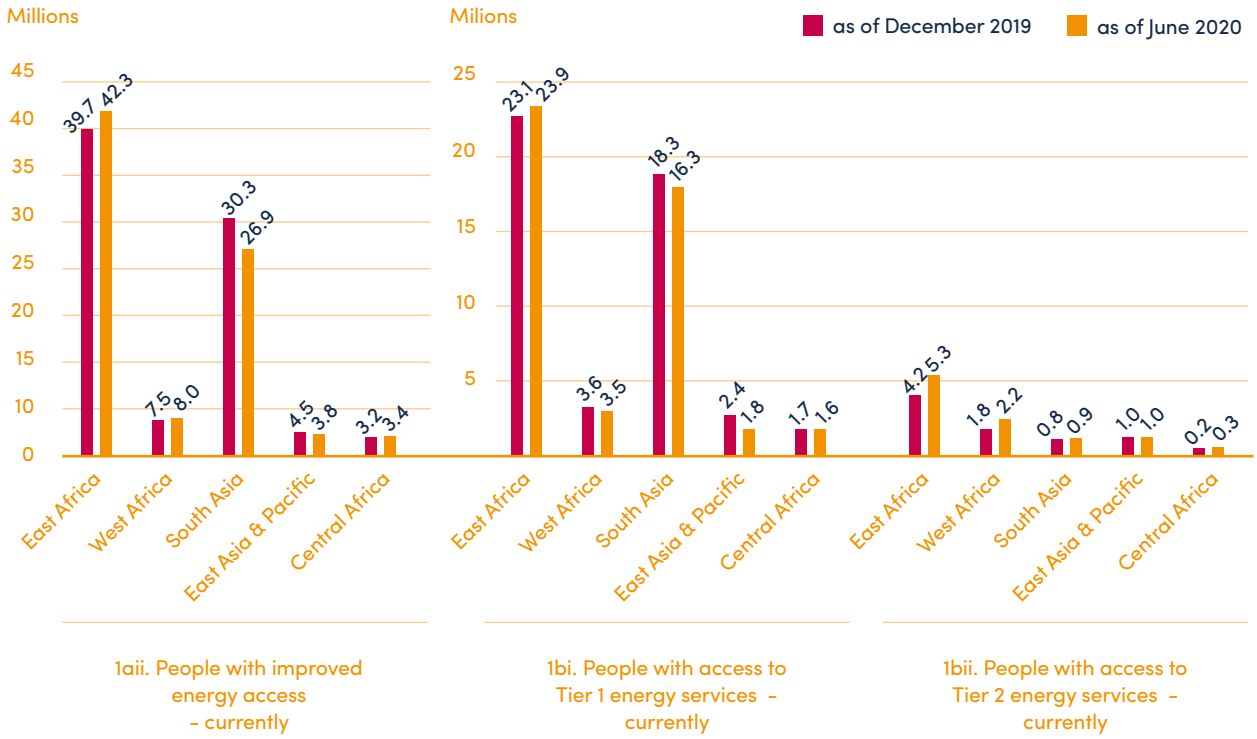
Figure 14 - Semi-Annual Evolution of Energy Access metrics (on the right metric 1aii, on the left 1bi and 1bii) - Regions

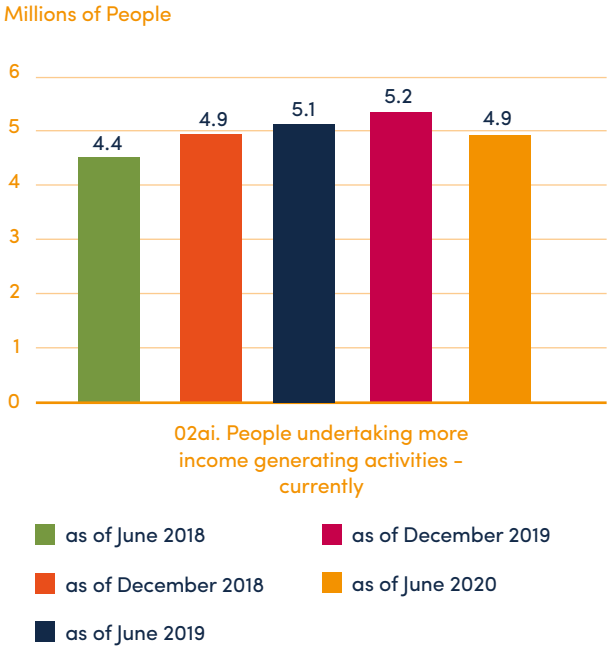


NOTE:
The Tiers of Energy Access are computed based on the Sustainable Energy for All (SEforAll) Global Tracking Framework. Tier 1 refers to basic energy access, including lighting and phone charging, while households with Tier 2 access receive enough electricity to additionally power energy-efficient household appliances such as TVs.

Economic Activity

The number of people now undertaking more economic activity through use of their off-grid solar systems decreased by an estimated 5% between December 2019 and June 2020 (see Figure 15). As a result of the slow-down in sales, small decreases are also noted in all other economic impact metrics, including the number of people using their product to support an enterprise, open a new business or using the additional light hours generated by the product to spend more time working.

Figure 15 - Semi-Annual Evolution of People Undertaking More Economic Activity (metric 2a) - World



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Environment

As with economic impact, the rate of greenhouse gas reductions seen when households switch from using toxic kerosene for lighting to renewable solar has also slowed. The growth has been cut from 12-14% each round over the past three rounds to 5% this round. **However, the January-June 2020 sales still saw the overall CO_2e avoided by affiliate companies drop to 77.8 million metric tons since 2010 (over the product lifetimes). This is equivalent to taking 20 coal fired power plants offline for one full year.**

Light Use & Quality

Despite the missed opportunity for even greater impact in the first half of 2020, one impact area continues to provide particularly strong and positive insights. The ongoing performance and efficiency improvements made by off-grid solar companies to their products battery lifetime and lumen output (brightness) are leading to more light hours unlocked for each household, and greater energy service.

Figure 16 - Semi-Annual Evolution of CO_2e emissions avoided cumulatively (metric 7) - World

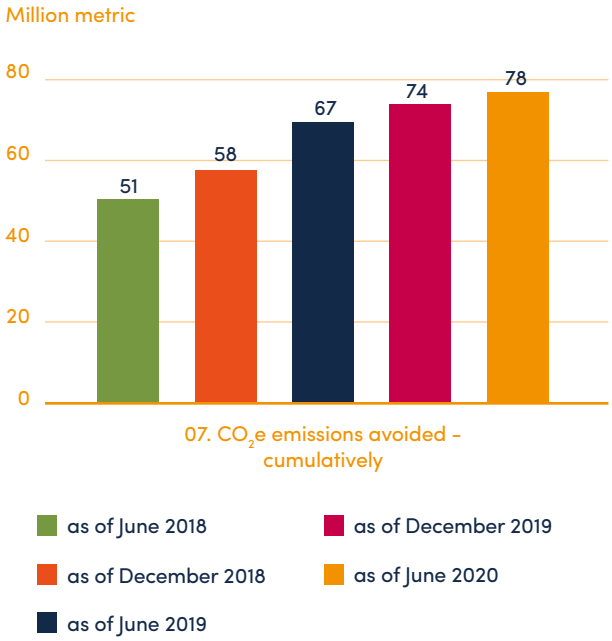

Table 3 – Global Impact by Product Category

Product Categories	Number of People with Improved Energy Access - Cumulatively	Number of People with Improved Energy Access - Currently	Number of People with Access to Tier 1 Energy Services - Currently	Number of People with Access to Tier 2 Energy Services - Currently
All Categories	**326 million**	**103 million**	**59 million**	**12 million**
0-1.5 Wp	142.2 million	29.1 million	7.0 million	-
1.5-3 Wp	126.4 million	39.8 million	31.2 million	-
3-10 Wp	37.3 million	15.9 million	15.1 million	-
11-20 Wp	6.5 million	4.8 million	4.7 million	0.005 million
21-49 Wp	5.3 million	4.9 million	0.7 million	4.0 million
50-100 Wp	5.7 million	5.5 million	-	5.3 million
100+ Wp	3.2 million	2.9 million	-	2.8 million

Continues on next page

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Product Categories	Number of People Undertaking More Income Generating Activities - Currently	Number of People Using Products to Support Enterprise - Currently	Number of People that Spend More Time Working - Currently	Additional Income Generated- Cumulatively
All Categories	**4.9 million**	**2.6 million**	**2.7 million**	**US$ 6 billion**
0-1.5 Wp	0.8 million	0.6 million	0.3 million	US$ 1.5 billion
1.5-3 Wp	1.1 million	0.8 million	0.4 million	US$ 1.2 billion
3-10 Wp	1.5 million	0.5 million	1 million	US$ 1.9 billion
11-20 Wp	0.3 million	0.1 million	0.2 million	US$ 0.3 billion
21-49 Wp	0.3 million	0.1 million	0.2 million	US$ 0.2 billion
50-100 Wp	0.3 million	0.1 million	0.2 million	US$ 0.4 billion
100+ Wp	0.2 million	0.09 million	0.1 million	US$ 0.2 billion

Product Categories	Additional Light Hours Used - Cumulatively	Additional Light Hours Used - Household	Change in Quality of Light - Household
All Categories	**79 billion**	**1.465**	**173**
0-1.5 Wp	33.2 billion	1.317	-12
1.5-3 Wp	29.7 billion	1.379	36
3-10 Wp	8.6 billion	1.360	147
11-20 Wp	1.7 billion	1.419	287
21-49 Wp	1.6 billion	1.500	860
50-100 Wp	3.0 billion	2.552	484
100+ Wp	1.6 billion	2.615	2.015

Product Categories	Savings on Energy Expenditures - Cumulatively	Savings on Energy Expenditures - Household	Kerosene Lanterns Replaced - Currently	CO_2e Emissions Avoided - Cumulatively
All Categories	**US$ 11 billion**	**$187**	**21.6 million**	**77.8 million**
0-1.5 Wp	US$ 5.9 billion	$189	6.2 million	33.1 million
1.5-3 Wp	US$ 4.4 billion	$180	8.5 million	28.6 million
3-10 Wp	US$ 1.0 billion	$201	3.2 million	8.7 million
11-20 Wp	$-	$-	0.9 million	1.8 million
21-49 Wp	$-	$-	0.9 million	1.5 million
50-100 Wp	$-	$-	1.0 million	2.5 million
100+ Wp	$-	$-	0.5 million	1.4 million

NOTE:

- Impact is estimated using the GOGLA Standardised Impact Metrics for the Off-Grid Solar Energy Sector. Please note that the current approach is based on best available research information and data; therefore, all numbers calculated using the metrics should be interpreted as estimates.
- Lanterns 0-1.5 Wp include one light and no mobile charging, lanterns 1.5-3 Wp one light and mobile charging, and multi-light systems 3-10 Wp at least two lights and mobile charging. Solar home systems >11 Wp are classified based on panel wattage.

East Africa Insights

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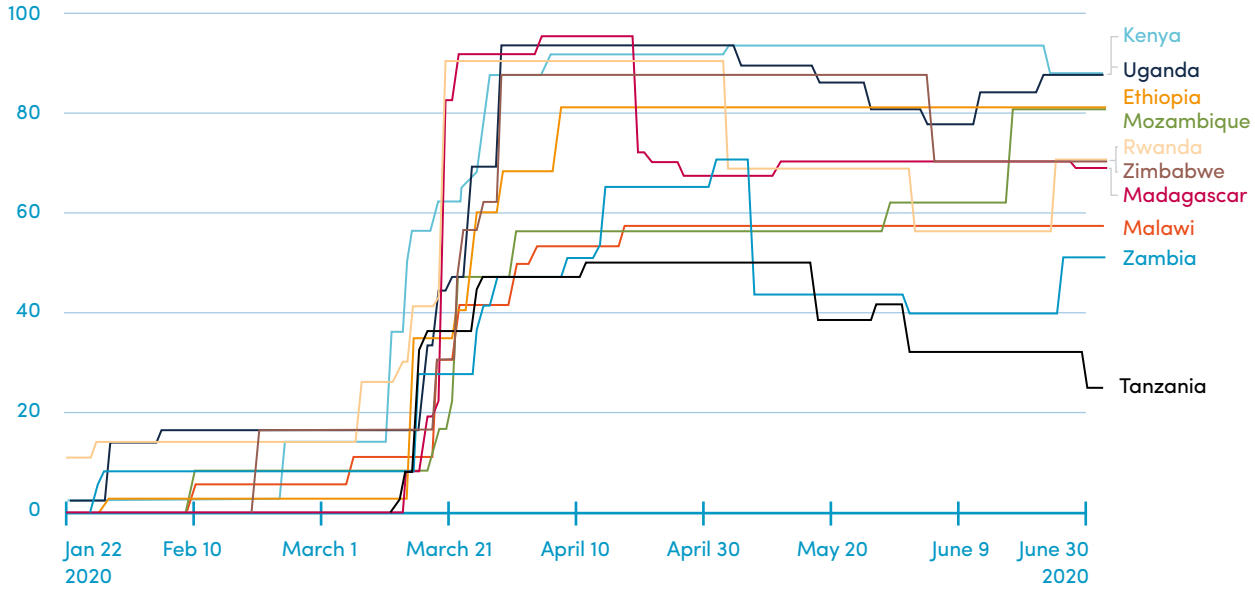
Background

East African countries have generally experienced quite stringent lockdowns as a result of the COVID-19 pandemic, mostly starting from mid to late-March as shown in Figure 17. Kenya, Rwanda and Uganda saw the highest levels of stringency in their response to the pandemic, with Tanzania seeing the lowest. However, **in Kenya and Rwanda off-grid solar companies received recognition as an 'essential service' during the lockdown**. This meant that provisions were made, within the tight containment measures, for off-grid solar companies and they were able to continue certain levels of operation. This limited the negative impacts of a complete halt in activity. **Note that this designation was not effective from the beginning of the lockdowns, meaning that companies were still affected by the measures for a period.**

Figure 17 - Evolution Government Response Stringency Index - East Africa[42]



NOTE:
The Government Response Stringency Index is a composite measure between 0 and 100 encompassing 17 indicators of responses to the pandemic. Note that these indices simply record the number and strictness of government policies, and should not be interpreted as 'scoring' the appropriateness or effectiveness of a country's response.

42 Blavatnik School of Government and University of Oxford, 'Oxford COVID-19 Government Response Tracker', 2020. Full report here: https://www.bsg.ox.ac.uk/research/research-projects/oxford-covid-19-government-response-tracker

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In East Africa, the impact of the pandemic was exacerbated by a preceding and ongoing challenge of equal, if not greater, proportions. 2020 saw the worst infestation of desert locusts experienced in Ethiopia for 25 years and the worst in Kenya for 70 years. The first wave arrived in the region in late 2019, when most of last year's crops had reached maturity or been harvested. However, the second and even more devastating wave hit during East Africa's primary growing season around mid-March, when the emerging plants are particularly vulnerable to locusts.[43] **The United Nations Food and Agriculture Organisation (FAO) estimates up to 25 million East Africans will suffer from food shortages later this year, and a million are already suffering from severe food insecurity**.[44] As these analyses were conducted prior to the global COVID-19 pandemic, it is likely that food security will be even more heavily undermined by the challenges created by the COVID-19 crisis.

Moreover, in June 2020 Kenya's new finance bill re-introduced VAT on off-grid solar products and the East Africa Community (EAC) adjusted to the duty exemption regime, as part of the 2020-2021 budgets. This may have a compounding effect for the sector when considering the previously mentioned vulnerabilities. The role that VAT and duty exemption regimes have played in enabling the sector to grow in the region has been highly significant and these changes are likely to have a negative impact on future sales.

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43 National Geographic, 'Gigantic new locust swarms hit East Africa', 2020. Full article here: https://www.nationalgeographic.com/animals/2020/05/gigantic-locust-swarms-hit-east-africa/

44 Food and Agriculture Organization, 'Desert locust upsurge progress report', 2020. Full report here: https://reliefweb.int/sites/reliefweb.int/files/resources/Desert%20locust%20upsurge%20%E2%80%93%20progress%20report%20May%202020.pdf

East Africa Insights

Sales Trends

Off-Grid Solar Lighting Products

Sales of off-grid solar products in East Africa totalled 1.56 million units sold between January-June 2020. This is a 36% decrease compared to the second half of 2019 and an 11% decrease compared to the first half of 2019.

Cash sales seem to have experienced larger reductions, while PAYGo sales remained relatively stable. Around 822,000 units were sold on a cash basis, 46% less than the second half of 2019 and 18% less than the first half of 2019. Conversely, in the first half of 2020, 734,000 units were reported sold via PAYGo, a 18% decrease in volumes compared to the last reporting round and nearly the same number of sales as the first half of 2019.

Portable Lanterns

Sales of portable lanterns reached 915,000 units in East Africa, 59% of the region's total sales. Affiliates reported sales of 372,000 units of portable lanterns without mobile charging - i.e. those with an indicative wattage of 0-1.499 Wp. This is a significant 53% decrease compared to the second half of 2019 and a 42% drop compared to the first half of 2019. Portable lanterns capable of charging mobile phones - i.e. those with an indicative wattage of 1.5-2.999 Wp - experienced a slightly less drastic decrease of 21% with sales of 542,000 units compared to the second half of 2019 and a 45% increase compared to the first half of 2019.

Multi-light systems

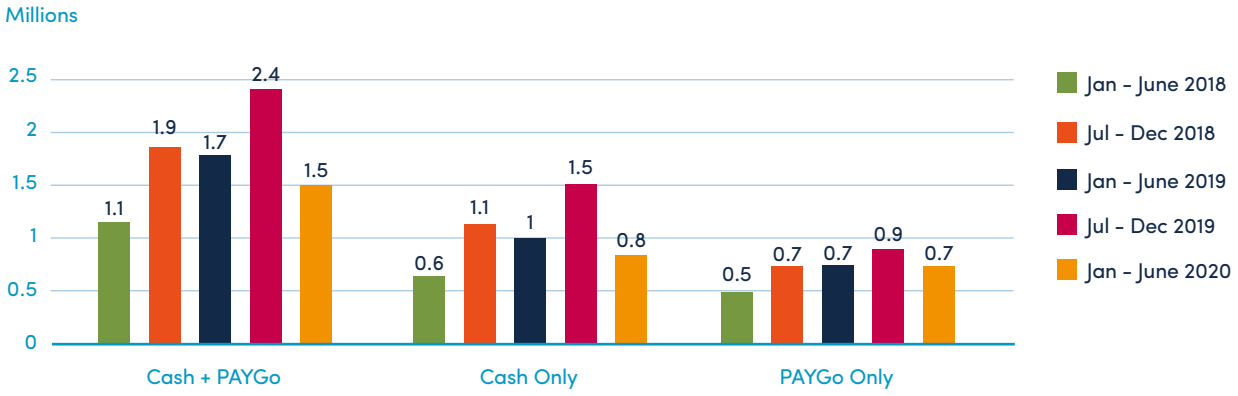
East Africa recorded nearly 300,000 units of multi-light systems sold between January and June 2020, representing 19% of all regional sales. This product category shrank 46% compared to the second half of 2019 and 23% in comparison with the volumes recorded in the first half of 2019.

Solar Home Systems (SHS)

Around 342,000 SHS were sold in East Africa in the first half of 2020. This is a 15% decrease compared to the second half of 2019 and similar in volumes to the first half of 2019.

The 21-49 Wp remains the best-selling SHS category in the region at nearly 150,000 units, seeing a smaller decrease of 17% compared to the last reporting round. The 11-20 Wp category recorded 97,000 units sold in East Africa, a 35% drop compared to the second half of 2019. Meanwhile, sales of the 100+ Wp saw the largest relative decrease of 50% in this product category, falling to 7,000 units.

Figure 18 - Semi-annual Evolution of Volume of Products Sold - East Africa

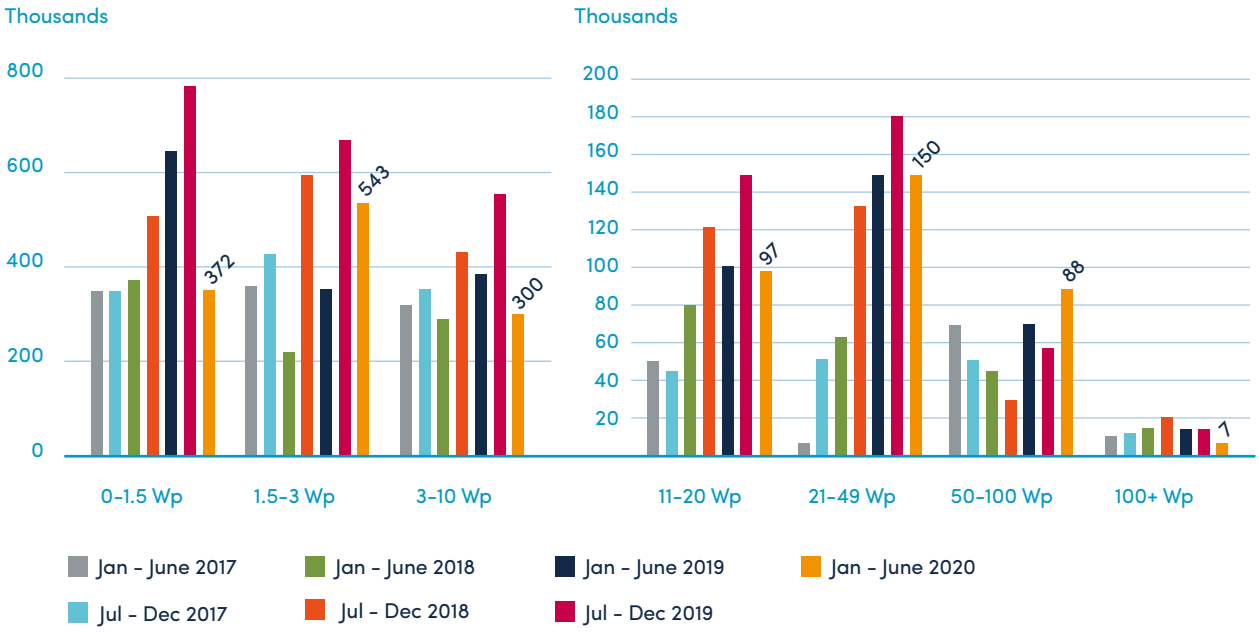


NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

East Africa Insights

One notable difference in the overall regional SHS sales trend in the 50-100 Wp category was the 53% increase compared to the second half of 2019 and a 24% increase compared to the first half of the same year. A possible explanation for this, cited by companies in the region, is that this SHS size became popular amongst wealthier customers who wanted to purchase a backup power source to have at home during the lockdown period.

Figure 19 - Semi-annual Evolution of Global Sales Volumes by Product Category - East Africa



NOTE:
Lanterns 0-1.5 Wp include one light and no mobile charging, lanterns 1.5-3 Wp one light and mobile charging, and multi-light systems 3-10 Wp at least two lights and mobile charging. Solar Home Systems >11 Wp are classified based on panel wattage.

East Africa Insights

Off-Grid Solar Appliances

Between January and June 2020, the total recorded number of appliance sales in East Africa reached 164,000 units. This is a 13% decrease compared to the second half of 2019, but a 37% increase compared to the first half of 2019.

TVs represented 96% of the sales in East Africa with 157,000 units. Refrigeration units and solar water pumps represented each 2% of the regional sales of appliances, with 2,600 and 2,500 units respectively. Sales of fans remain marginal at 1% with 2,000 units.

Fans

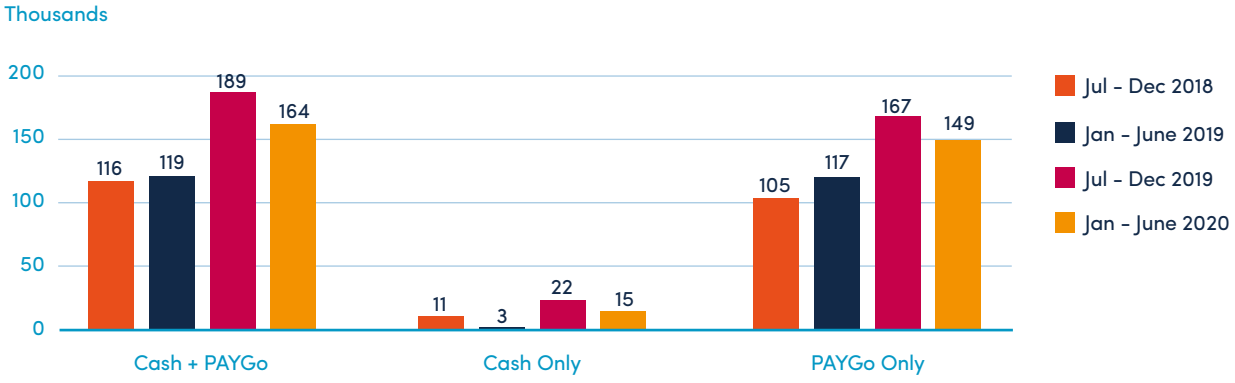
Sales of fans remain marginal in East Africa with 1,900 units sold between January and June 2020.

The demand for fans is smaller given the milder climate conditions compared to South Asia or West Africa. Given the low level of demand, fans are not commonly included in SHS kits, only 35% of the units are reported sold bundled with a power system by the affiliates.

Sales remained relatively stable compared to the sales recorded in the second half of 2019, seeing a 5% drop. The decrease is larger (23%) compared to the sales to the first half of 2019.

Given the limited sales volumes, the confidentiality rules do not allow us to reveal the split between cash and PAYGo nor the breakdown between product categories in East Africa.

Figure 20 - Semi-annual Evolution for All Appliances - East Africa



NOTE:
- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units.
- Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 21 - Semi-annual Evolution for Fans - East Africa

NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

East Africa Insights

TVs

East Africa remained the largest regional market for TVs. Affiliates sold 157,000 TVs in the first half of 2020, showing a 13% decrease compared to the second half of 2019, but still recording a 39% increase compared to the first half of the same year. Anecdotally, companies reported that sales of TVs did not experience the same decrease as SHS because customers valued the ability to access entertainment and information during the lockdown period.

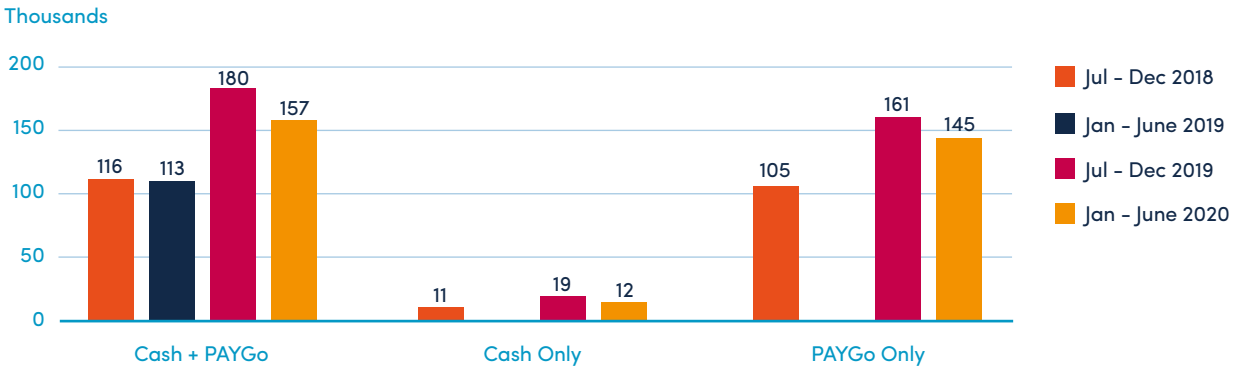
92% of TVs were sold via PAYGo (145,000 units), as opposed to only 12,000 units sold in cash. This is largely due to the high level of bundling with SHS in East Africa, with 78% of products reported as being sold with a power system.

In terms of the diversity of product categories, the greatest share of TVs sold (nearly 50%, at 78,000 units) are large, meaning the TV has a display size between 24" and 29". Medium and extra large TVs follow with 39,600 and 39,400 units sold respectively. Sales of small TVs do not pass three-data point control, meaning that only a few affiliates are actively selling products in that category in East Africa.

Notably, in East Africa only large TVs experienced a decrease in sales, with a 26% drop compared to the second half of 2019. Medium TV sales remained stable, while extra large TVs recorded a 13% increase.

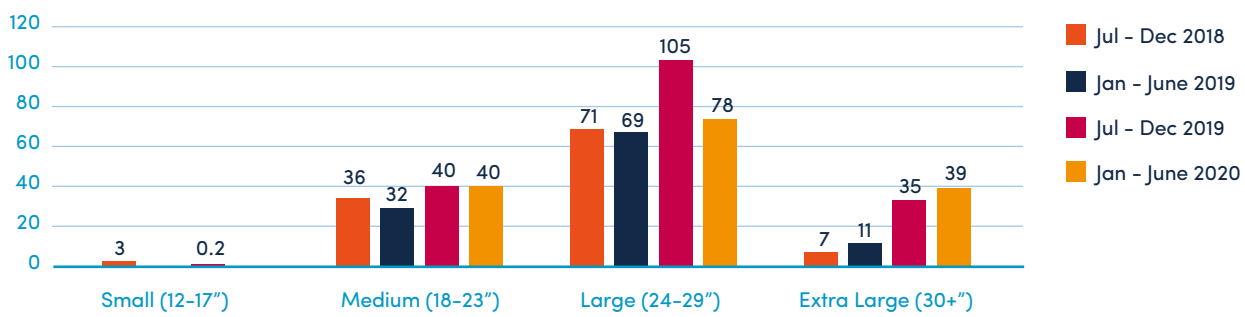
As in global trends, the larger TVs are less commonly sold together with a power system in East Africa: affiliates reported 99% of the medium TVs and 71% of the large TVs being sold bundled, against 68% of the extra large TVs. This may be because companies sell more expensive TVs as an additional product after the customer has proven credit worthiness and repayment stability.

Figure 22 - Semi-annual Evolution for TVs - East Africa



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 23 - Semi-annual Evolution of TVs by Product Category - East Africa



East Africa Insights

Refrigeration Units (RUs)

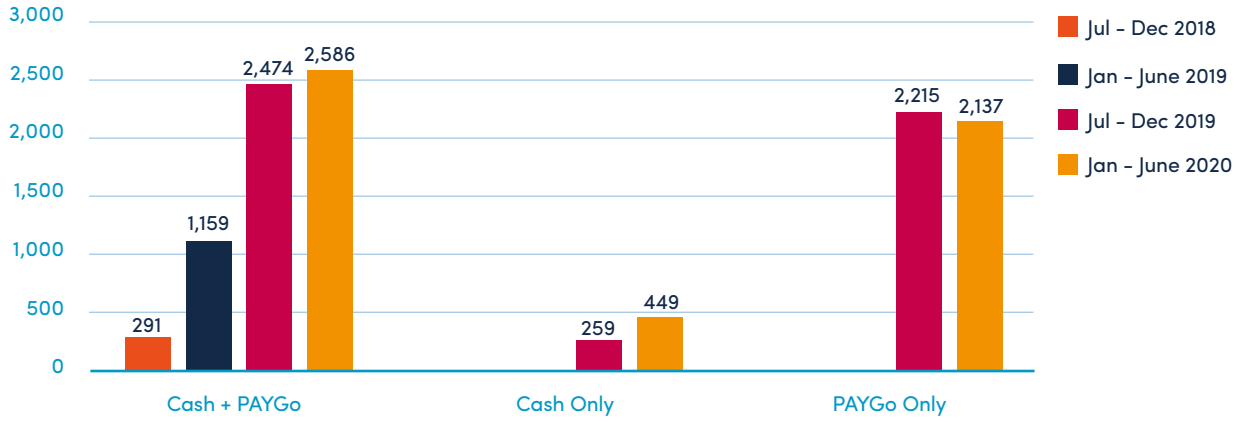
In East Africa, RUs are the only appliance type that did not experience any decrease, instead recording stable sales. Between January and June 2020, 2,600 units were sold, showing a seemingly buoyant yet nascent market. However it is likely that an overall decrease in sales occurred, obscured by new participation from companies in this segment.

In East Africa, the majority of RUs sales - 2,100 - were sold via PAYGo. Cash sales remain marginal with less than 500 units.

RUs are reported to be sold bundled with a power system 40% of the time in East Africa, while the remaining RUs are sold without one. This may not reflect a market trend, and it may be specific to the B2B manufacturing companies reporting sales in this segment which are selling the RUs to a local distributor which will then sell it to the end-user together with a panel and a battery. These percentages will be monitored over time to observe whether RUs are increasingly sold bundled with large SHS.

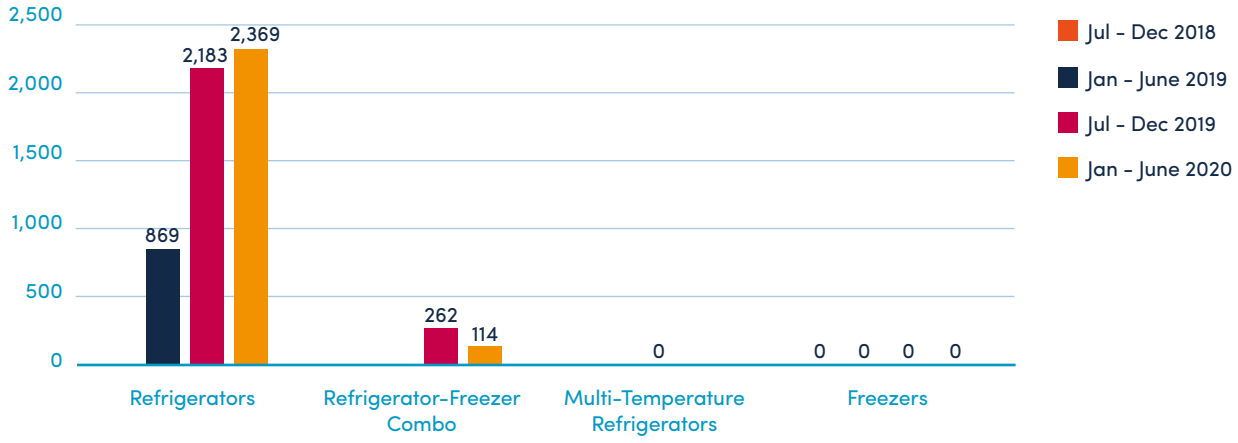
In terms of product category diversity, refrigerators command the largest sales percentage. They represent 91% of the sales in East Africa. The refrigerator-freezer combo units again recorded marginal sales, while sales of multi-temperature refrigerators did not pass the confidentiality rule, meaning the data for that category cannot be shared.

Figure 24 - Semi-annual Evolution for Refrigeration Units - East Africa



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 25 - Semi-annual Evolution of Refrigeration Units by Product Category - East Africa



East Africa Insights

Solar Water Pumps (SWPs)

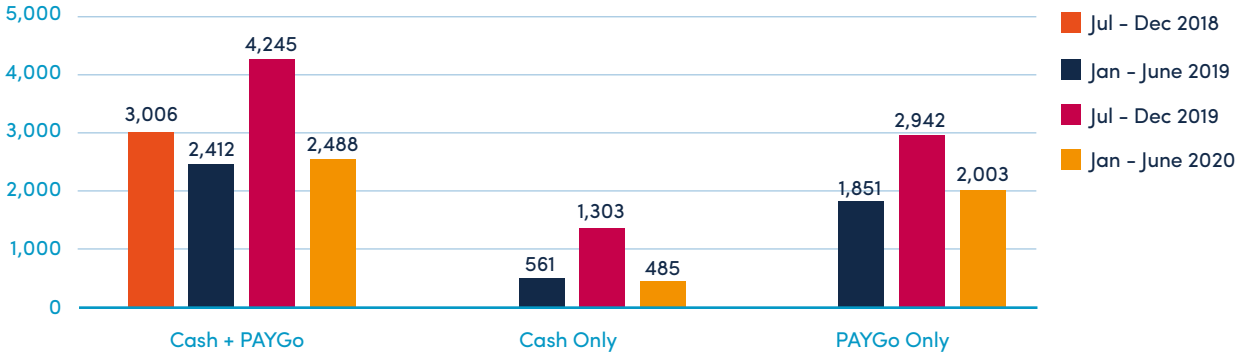
SWPs experienced the largest relative decrease amongst appliance types in East Africa, with a 41% reduction of sales volumes in January - June 2020 compared with July - December 2019, and 2,500 units sold. However, similar volumes were sold compared to the first half of 2019.

In East Africa, the majority of SWPs, 80% of the total, are sold via PAYGo. Affiliates reported that 99% of this appliance type are reported sold bundled with a power system. Given the larger investment required to purchase both the appliance and the power system, it seems logical that customers require some form of consumer financing, such as PAYGo.

Other Appliances

Sales were also reported for a wide variety of other solar-powered appliances, amounting to around 3,500 units in East Africa. These include agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Of these, 3,200 have been sold via PAYGo channels. East Africa is the largest market for the sale of these other appliances, constituting 70% of the globally reported 5,000 units. These units are not represented in the 'All Appliances' numbers noted above.

Figure 26 - Semi-annual Evolution for Solar Water Pumps - East Africa



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

East Africa Insights

Ethiopia Insights

Background

In mid-March, to limit the COVID-19 outbreak, Ethiopian authorities closed borders and schools, ordered the shuttering of nightclubs and entertainment outlets, and announced social distancing measures. **On top of the COVID-19, Ethiopia is facing increased unrest and tension due to internal conflicts.** In response to this situation, the elections scheduled for August 2020 were postponed. On April 8, the Prime Minister declared a state of emergency. In response to the pandemic, most regional states banned inter-regional public transport and public gatherings. The Ethiopian government did not designate off-grid solar as an essential service during the period of January-June 2020 covered in this report; therefore, both the restrictions due to COVID-19 and civil unrest have heavily impacted off-grid solar companies.

Furthermore, in November 2019, the Ethiopian birr was devalued by the National Bank of Ethiopia, and since then it has continued losing value against the dollar. **Accessing forex to import products has always been a bottleneck in Ethiopia**, and little funds were left in the Ethiopian Government's and World Bank funded facility at the Development Bank of Ethiopia (DBE) to be disbursed in 2020, as the majority of the funds were used in 2019. It is expected that the COVID-19 pandemic will further limit the forex available in Ethiopia.

In the first half of 2020, Ethiopia has also witnessed the worst upsurge of desert locusts for 25 years (the category of intensity just below plague). As in Kenya, this infestation has affected the growing season when plants are more vulnerable, and therefore impacted the yield of farmers and their purchasing power.

On a positive note, off-grid solar companies were able to access grant funding through the 'REACT Household Solar Program' by AECF in the second quarter 2020,[45] which is likely to have positively affected the sales of those players.

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45 AECF, 'REACT Household Solar Program', 2020. Full article here: https://aecfafrica.org/portfolio/renewable-energy/household_solar

East Africa Insights

Ethiopia Insights

Sales Trends

Off-Grid Solar Lighting

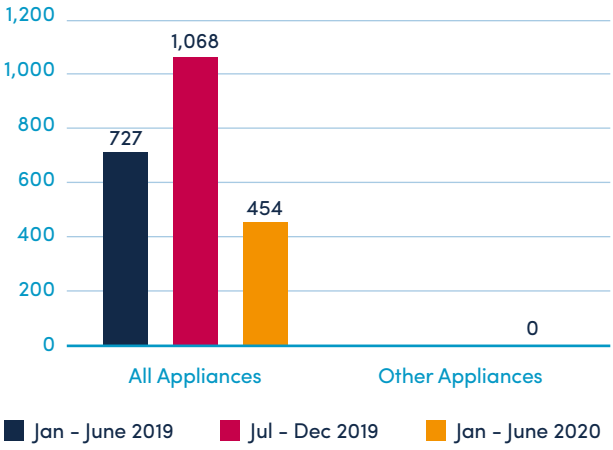
Sales of off-grid solar products in Ethiopia totalled 235,000 units sold between January-June 2020. This represents a 67% decrease compared to the second half of 2019 and a 20% drop from to the first half of 2019. Note that sales in July-December 2019 were particularly high; this means that comparisons with the first half of 2019 may be more fitting.

Both cash and PAYGo sales have been affected, with the first seeing greater decreases. Around 210,000 units were sold on a cash basis - a 68% decrease compared to the second half of 2019 and 17% less than the first half of 2019. In the first half of 2020, 26,000 PAYGo units were sold - a 56% decrease in volumes compared to the last reporting round and a 39% drop compared to sales volumes of the first half of 2019. Note that often these PAYGo products are not sold on instalments in Ethiopia, therefore only remaining PAYGo enabled.

Off-Grid Solar Appliances

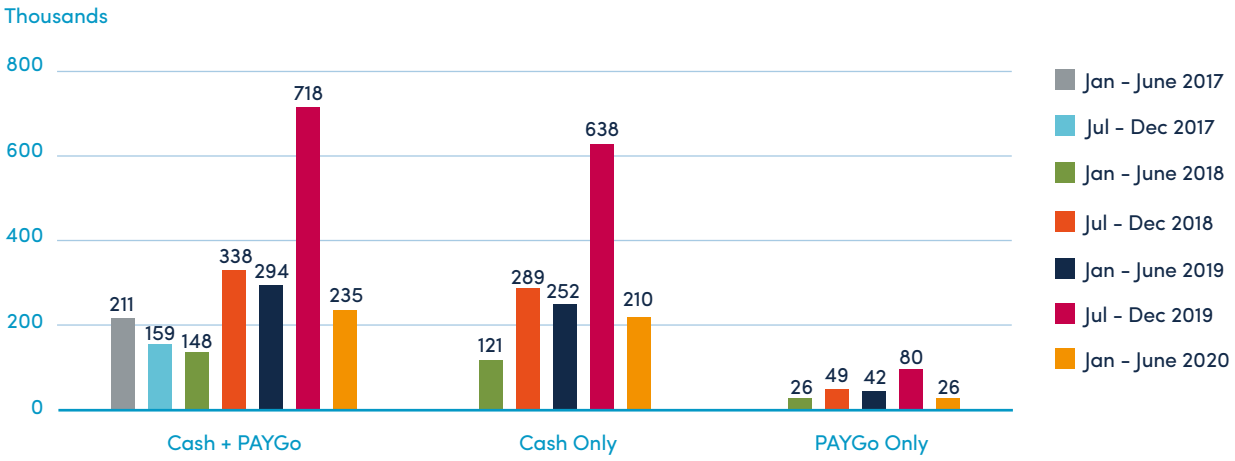
Between January and June 2020, the total recorded number of appliance sales in Ethiopia were 454 units. This is a 57% decrease compared to the second half of 2019 and a 38% drop compared to the first half of 2019. Given the small volumes recorded, it is not possible to offer a breakdown in the different appliance types for Ethiopia, while it is visible that the recorded sales for fans and other appliances were 0 in this reporting round.

Figure 28 - Semi-annual Evolution for Appliances Products - Ethiopia



NOTE:
- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure

Figure 27 - Semi-annual Evolution of Volume of Lighting Products Sold - Ethiopia



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

East Africa Insights

Kenya Insights

Background

Kenya saw one of the most stringent lockdowns in the region starting from March 28th. A nation-wide curfew was introduced along with a ban on public gatherings. This likely severely limited the ability of companies to operate. **However, the government recognised energy as an essential service starting from April 3rd, including off-grid solar companies and mini-grid operators.** Stickers have been developed and issued by the Kenya Renewable Energy Association (KEREA) and should allow companies to continue operations with minimal disruption. Note that the designation was not put in place from the beginning of the lockdown, meaning that companies were still affected by the measures for a period.

As a result of the pandemic and the government measures, the Kenyan Shilling has experienced a devaluation against the dollar, hitting a 11-year low value. This may be affecting companies' liquidity, especially for those servicing debt finance in the foreign currency. **In a more positive move, the Central Bank of Kenya (CBK) announced that starting from mid-March Kenyans transacting less than KSH 1,000 ($10) via mobile money will enjoy free charges.**[46] This measure was taken to facilitate increased use of mobile money transactions instead of cash, given the COVID-19 pandemic, and it may have benefitted some of the customers making small PAYGo transactions to repay their systems.

Similarly, **the purchasing power and disposable income of customers has most likely declined due to rising unemployment and decreasing export commodities such as tea and coffee.** Customers' incomes have also been impacted by **floods due to heavy rainfall[47] and the aforementioned locust infestation[48].** Both these natural disasters have affected agricultural activities across Kenya. The 60 Decibels customer surveys show how the COVID-19 crisis specifically affected off-grid solar customers. **Using the 60 Decibels Vulnerability Index, 38% of the 269 Kenyan customers interviewed were either extremely or very vulnerable.** This was the second highest result amongst the six African countries considered. **89% of the families mentioned that their financial situation got worse since the pandemic began.** Amongst the coping mechanisms adopted by families, the most common was using savings (34%), followed by decreasing food consumption (31%), borrowing money (24%) and reducing loan payments (13%).[49] These coping mechanisms threaten to affect the families' financial situations even beyond the current crisis.

On a more positive note, the Kenya Off-Grid Solar Access Project (KOSAP) closed its first RBF window, selecting a cohort of SHS companies and starting disbursements in the second quarter of 2020.[50] It is likely that this has affected positively sales of products towards the end of this reporting round and will continue doing so in the coming rounds.

An important factor likely to affect Kenya's future sales was the re-introduction of a 14% VAT, rising to 16% post-pandemic, on off-grid solar products as part of the 2020 Finance Bill approved on June 23rd and effective from July 1st 2020.[51] This measure could potentially put a halt to the significant progress achieved by off-grid solar solutions in vast areas of Kenya. GOGLA, its partners and the local industry will continue to engage with the Kenyan government and all relevant stakeholders to pursue a suitable policy solution that will enable the off-grid solar industry to help the government realise universal energy access by 2022.

Since October 2019, one factor that has been positively influencing the PAYGo segment for RUs and SWPs in Kenya are the 2019-20 Global LEAP RBF incentives.[52]

46 Biztech Africa, 'Central Bank of Kenya extends free mobile money transactions', 2020. Full article here: https://www.biztechafrica.com/article/central-bank-kenya-extends-free-mobile-money-trans/15856/

47 Flooodlist, 'Kenya Floodlist', 2020. Full articles here: http://floodlist.com/tag/kenya

48 National Geographic, 'Gigantic new locust swarms hit East Africa', 2020. Full article here: https://www.nationalgeographic.com/animals/2020/05/gigantic-locust-swarms-hit-east-africa/

49 60 Decibel, 'COVID-19 Dashboard', 2020. Full dashboard here: 60 Decibel, 'COVID-19 Dashboard', 2020. Full dashboard here: https://singuser159k8vsm.eu.qualtrics.com/results/public/c2luZ3VzZXIxNTlrOHZzbS1VUl8zOEtzZ3JEZW1VZVU4UzEtNWVmYjNkZDNkZTU5NmYwMDExNDBlY-jBm#/pages/Page_8266db52-1c5c-4871-b9a2-c0a1a1f00b20

50 Kenya Off-Grid Solar Access Project (KOSAP), 'Results Based Financing (RBF) and Debt Facilities', 2020. Full article here: https://kosap-fm.org/

51 GOGLA, 'Policy Alert: Kenya Introduces VAT on Off-Grid Solar Products', 2020. Full article here: https://www.gogla.org/news/policy-alert-kenya-introduces-vat-on-off-grid-solar-products

52 Global Leap Awards, 'Results-based financing. 2019-20 - Refrigerators & Solar Water Pumps', 2019. Full article here: https://globalleapawards.org/results-based-financing

East Africa Insights

Kenya Insights

Sales Trends

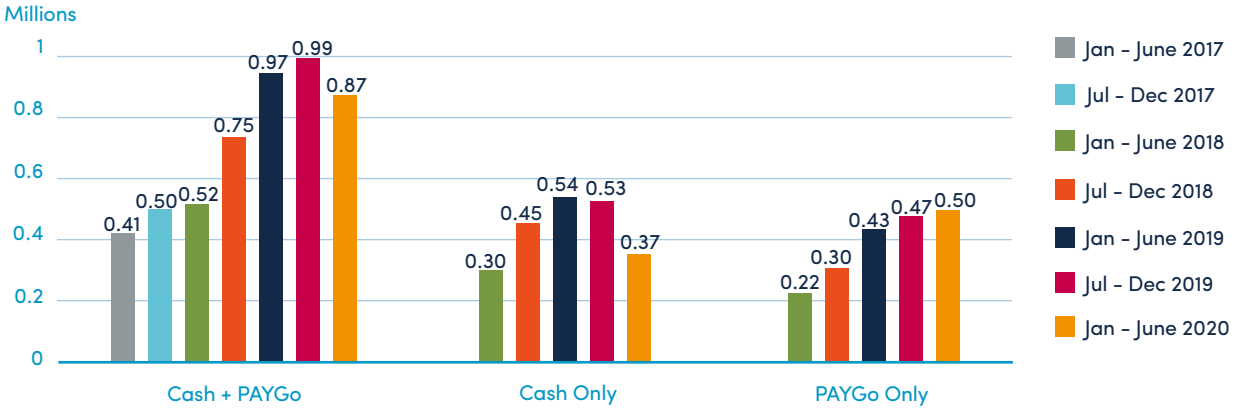
Off-Grid Solar Lighting

Sales of off-grid solar products in Kenya totalled 871,000 units between January and June 2020. This is a 12% decrease in sales volumes compared to the first and second half of 2019; this is the lowest relative decrease in the whole East Africa region. **Cash sales seem to have been disproportionately more affected than PAYGo ones.** Around 372,000 were sold on a cash basis - a 25% decrease compared to the second half of 2019 and 31% less than the first half of the same year. PAYGo sales remain stable at 498,000 units, even seeing a 15% increase compared to the first half of 2019.

Off-Grid Solar Appliances

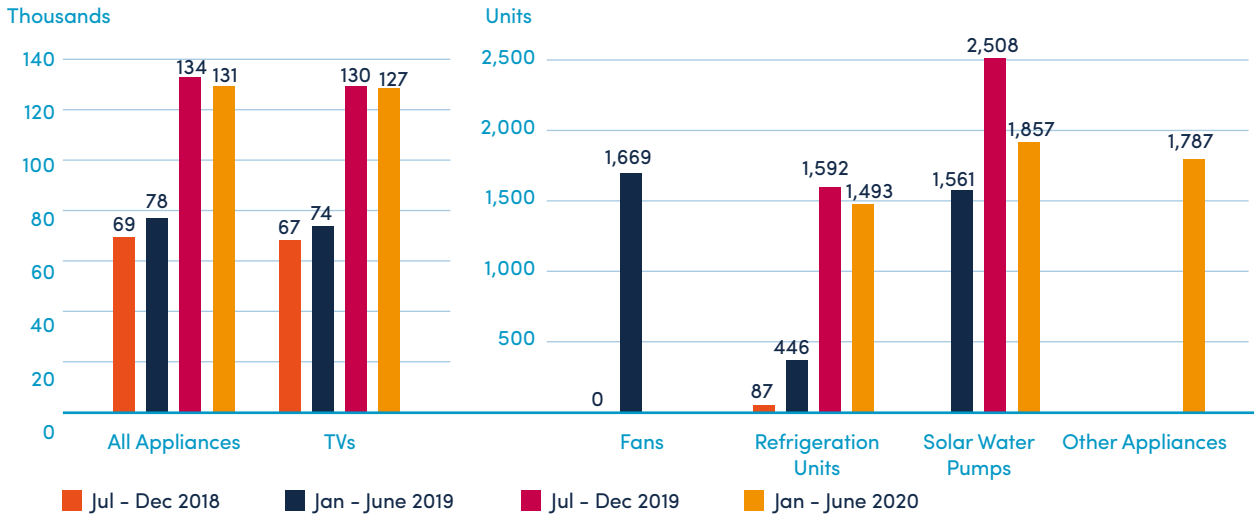
Between January and June 2020, the total recorded number of appliance sales in Kenya were 131,000 units. This is a volume comparable to the last round of data collection, and a 69% increase compared to the first half of 2019. TVs account for 97% of the total appliances sold in the country, seeing roughly the same volumes as the second half of 2019. Similar sales evolution can be identified for RUs with nearly 1,500 products sold. SWPs seem to have experienced the largest decrease (26%), even if volumes are still higher than the first half of 2019. We can also see for the first time that nearly 1,200 units of other appliances are sold in Kenya.

Figure 29 - Semi-annual Evolution of Volume of Lighting Products Sold - Kenya



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service

Figure 30 - Semi-annual Evolution for Appliances Products - Kenya



NOTE:

- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure.

East Africa Insights

Rwanda Insights

Background

As a country that heavily relies on exports and tourism, and a destination for international conferences, the COVID-19 pandemic has negatively affected the Rwandan economy. The government implemented a range of containment measures in response to the pandemic from March 21st including border closure, suspension of domestic travel, cancellation of public gatherings, instigating teleworking, closure of schools, places of worship and non-essential businesses, and mandatory wearing of face masks. A gradual easing of lockdown measures was introduced on May 4, with selected businesses allowed to resume operations while adhering to health guidelines. Domestic movement restrictions were partially relaxed but strict physical distancing measures were mandated in public buses.

The Rwandan government did not designate off-grid solar as an essential service officially. However, companies were generally allowed to keep their call centres and stores working with few staff members, in response to requests by the sector. The local industry association, Energy Private Developers (EPD), conducted a member survey, finding that 31% of companies have experienced or anticipated a drop in revenue of more than 90% as a result of the COVID-19 outbreak. This revenue drop was attributed to supply-chain challenges and limited ability to pay amongst their customers, particularly in rural areas.

The 60 Decibels customer surveys show how the COVID-19 crisis specifically affected off-grid solar customers. **Using the 60 Decibels Vulnerability Index, 34% of the 250 Rwandan customers interviewed were either extremely or very vulnerable.** This was the third highest result amongst the six African countries considered. 89% of families mentioned that their financial situation got worse since the pandemic began. Amongst the coping mechanisms adopted by families, the most common was using savings (85%), followed by decreasing food consumption (43%), borrowing money (27%) and reducing household spending (23%). Moreover, 13% of the customers mentioned having sold or pawned an asset to cope with the crisis which may affect long-term resilience particularly.[53]

Beyond the COVID crisis, sales in Rwanda are still being affected by uncertainty surrounding the 2019 Ministerial Guidelines around the minimum standards for imported SHS. During this reporting round, Lighting Global supported the government of Rwanda to develop a calculation tool for the private sector to determine whether products meet minimum requirements. However, the success in fully resolving the previous uncertainty remains to be ascertained.

On a more optimistic note, the 'Pro Poor Results-Based Financing' scheme led by Energizing Development (EnDev) started its operations and has likely had a positive effect on sales volumes.

Since October 2019, one factor that has been positively influencing the PAYGo segment for RUs and SWPs in Rwanda are the 2019-20 Global LEAP RBF incentives.[54]

Sales Trends

Off-Grid Solar Lighting

Sales of off-grid solar products in Rwanda totalled 78,000 units between January and June 2020. This is a 63% increase compared to the last reporting round, the largest increase in the whole East Africa region and surprising given the COVID-19 situation. Increases have been registered in the SHS with wattage between 50-100 Wp, multi-light systems and portable lanterns without mobile charging. This seems to be connected to the progress achieved by the clarifications around the Ministerial Guidelines on the minimum standard for imported products.

The increase occurred across both cash and PAYGo sales, with the former seeing a larger increase. Around 56,000 were sold on a cash basis - a 71% increase compared to the second half of 2019 and much higher than the first half of the same year. PAYGo sales with 23,000 units have increased by 46% compared to the last reporting round, while seeing a 64% decrease compared to the first half of 2019.

53 60 Decibel, 'COVID-19 Dashboard', 2020. Full dashboard here: 60 Decibel, 'COVID-19 Dashboard', 2020. Full dashboard here: https://singus-er159k8vsm.eu.qualtrics.com/results/public/c2luZ3VzZXIxNTIrOHZzbS1VUl8zOEtzZ3JEZW1VZVU4UzEtNWVmYjNkZDNkZTU5NmYwMDExNDBlY-jBm#/pages/Page_8266db52-1c5c-4871-b9a2-c0a1a1f00b20

54 Global Leap Awards, 'Results-based financing. 2019-20 - Refrigerators & Solar Water Pumps', 2019. Full article here: https://globalleapawards.org/results-based-financing

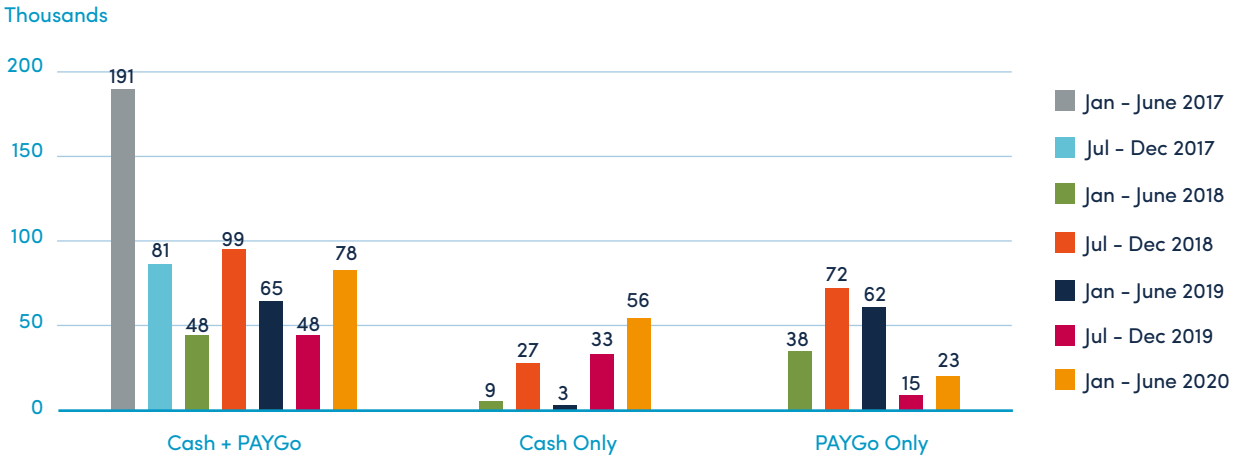
East Africa Insights

Rwanda Insights

Off-Grid Solar Appliances

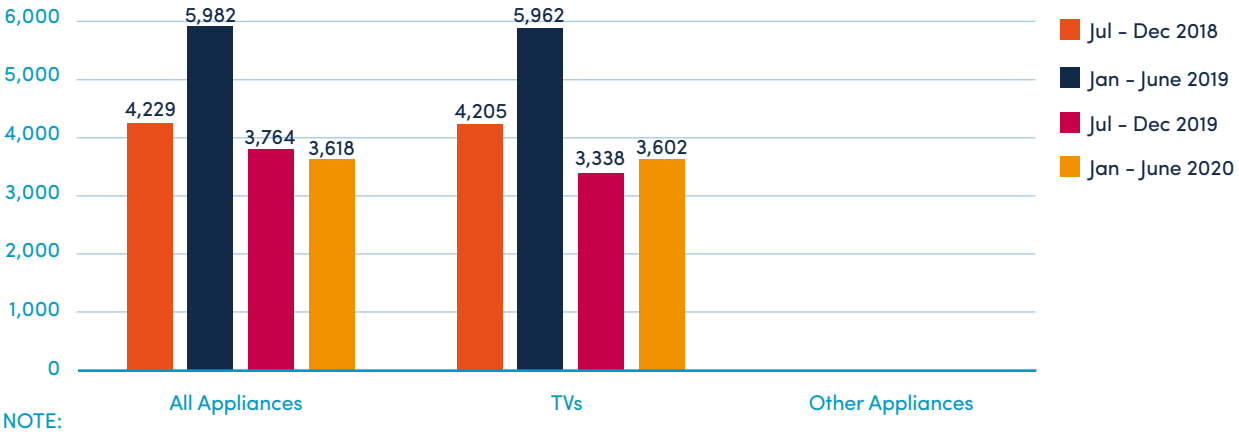
Between January and June 2020, the total recorded number of appliance sales in Rwanda was 3,600 units. This is a volume comparable to the last round of data collection, and a 40% decrease compared to the first half of 2019. TVs account for nearly all the appliances sold in the country. No sales of fans and SWPs were recorded in Rwanda, while sales of RUs and other appliances do not pass three-data point control.

Figure 31 - Semi-annual Evolution of Volume of Lighting Products Sold - Rwanda



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service

Figure 32 - Semi-annual Evolution for Appliances Products - Rwanda



NOTE:

- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure.

East Africa Insights

Tanzania Insights

Background

While Tanzania reported its first case of COVID-19 on March 17th, the public health response measures adopted by the government have been different from other countries in the region. The authorities banned large gatherings except for worship, suspended attendance to schools and educational institutions, cancelled international flights, and mandated the wearing of face masks in Dar Es Salaam. However, no restrictions on movement of persons or affecting businesses were put in place. All the restrictions have been lifted as of July 2020.

Since 2019, the PAYGo industry has been seeking clarity on how the 2018 Microfinance Act and 2019 Tier Microfinance Regulations affect the sector. The proposed framework would treat and regulate PAYGo companies as financial institutions. Industry stakeholders and companies have voiced concerns to the government over the challenges that such regulations would create. In view of this, the sector has seen a delay of implementation of investment plans or reduced level of operations of some companies; therefore, this will continue to negatively influence present and future PAYGo sales in Tanzania.

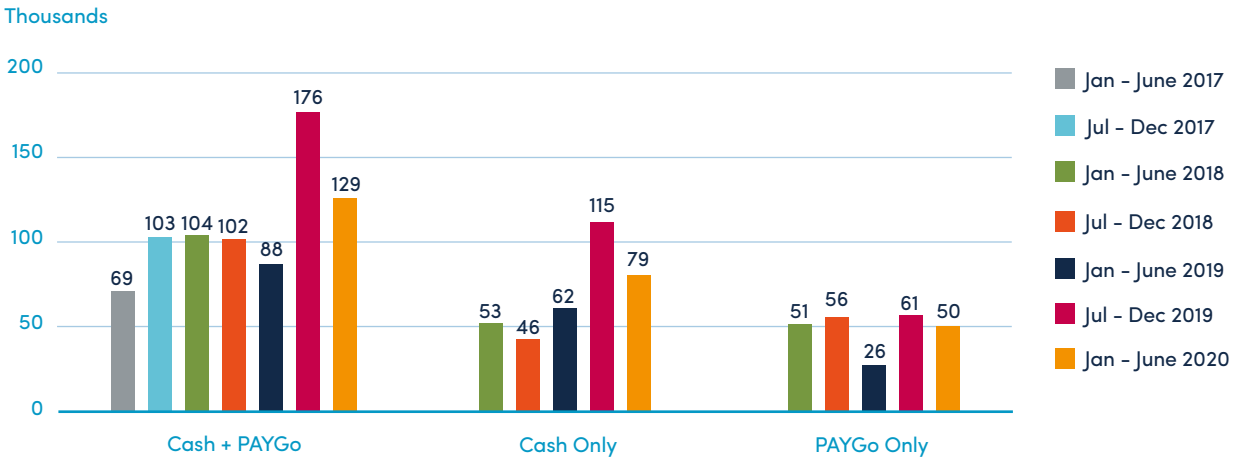
Since October 2019, one factor that has been positively influencing the PAYGo segment for RUs and SWPs in Tanzania are the 2019-20 Global LEAP RBF incentives.[55]

Sales Trends

Off-Grid Solar Lighting

Sales of off-grid solar products in Tanzania totalled 129,000 units between January and June 2020. This is a 27% decrease compared to the last reporting round, while it is 48% more than the first half of 2019. Both cash and PAYGo registered decreases this reporting period. Around 79,000 were sold on a cash basis - a 31% decrease compared to the second half of 2019, but a 28% increase in comparison to the first half of that year. PAYGo sales stand at 50,000 units, a decrease of 19% compared to the last reporting round, while seeing a 95% increase compared to the first half of 2019 when sales were particularly low.

Figure 33 - Semi-annual Evolution of Volume of Lighting Products Sold - Tanzania



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

55 Global Leap Awards, 'Results-based financing. 2019-20 - Refrigerators & Solar Water Pumps', 2019. Full article here: https://globalleap-awards.org/results-based-financing

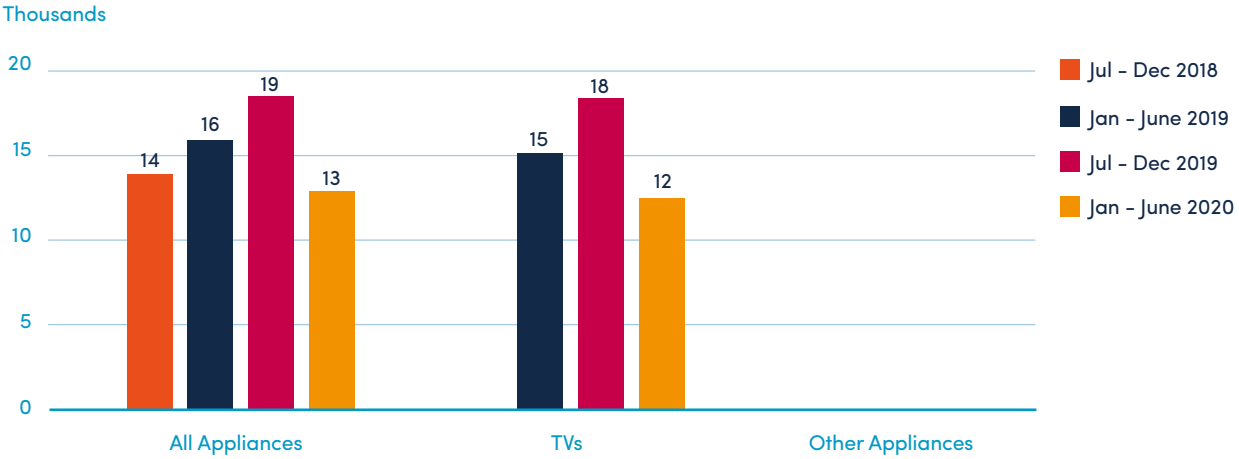
East Africa Insights

Tanzania Insights

Off-Grid Solar Appliances

Between January and June 2020, the total recorded number of appliance sales in Tanzania were just above 13,000 units. This is a 30% decrease compared to the last round of data collection, and a 17% decrease compared to the first half of 2019. TVs account for nearly all the appliances sold in the country. Sales of fans, RUs, SWPs and other appliances were marginal and did not pass three-data point control.

Figure 34 - Semi-annual Evolution for Appliances Products - Tanzania



NOTE:

- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure.

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East Africa Insights

Uganda Insights

Background

A strict partial lockdown was enforced in Uganda starting from March 18th. Schools were closed, all commercial flights suspended, a ban on outdoor exercise and public gatherings, dusk-to-dawn curfew, and closure to international passenger travel. As the lockdown began to ease from late May, companies have indicated that sales are gradually increasing.

During lockdown, travel was only allowed for all vehicles and personnel deemed to be providing essential services, including the grid service provider UMEME. **The off-grid solar sector did not initially meet the criteria to be designated as an essential service, therefore sales and installation came to virtually a complete halt. Some provisions were made allowing movement through stickers or by branded vehicles.** The Uganda Solar Energy Association (USEA) conducted a survey amongst its members in April 2020, and 66% of respondents had to scale back activities like movement of sales agents, technicians due to government directives. This has greatly affected their ability to offer customer service. As a result, 46% of respondents were facing liquidity challenges because they were unable to make new sales or collect repayments, yet they must meet obligatory operational expenses such as rent and staff payments.

The measures have brought the economy to a standstill and containment measures have raised the risk of hunger and social distress, especially amongst the rural poor. The 60 Decibels customer surveys show how the COVID-19 crisis specifically affected off-grid solar customers. **Using the 60 Decibels Vulnerability Index, 49% of the 332 Ugandan customers interviewed were either extremely or very vulnerable.** This was the highest result amongst the six African countries considered. 95% of families mentioned that their financial situation got worse since the pandemic began. Amongst the coping mechanisms adopted by families, the most common was using savings (37%), followed by decreasing food consumption (34%), reducing household or business investment (16%) and borrowing money (12%).[56] These coping mechanisms threaten to affect the families' financial situations even beyond the current crisis.

Since October 2019, one factor that has been positively influencing the PAYGo segment for RUs and SWPs in Uganda are the 2019-20 Global LEAP RBF incentives.[57]

Sales Trends

Off-Grid Solar Lighting

Sales of off-grid solar products in Uganda totalled 128,000 units between January and June 2020. This is a 42% decrease compared to the last reporting round and a 29% drop from the first half of 2019. **Both cash and PAYGo registered decreases during this reporting period.** Around 51,000 were sold on a cash basis - a 33% increase compared to the second half of 2019 but a 20% decrease in comparison to the first half of the same year. PAYGo sales, at 77,000 units, have decreased by 46% compared to the last reporting round and 33% less than the first half of 2019.

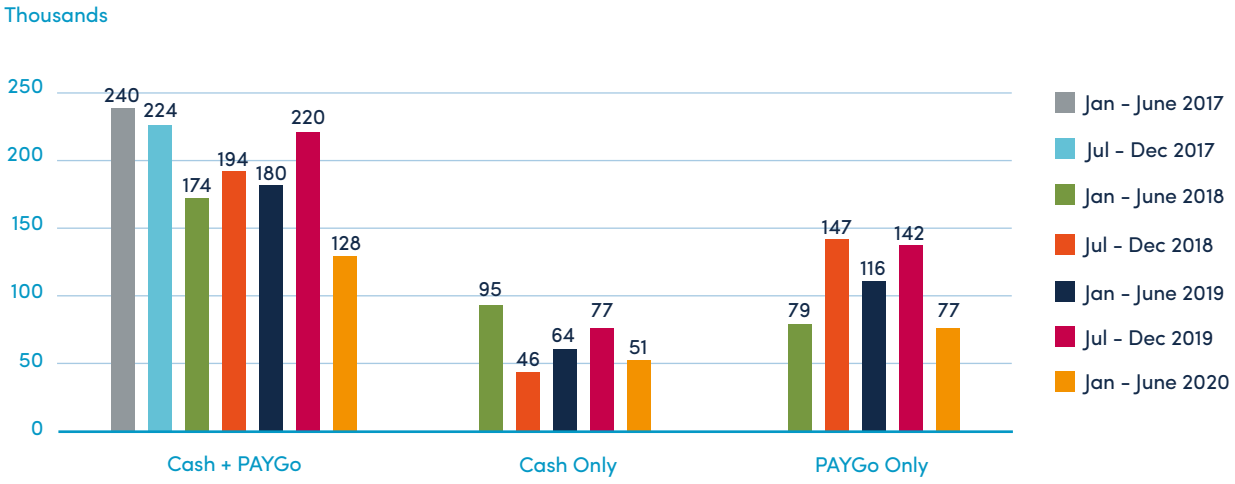
56 60 Decibel, 'COVID-19 Dashboard', 2020. Full dashboard here: 60 Decibel, 'COVID-19 Dashboard', 2020. Full dashboard here: https://singuser159k8vsm.eu.qualtrics.com/results/public/c2luZ3VzZXIxNTlrOHZzbS1VUl8zOEtzZ3JEZW1VZVU4UzEtNWVmYjNkZDNkZTU5NmYwM-DExNDBlYjBm#/pages/Page_8266db52-1c5c-4871-b9a2-c0a1a1f00b20

57 Global Leap Awards, 'Results-based financing. 2019-20 - Refrigerators & Solar Water Pumps', 2019. Full article here: https://globalleap-awards.org/results-based-financing

East Africa Insights

Uganda Insights

Figure 35 - Semi-annual Evolution of Volume of Lighting Products Sold - Uganda



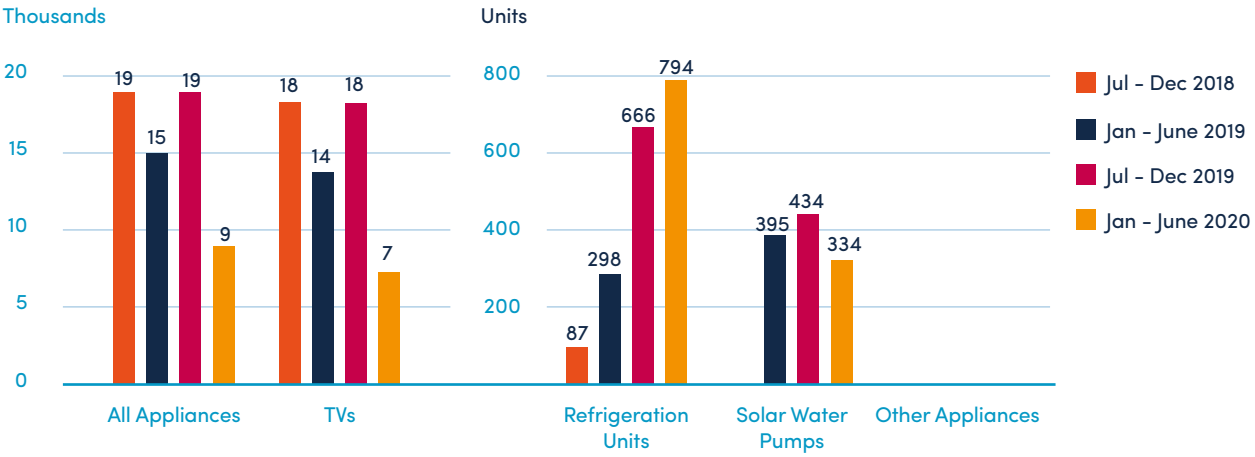
NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Off-Grid Solar Appliances

Between January and June 2020, the total recorded number of appliance sales in Uganda were 9,200 units. This is a 53% decrease compared to the last round of data collection, and 37% less than the first half of 2019. TVs account for 87% of the appliances sold in the country with 8,000 units.

Affiliates also sold around 800 RUs and 300 SWPs in Uganda. Particularly, the RUs saw increases in volumes compared to the previous rounds, while SWPs and TVs saw decreases. Sales of fans and other appliances do not pass three-data point control.

Figure 36 - Semi-annual Evolution for Appliances Products - Uganda



NOTE:
- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure.

East Africa Insights

Zambia Insights

Background

Zambia recorded its first COVID-19 case on March 18. Early measures were taken to contain the spread of the virus including the closures of schools and universities, closure of bars, restaurants, cinemas, and casinos and restrictions of public gatherings and sports activities. A temporary lockdown was imposed on the towns of Kafue and Nakonde. Since April 24, the government has been slowly lifting lockdowns, border closures, and restrictions, subject to social distancing.

The 60 Decibels customer surveys show how the COVID-19 crisis specifically affected off-grid solar customers. **Using the 60 Decibels Vulnerability Index, 19% of the 250 Zambian customers interviewed were either extremely or very vulnerable.** This was the lowest result amongst the East African countries considered. 84% of families mentioned that their financial situation got worse since the pandemic began. Amongst the coping mechanisms adopted by families, the most common decreasing food consumption (33%), followed by using savings (29%), borrowing money (15%) and reducing household spending (5%).[58] If customers showed overall resiliency, companies were hit by the request to retroactively pay import duties on products that entered the countries in previous years. This created uncertainty and potentially undermined the financial health of affected players during such a sensitive period. The overall Zambian economy will be adversely impacted by the sharp 40% depreciation of the local currency Zambian kwacha and by the decline in commodity prices, such as copper, upon which the economy relies.

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58 60 Decibel, 'COVID-19 Dashboard', 2020. Full dashboard here: 60 Decibel, 'COVID-19 Dashboard', 2020. Full dashboard here: https://singuser159k8vsm.eu.qualtrics.com/results/public/c2luZ3VzZXIxNTlrOHZzbS1VUl8zOEtzZ3JEZW1VZVU4UzEtNWVmYjNkZDNkZTU5NmYwM-DExNDBlYjBm#/pages/Page_8266db52-1c5c-4871-b9a2-c0a1a1f00b20

East Africa Insights

Zambia Insights

Sales Trends

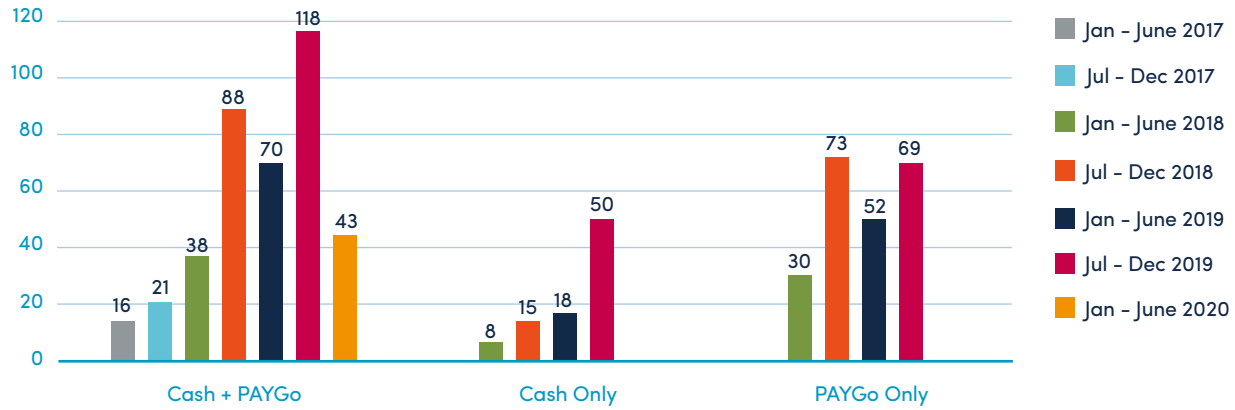
Off-Grid Solar Lighting

Sales of off-grid solar products in Zambia totalled 43,000 units between January and June 2020. This is a 63% decrease compared to the last reporting round and a 38% drop in comparison with the first half of 2019. This abruptly halts the growth recorded in the country in the past rounds. The split between cash and PAYGo does not pass three-data point control for this round.

Off-Grid Solar Appliances

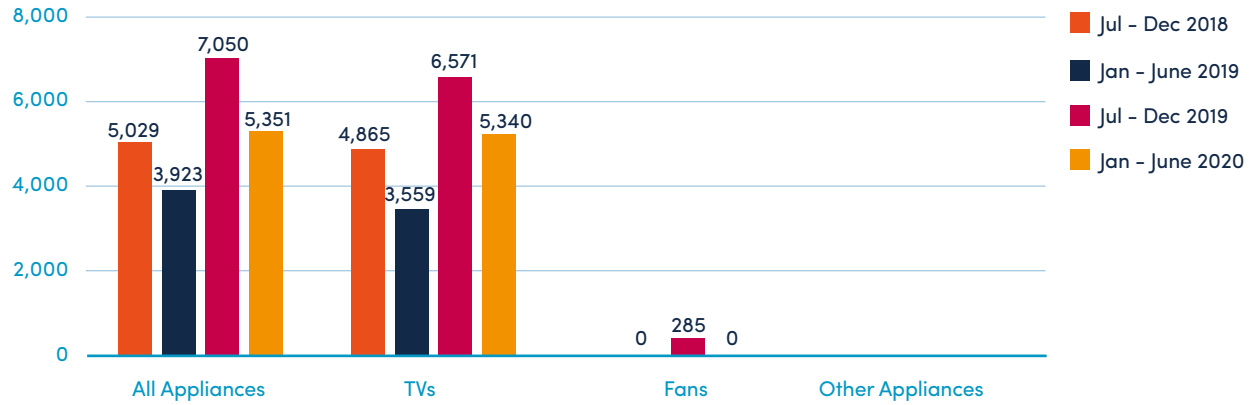
Between January and June 2020, the total recorded number of appliance sales in Zambia were 5,000 units. This is a 24% decrease compared to the last round of data collection, but 36% more than the first half of 2019. Again, TVs account for nearly all the appliances sold in the country. Sales of refrigeration units, solar water pumps and other appliances were negligible and did not pass three-data point control, while there were 0 sales of fans recorded.

Figure 37 - Semi-annual Evolution of Volume of Lighting Products Sold - Zambia



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 38 - Semi-annual Evolution for Appliances Products - Zambia



NOTE:
- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure.

East Africa Insights

Other East African Countries

Sales Trends

Off-Grid Solar Lighting

Burundi sold 1,100 units, passing three-data point control for the first time since reporting began. The market will be monitored in the coming rounds to see how it will evolve.

In **Madagascar**, affiliates recorded 9,000 unit sales. This is a 71% decrease compared to the large volumes recorded last reporting round, and only a 19% decrease compared to the first half of 2019.

Sales in **Malawi** dropped to 37,000, 28% less than the volumes of the second half of 2019 but still much larger than the ones of the first half of the same year.

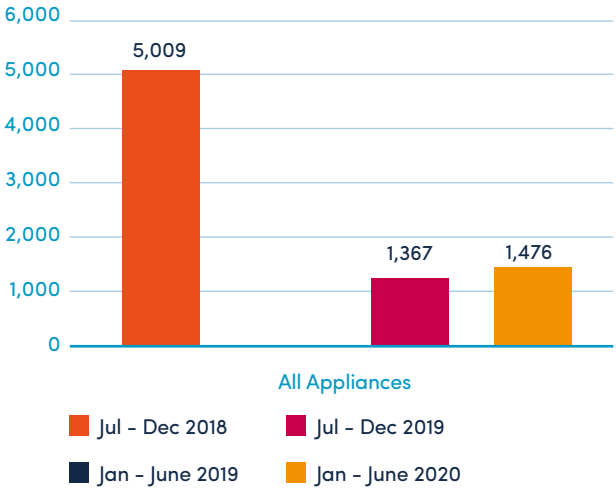
Mozambiqvv is the only country, other than **Rwanda**, to record an increase in sales, reaching 10,000 units sold.

Somalia and **Zimbabwe** did not see enough companies reporting to show volumes this reporting round.

Off-Grid Solar Appliances

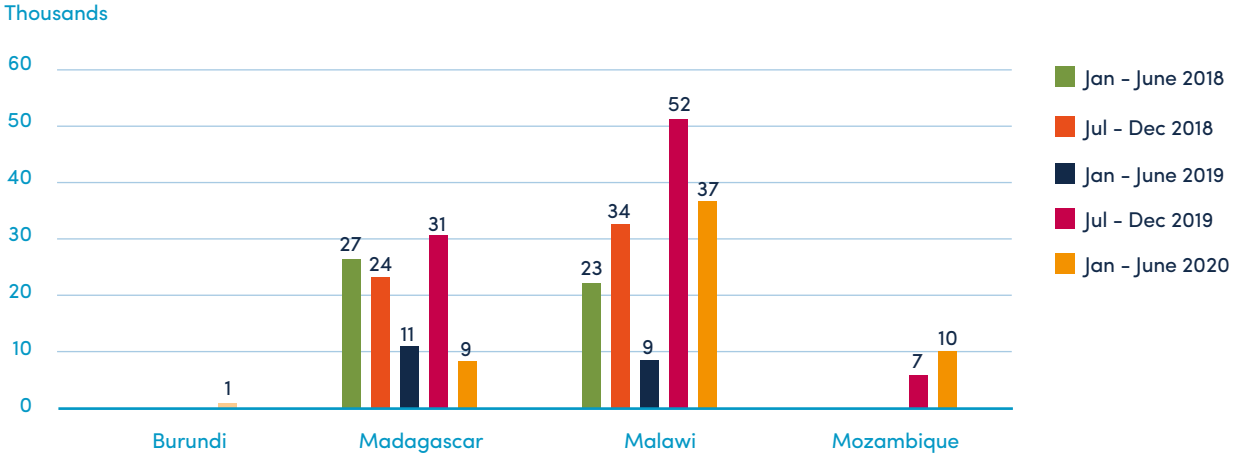
Mozambique is the only additional country to show sales of appliances in East Africa, with 1,500 units sold. No split can be offered between the different appliance types due to low volume and confidentiality rules.

Figure 40 - Semi-annual Evolution of Volume of Appliances Sold - Other East African Countries - Mozambique



NOTE:
The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units.

Figure 39 - Semi-annual Evolution of Volume of Lighting Products Sold - Other East African Countries



West Africa Insights

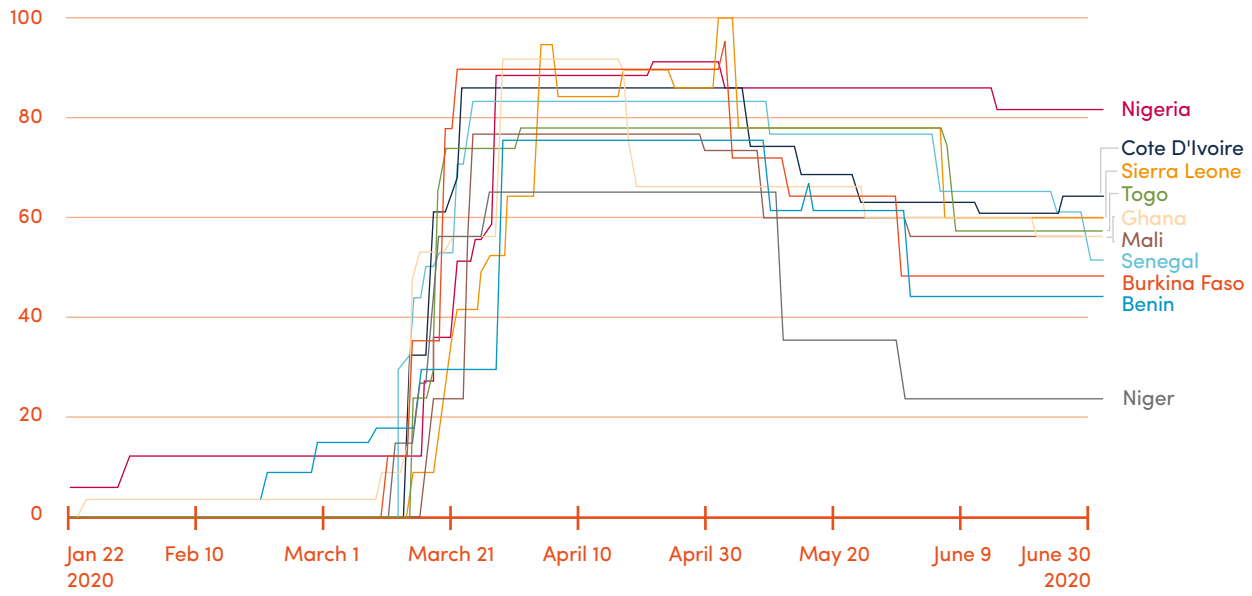
West Africa Insights

Background

COVID related impacts

Similar to East Africa, some West African countries experienced quite stringent lockdowns, mostly starting from mid to late-March reflected in the evolution of the stringency index.[59] Nigeria, Burkina Faso and Sierra Leone showed the highest value of the index while Niger had the lowest. However, in Nigeria, Senegal and Togo, off-grid solar companies received essential service status. This meant that the stringent containment measures did not apply to the companies, so they could operate almost business as usual. **Note that in some instances the designation was not effective from the beginning of the lockdown, meaning that companies were still affected by the measures for a period.**

Figure 41 - Evolution Government Response Stringency Index - West Africa[60]



NOTE:
The Government Response Stringency Index is a composite measure between 0 and 100 encompassing 17 indicators of government responses to the pandemic. Note that these indices simply record the number and strictness of government policies, and should not be interpreted as 'scoring' the appropriateness or effectiveness of a country's response. A higher position in an index does not necessarily mean that a country's response is 'better' than others lower on the index, but rather that a country is stricter than another one.

59 Blavatnik School of Government and University of Oxford, 'Oxford COVID-19 Government Response Tracker', 2020. Full report here: https://www.bsg.ox.ac.uk/research/research-projects/oxford-covid-19-government-response-tracker
60 Ibidem

West Africa Insights

Sales Trends

Off-Grid Solar Lighting Products

Sales of off-grid solar products in West Africa totalled 354,000 units sold between January-June 2020. This meant essentially no decrease compared to the first and second half of 2019.

Unlike East Africa, cash sales remained stable in West Africa around 174,000 units, while a small decrease was observed on PAYGo. In the first half of 2020, 180,000 units were reported sold via PAYGo - a 6% decrease in volumes compared to the last reporting round and a 7% increase from the sales volumes of the first half of 2019.

Portable Lanterns

Portable lanterns had sales of 196,000 units in West Africa, 55% of the region's sales. Affiliates reported sales of 139,000 units of portable lanterns without mobile charging - i.e. those with an indicative wattage of 0-1.499 Wp. This is a 60% decrease compared to the second half of 2019 and a 33% one compared to the first half of 2019. **Note that this is the only region which saw an increase in sales of portable lanterns without mobile charging, possibly due to bulk procurements unaffected by the COVID-19 pandemic.** On the other hand, portable lanterns capable of charging mobile phones - i.e. with an indicative wattage of 1.5-2.999 Wp - experienced a decrease of 42% with sales of 58,000 units compared to the second half of 2019 and a 27% decrease compared to the first half of 2019.

Multi-light systems

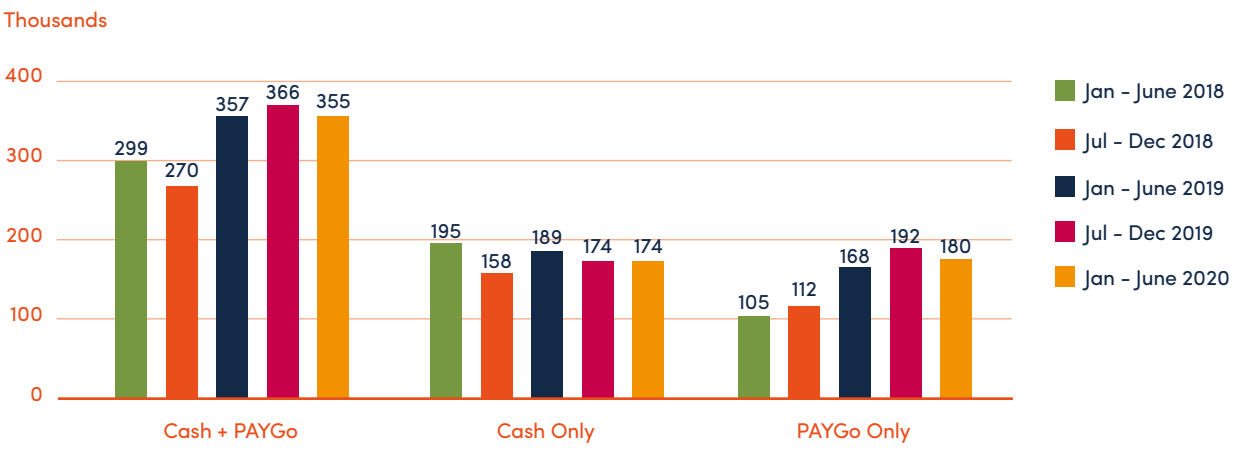
West Africa recorded 56,000 units of multi-light systems sold between January and June 2020 and represented 16% of the regional sales. This category saw a decrease of 22% compared to the second half of 2019 and an 8% increase in comparison with the volumes recorded in the first half of 2019.

Solar Home Systems (SHS)

Around 102,000 SHS were sold in West Africa in the first half of 2020. This is a 6% decrease compared to the second half of 2019 and a 15% drop compared to the first half of 2019.

The 50-100 Wp remains the bestseller in the region with nearly 62,000 units, seeing a 12% increase compared to last reporting round and 14% decrease compared to the first half of 2019. It is possible that there is some seasonal pattern in which the first half of the year always sees greater sales volumes than the first, that would explain the increase compared to the last reporting round. Another possible explanation is the need for wealthier customers to have a backup or large power generation at home during the lockdown period.

Figure 42 - Semi-annual Evolution of Volume of Products Sold - West Africa



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

West Africa Insights

The 21-49 Wp category recorded 21,000 units sold, meaning the first decrease since 2017 as visible in Figure 43. Sales volumes dropped by 31% compared to the first and second half of 2019.

SHS with wattage between 11-20 Wp saw 15,000 units sold in the first half of 2020, a 23% drop in comparison with the last reporting round, but a 15% increase compared to the first half of the previous year.

The 11-20 Wp category recorded 97,000 units sold in East Africa, a 35% drop compared to the second half of 2019, while a 15% increase compared to the first half of 2019.

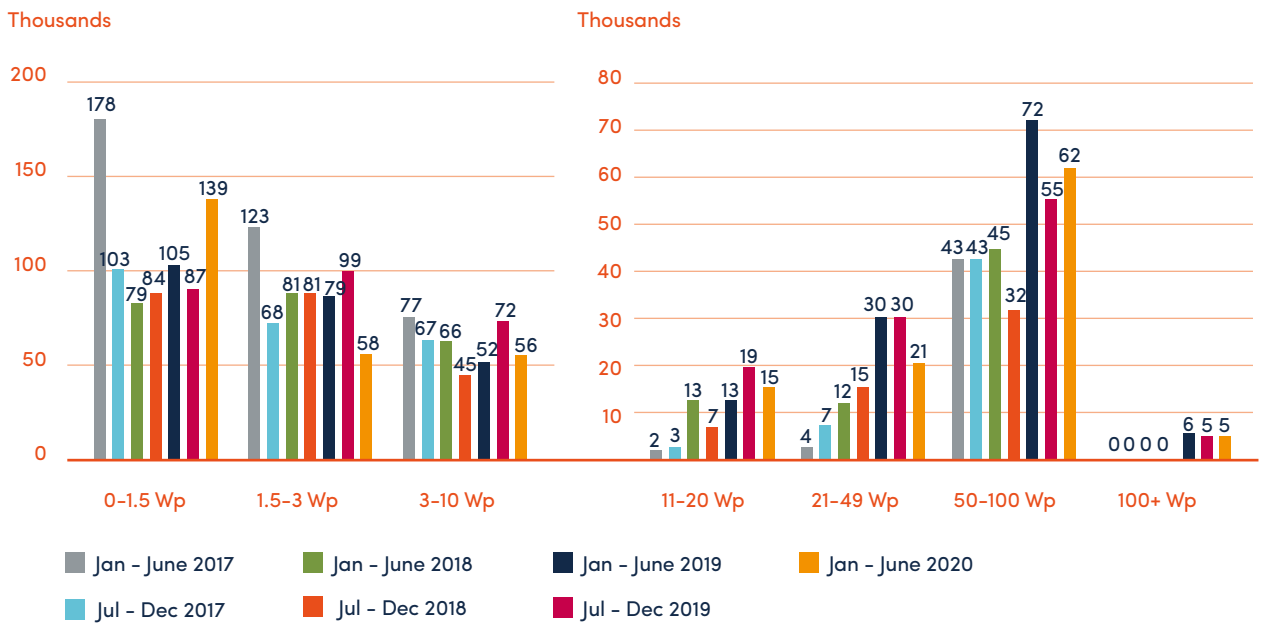
Sales of the 100+ Wp remained generally stable around 5,000 units, as in the second half of 2019.

Off-Grid Solar Appliances

Between January and June 2020, the total recorded number of appliance sales in West Africa reached 51,000 units sold. This is a 46% decrease compared to the second half of 2019 and an 88% drop compared to the first half of 2019. **In general, West Africa saw one of the largest decreases amongst the regions, second only to East Asia & Pacific.**

TVs represented 78% of the sales in West Africa with 40,000 units; fans followed recording 10,000 units sold, 20% of the regional appliances sales. The 1,000 refrigeration units represented 2% of the regional sales of appliances, while volumes of solar water pumps remain marginal with 200 units.

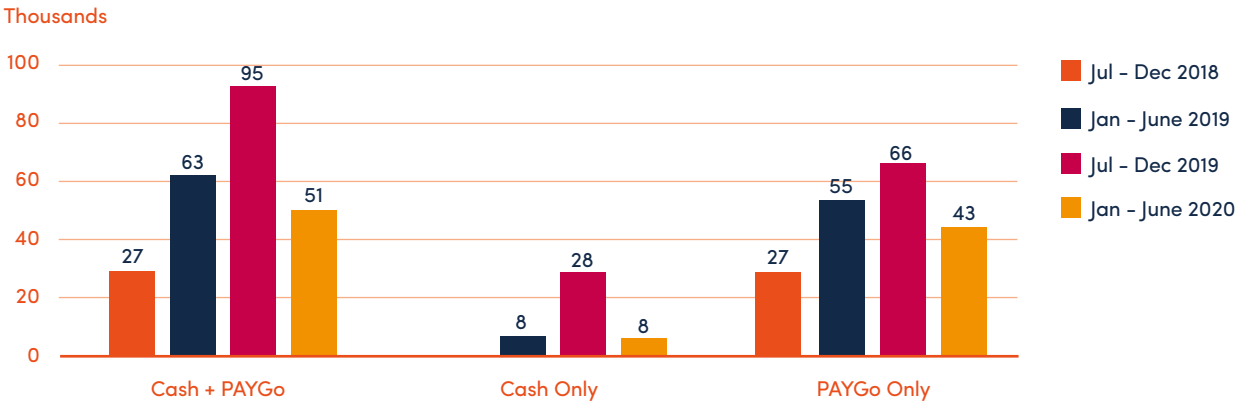
Figure 43 - Semi-annual Evolution of Global Sales Volumes by Product Category - West Africa



NOTE:
Lanterns 0-1.5 Wp include one light and no mobile charging, lanterns 1.5-3 Wp one light and mobile charging, and multi-light systems 3-10 Wp at least two lights and mobile charging. Solar Home Systems >11 Wp are classified based on panel wattage.

West Africa Insights

Figure 44 - Semi-annual Evolution for All Appliances - West Africa



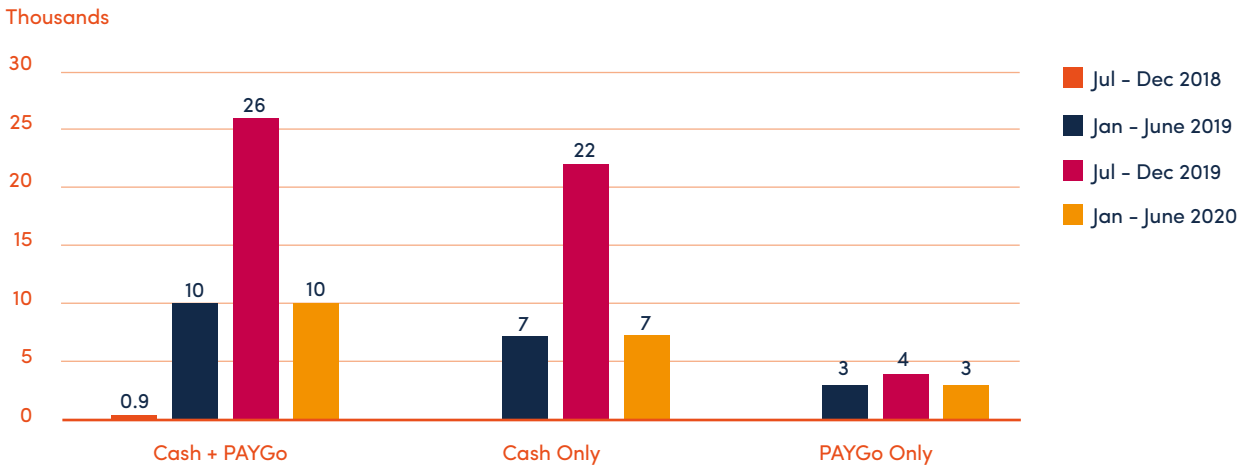
NOTE:
- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units.
- Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Fans

With its prevalence of hot and humid climates, West Africa remains the second largest market for fans globally with 10,000 units, second only to South Asia. Unlike the Asian region however, sales in West Africa decreased sharply by 61% compared to the second half of 2019, with similar volumes to the first half of 2019. This means that the seasonal pattern highlighted for South Asia is not observed in this region.

Cash sales dominate the market, with volumes more than double than the PAYGo. This is due to the lower costs of the appliance compared to others and anecdotally due to the influence of bulk procurements. Interesting to note is that the decrease is almost entirely due to the cash sales drop, while PAYGo sales remained roughly stable. Another key difference compared to South Asia is that a much greater proportion (93%) of the fans sold in West Africa are reported to be sold bundled with a power system.

Figure 45 - Semi-annual Evolution for Fans - West Africa



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

West Africa Insights

For the portfolio of product categories sold, Figure 46 shows that in West Africa table fans are the most popular category, with over 7,000 units sold. The totality of these table fans fell in the large category, meaning with a diameter larger than 12". This product is overwhelmingly sold bundled with SHS (98%).

Pedestal fans recorded nearly 3,000 units sold in the first half of 2020. Approximately 80% of these pedestal fans are sold bundled with SHS.
No sales of ceiling fans were reported for the third round in a row.

Both table and pedestal fans have seen decreases compared to the second half of 2019, however with different magnitudes. The pedestal fans experienced the largest decrease with a 77% drop compared to the second half of 2019 and a 50% reduction compared to the first half of the same year. Table fans decreased 47% compared to the last reporting period, but a 74% increase compared to the first half of the previous year.

TVs

In West Africa, 40,000 TVs were sold by affiliates in the first half of 2020, remaining the second largest regional market for this appliance type. However, sales showed a 41% decrease compared to the second half of 2019 and a 23% drop compared to the first half of the same year.

99% of TVs are sold via PAYGo totalling 39,000 units, as opposed to only 500 cash sales. This is largely due to the bundling with SHS in West Africa, as 86% of products reported sold with a power system.

Figure 46 - Semi-annual Evolution of Fans by Product Category - West Africa

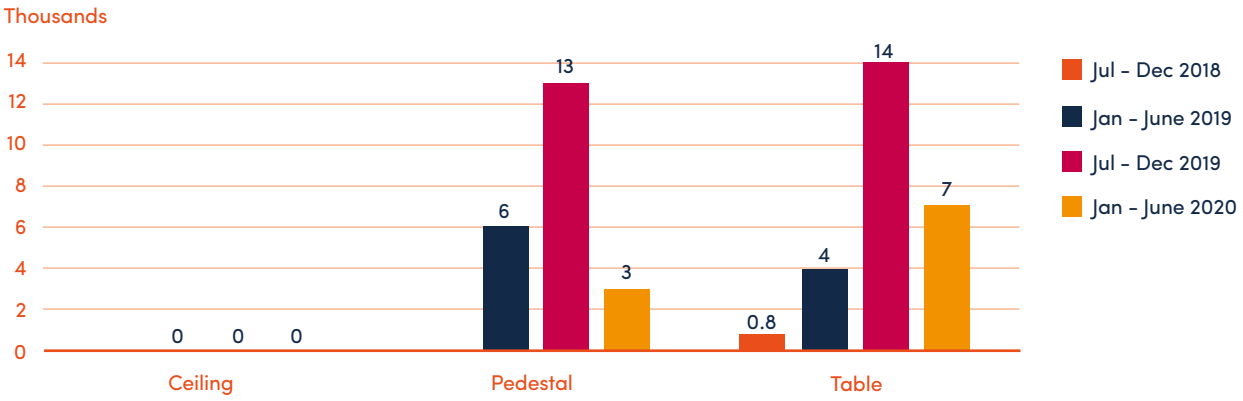
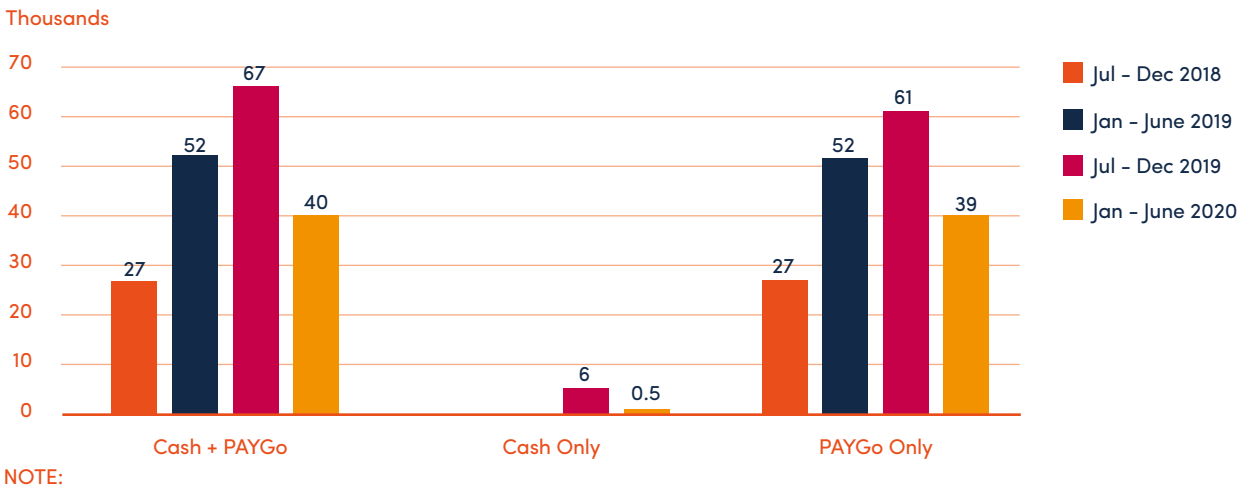


Figure 47 - Semi-annual Evolution for TVs - West Africa



NOTE:
Products are classified as 'cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

West Africa Insights

In terms of the diversity of product categories, as in East Africa, the largest share of TVs sold are large (with display size between 24" and 29") with 21,500 units sold. Medium TVs follow with 14,4000 units, while sales of extra large TVs remain the smaller with only 2,100 products sold in this reporting period. Sales of small TVs do not pass three-data point control, meaning that only a few affiliates are active in that segment in West Africa.

All segments in West Africa recorded decreases. Extra large TVs had the largest relative decrease with a 56% drop compared to the second half of 2019, against the 38% decrease of the medium TVs and the 35% of the large ones compared to the same reporting period.

Unlike this product category in East Africa, there seems to be no relationship between the size of the TVs and the bundling amount - in that the vast majority of all TVs were sold as part of a bundle. Affiliates reported 89% of the medium TVs and 82% of the large TVs sold bundled against 92% of the extra large TVs.

Refrigeration Units (RUs)

As seen in East Africa, RUs are the only appliance type that did not experience any decrease in West Africa and saw increases. Between January and June 2020, 1,000 units sold, a 59% increase compared to the last reporting period. Due to the small volumes and small base, at this stage, it is not possible to see whether this increase is due to new participation leveraged in this segment or a regional trend.

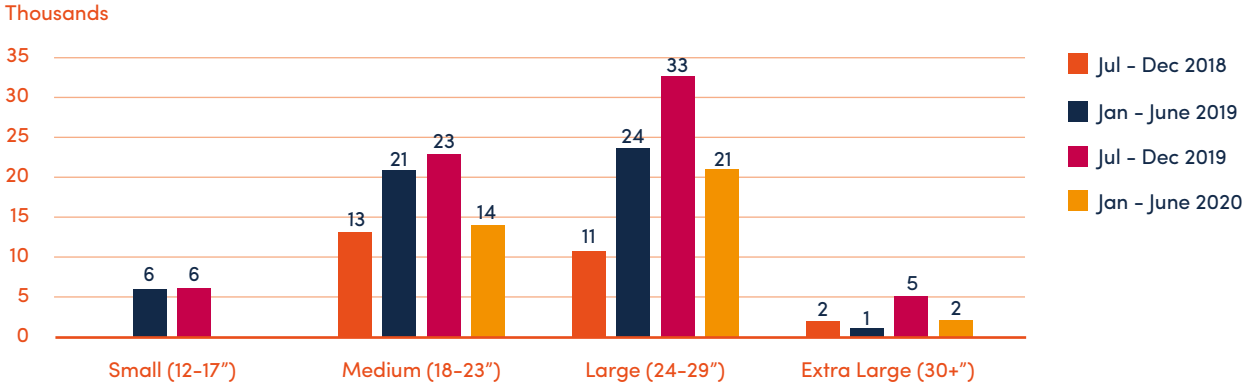
Note that the sales in July - December 2018 were higher, due to volumes anecdotally attributed to institutional sales providing vaccine preservation in West Africa. Refrigerators used for such purposes fell in the same category as those used in domestic or small commercial applications, making the distinction virtually impossible. It is important to note that at the time these sales occurred there was no coverage of the whole market of sales for vaccine preservation, but even capturing a small part of this biased our reported sales volumes. This demonstrates how important such institutional markets currently are in comparison with the current nascent commercial market usage by households or small businesses.

In West Africa, 75% of the RUs are sold via PAYGo with 760 units while cash sales remain marginal with less than 250 units. Note that it is the first time the split between the two payment methods can be shown, meaning that the amount of companies involved in the market, and the data collection, is increasing.

56% of RUs are reported to be sold bundled with a power system, while the remaining are sold without one. These percentages will be monitored over time to observe whether RUs are increasingly sold bundled with large SHS or not.

In terms of product category diversity, affiliates sold 387 refrigerators, representing 38% of the sales in West Africa. The remaining 62% comprises freezers, multi-temperature refrigerators and refrigerator-freezer combination units, but no split can be offered as there are not enough companies reporting to pass the confidentiality rule.

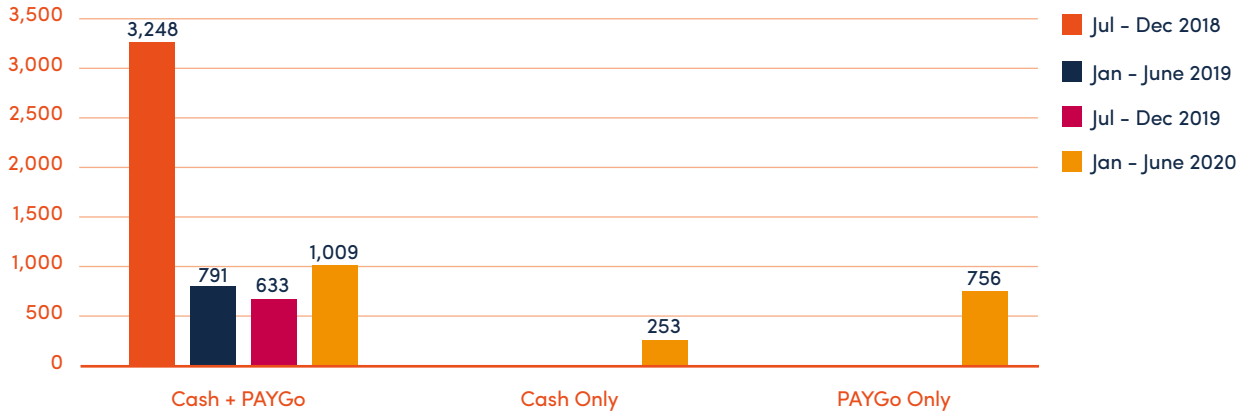
Figure 48 - Semi-annual Evolution of TVs by Product Category - West Africa



NOTE:
Products are classified as 'cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

West Africa Insights

Figure 49 - Semi-annual Evolution for Refrigeration Units - West Africa



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Solar Water Pumps (SWPs)

SWPs experienced the largest relative decrease amongst all appliance types in West Africa, with a 75% reduction of sales volumes and 164 units sold. Even compared to the first half of 2019 a 67% decrease is observable.

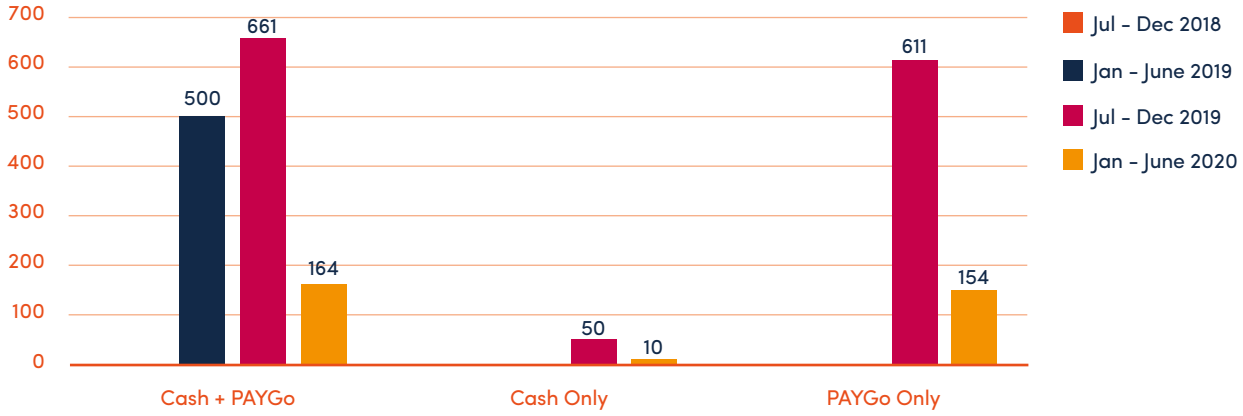
In West Africa, the majority of SWPs (94% of the total) are sold via PAYGo and bundled with a power system. Given the larger investment required to purchase both the appliance and the power system, it seems logical that customers require PAYGo as consumer financing.

Other Appliances

Sales are also recorded for a wide variety of other solar-powered appliances, but these amounted only to around 35 units in West Africa, all sold via PAYGo.

These units are not reflected in the 'All Appliances' and **include products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery.** Currently, if separated, these volumes would not pass our confidentiality rules. For the time being, they will be reported together. The progress of each appliance type will be monitored. Note that radios are excluded from the count of other appliances, as they are regularly sold bundled with lighting systems, to such an extent that their large volumes would have skewed the overall results.

Figure 50 - Semi-annual Evolution for Solar Water Pumps - West Africa



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

West Africa Insights

Burkina Faso Insights

Background

In March, the government adopted several containment measures. These included social distancing, a nationwide curfew, closure of schools and universities, cancellation of major public events, closure of terrestrial borders, suspension of commercial flights, quarantine of the affected cities and the mandatory nationwide use of masks. **The authorities began to ease social and economic restrictions in late April.**

The Ministry of Energy announced on April 4th that with regard to the national electricity network, SONABEL, electricity will be free in April, May and June for poor households connected to the grid with consumption lower than 25 kWh per month. For all other customers under 75 kWh per month, there will be a 50% waiver, with all taxes and specific fees cancelled.[61] These measures have affected 90% of the clientele, and it is aimed at reducing the burden for the vulnerable population. However, these measures have not been extended to off-grid solar customers, except for customers of players operating a government tender.

© Mobisol

61 Le Faso, 'Mesures d'accompagnement dans le cadre de la riposte du Covid-19', 2020. Full article here: https://lefaso.net/spip.php?article95967

West Africa Insights

Burkina Faso Insights

Sales Trends

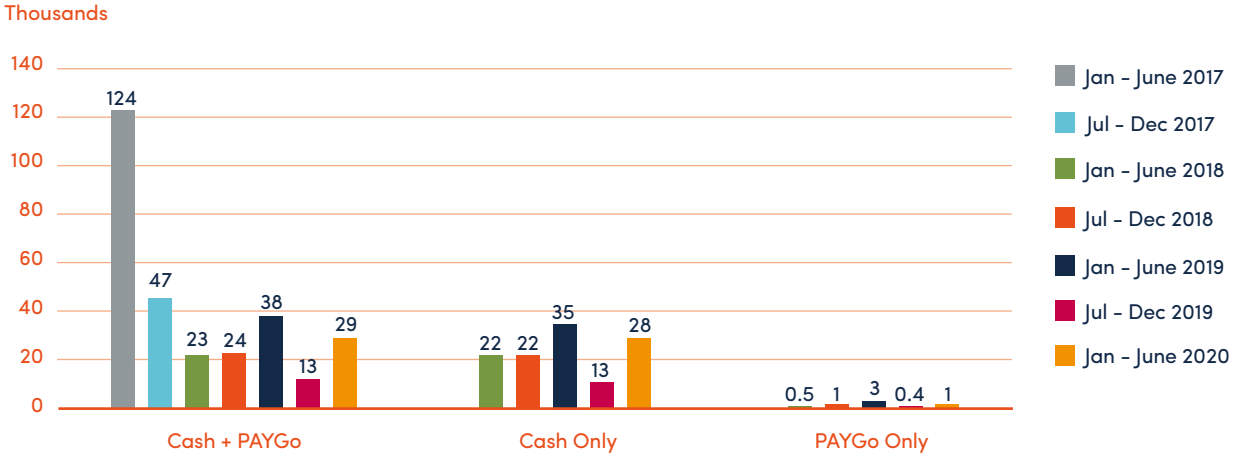
Off-Grid Solar Lighting

Sales of off-grid solar products in Burkina Faso reached almost 29,000 units between January and June 2020. This is double the number of units recorded in the last reporting round. This is somewhat expected, with larger sales volumes in the first half of the year due to bulk procurements of portable lanterns showing mostly as cash sales. The sales saw a 25% drop in comparison with the first half of 2019.

Off-Grid Solar Appliances

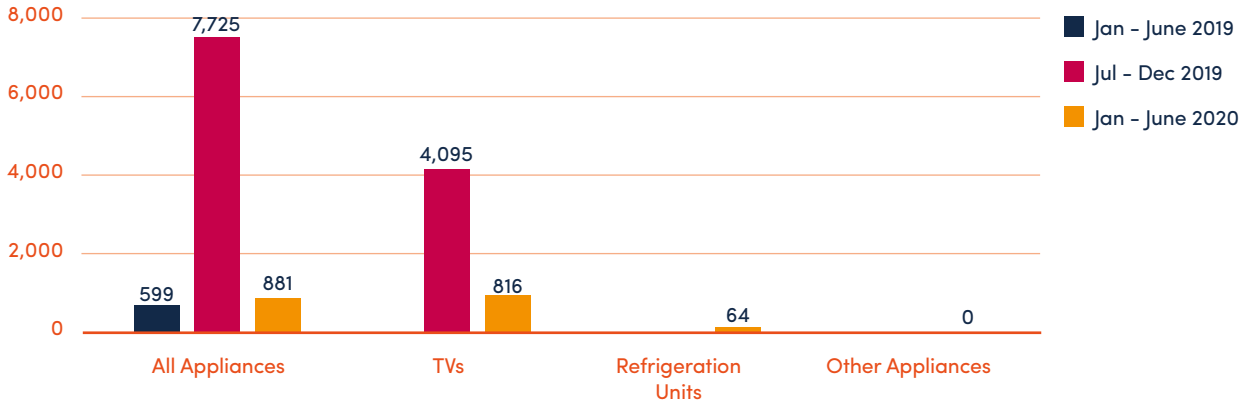
Between January and June 2020, the total recorded number of appliance sales in Burkina Faso were 900 units. This is an 89% decrease compared to the last round of data collection, and 34% more than the first half of 2019. TVs account for nearly all appliances sold in the country with 800 units, but affiliates also reported 60 RUs sold in Burkina Faso in the reporting period. Sales of fans were negligible and do not pass three-data point control, while no sales have been recorded for solar water pumps and other appliances.

Figure 51 - Semi-annual Evolution of Volume of Lighting Products Sold - Burkina Faso



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 52 - Semi-annual Evolution for Appliances Products - Burkina Faso



NOTE:
- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure.

West Africa Insights

Cote d'Ivoire Insights

Background

At the start of the COVID-19 pandemic, the authorities swiftly adopted containment measures in March. These included declaring a state of emergency and establishing a curfew from 9pm to 5am; banning all international travels, except for humanitarian aid purpose; prohibiting public gatherings of more than 50 people; closing schools, nightclubs, restaurants, bars, theatres and other recreational facilities; and imposing restrictions on public transportation and movements between regions in the country; making wearing masks mandatory and encouraging teleworking. On May 7, 2020, the authorities announced the relaxation of the containment measures, while the isolation of the Grand Abidjan has ended from July 15. The state of emergency remained in place.

Power supply provision was designated as part of essential services. This included off-grid solar companies, and as a result, they were exempt from the lockdown. The Ivorian government announced on March 31st that the electricity bills of over one million households subscribed to the social tariff for the grid would not have to be paid for April and May. Moreover, a postponement of payment of electricity bills from April and May was granted to all households.[62] These measures were part of the additional response plan against COVID-19 in order to mitigate impacts on the population. However, these measures have not been extended to off-grid solar customers.

The 60 Decibels customer surveys show how the COVID-19 crisis specifically affected off-grid solar customers; **using the 60 Decibels Vulnerability Index, 6% of the 248 Ivorian customers interviewed were either extremely or very vulnerable.** This was the lowest result amongst the six African countries considered. Only 66% of families mentioned that their financial situation got worse since the pandemic began. Amongst the coping mechanisms adopted by families, the most common was using savings (40%), followed by decreasing food consumption (15%) and borrowing money (5%). No customers reported to have started reducing loan payments.[63]

Beyond COVID-19, the political situation in Cote d'Ivoire remains uncertain following the sudden death of the Prime Minister on July 8th. This uncertainty may affect future sales in the country.

62 Agence Ecofin, 'Côte d'Ivoire : l'Etat va prendre en charge les factures de l'électricité', 2020. Full article here: https://www.agenceecofin.com/gestion-publique/0404-75420-cote-d-ivoire-l-etat-va-prendre-en-charge-les-factures-de-l-electricite-d-un-million-de-menages-abonnes-au-tarif-social

63 60 Decibel, 'COVID-19 Dashboard', 2020. Full dashboard here: 60 Decibel, 'COVID-19 Dashboard', 2020. Full dashboard here: https://singuser159k8vsm.eu.qualtrics.com/results/public/c2luZ3VzZXIxNTIrOHZzbS1VUl8zOEtzZ3JEZW1VZVU4UzEtNWVmYjNkZDNkZTU5NmYwM-DExNDBlYjBm#/pages/Page_8266db52-1c5c-4871-b9a2-c0a1a1f00b20

West Africa Insights

Cote d'Ivoire Insights

Sales Trends

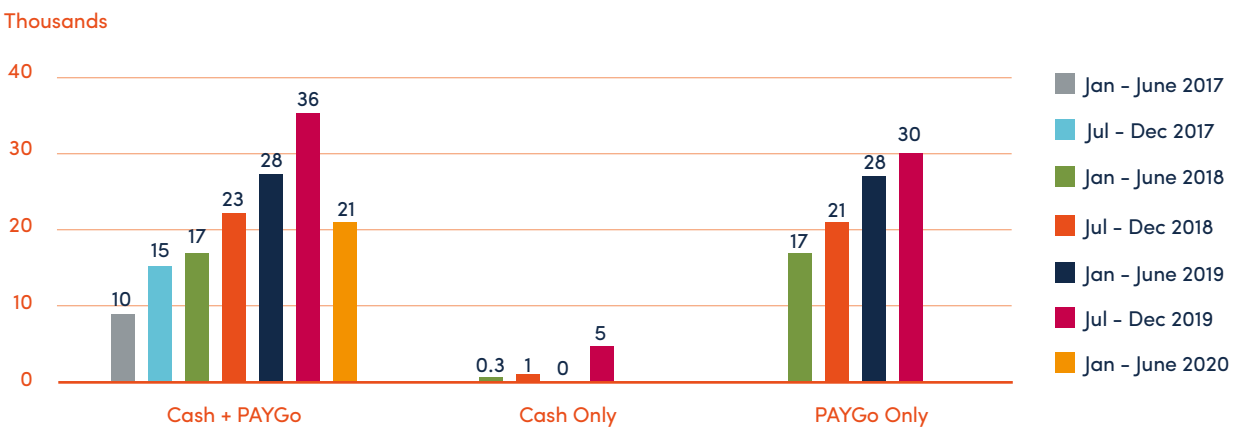
Off-Grid Solar Lighting

Sales of off-grid solar products in Cote d'Ivoire totalled 21,000 units between January and June 2020. These volumes halted the round-on-round growth observed in the country until now. Sales decreased by 40% compared to the last reporting round and by 23% in comparison with the first half of 2019.

Off-Grid Solar Appliances

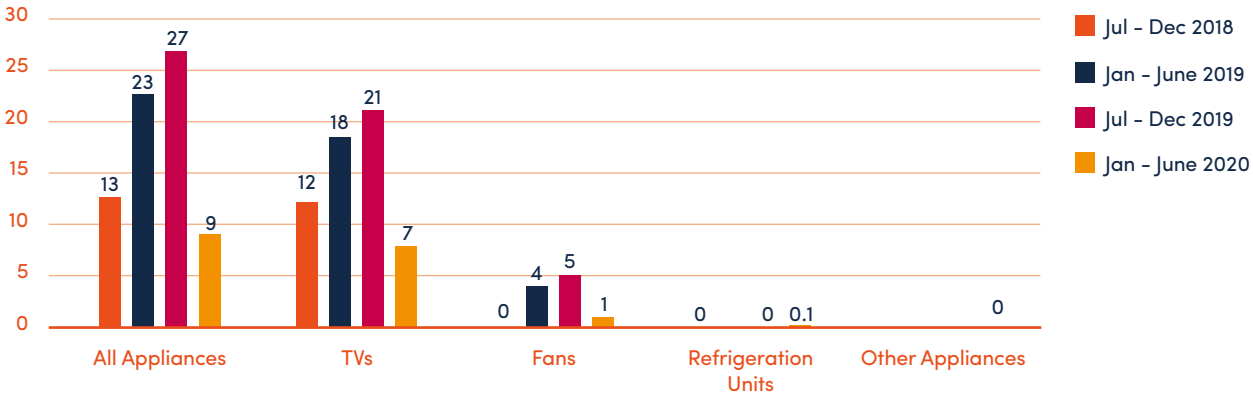
Between January and June 2020, total appliance sales in Cote d'Ivoire was 9,000 units. This is a decrease of over 60% compared to the first and second half of 2019. TVs account for 86% of the appliances sold in the country with 7,500 units. But affiliates also reported over 1,000 fans and 100 RUs sold in the reporting period. Sales of solar water pumps were negligible and did not pass three-data point control, while no sales have been recorded for other appliances.

Figure 53 - Semi-annual Evolution of Volume of Lighting Products Sold - Cote d'Ivoire



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 54 - Semi-annual Evolution for Appliances Products - Cote d'Ivoire



NOTE:
- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure.

West Africa Insights

Ghana Insights

Background

Starting March 16, the government adopted sweeping social distancing measures and travel restrictions to avert an outbreak. This included suspension of all public gatherings exceeding 25 people, closure of all universities and schools. Later, all borders were closed, and a partial lockdown of major urban areas was implemented. **However, in general the measures were not as tough as those seen elsewhere in the region, as the partial lockdown was lifted on April 23.** The process of easing other restrictions began on June 5. Provided social distancing restrictions were met, religious services for fewer than 100 congregants were allowed, and schools and universities reopened.

Off-grid solar companies were exempt from travel restrictions, following certain measures, even if off-grid solar was not designated as 'essential service'.

The Ghanaian president announced that the government will fully cover the bills of low-income consumers of grid electricity (consuming 0 to 50 kWh per month) for April, May, and June 2020. The remaining consumers outside of this category were granted a 50% reduction in the cost of grid electricity for the same period.[64] No equivalent measure was taken for off-grid solar customers.

© Pawame / Skander Allegue

64 Citi Newsroom, 'COVID-19: Government to absorb electricity bills for the poor', 2020. Full article here: https://citinewsroom.com/2020/04/covid-19-government-to-absorb-electricity-bills-for-the-poor-others-to-enjoy-50-slash/

West Africa Insights

Ghana Insights

Sales Trends

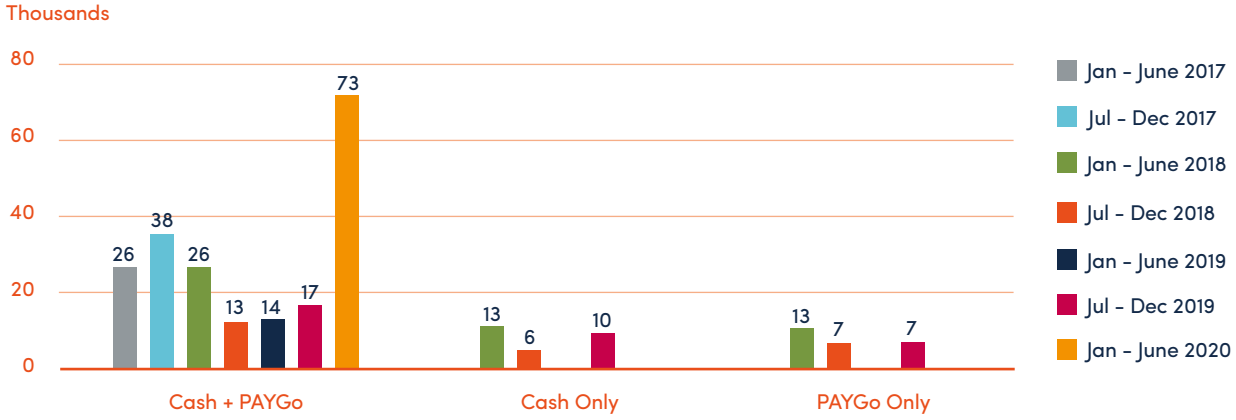
Off-Grid Solar Lighting

Sales of off-grid solar products in Ghana totalled 73,000 units between January and June 2020. These are the largest volumes observed in the country since the reporting started; anecdotally, companies shared that this is connected to a new programme that is due to come online towards the second half of 2020.

Off-Grid Solar Appliances

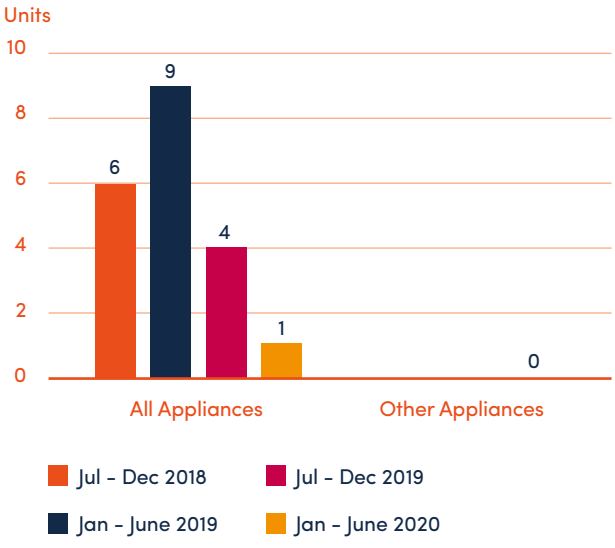
Between January and June 2020, the total recorded number of appliance sales in Ghana were 1,400 units. This is a 69% decrease compared to the second half of 2019 and 84% less than the first half of 2019. Sales volumes cannot be broken down into appliance types as there are not enough companies reporting, while no sales have been recorded for other appliances.

Figure 55 - Semi-annual Evolution of Volume of Lighting Products Sold - Ghana



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 56 - Semi-annual Evolution for Appliances Products - Ghana



NOTE:
- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure.

West Africa Insights

Nigeria Insights

Background

Nigeria has been severely hit by the spread of COVID-19 and the associated sharp decline in oil prices. A range of measures have been implemented starting March 30th to contain the spread of the virus, including closure of international airports, public and private schools, universities, stores and markets, and suspension of public gatherings. Travel between states was suspended and a stricter lockdown was declared in Lagos, Abuja, and Ogun states. On June 2, some restrictions were lifted allowing most offices and schools to reopen. However, many restrictions remained in place, including a night curfew, ban on non-essential inter-state passenger travel, partial and controlled interstate movement of goods and services, and mandatory use of face masks or coverings in public.

Power supply provision was designated as part of essential services on April 10th and thus exempted from the lockdown, including companies operating in Lagos State. This meant that off-grid solar companies could still operate.

Notably, the Association of Nigerian Electricity Distributors (ANED) aligned with the federal government to provide a two-month period of free electricity supply to all grid customers nationwide.[65] This latter measure was not extended to off-grid solar clients.

The drop in oil prices has exacerbated the forex risk, which remains high. The Central Bank of Nigeria devalued the naira, but parallel rates continue to exist. This mismatch may discourage foreign investors.

The 60 Decibels customer surveys, shows how the COVID-19 crisis specifically affected off-grid solar customers. **Using the 60 Decibels Vulnerability Index, 26% of Nigerian customers were either extremely or very vulnerable.** This is a much lower result than the East African countries considered, but still larger than Cote d'Ivoire's. 84% of families mentioned that their financial situation got worse since the pandemic began. Amongst the coping mechanisms adopted by families, the most common was using savings (46%), followed by decreasing food consumption (29%), reducing household or business investment (20%) and borrowing money (11%). Nearly no customers reported to have started reducing loan payments.[66]

On a more optimistic note, the government announced on March 24th VAT exemptions for solar technologies as part of the Emergency Economic Stimulus Bill 2020. This exemption did not yet have any impact on the sales of this reporting round, but it will influence future sales in the country.

65 ESI Africa, 'Nigeria pledges free electricity supply nationwide for two months', 2020. Full article here: https://www.esi-africa.com/industry-sectors/transmission-and-distribution/nigeria-pledges-free-electricity-supply-nationwide-for-two-months/

66 60 Decibel, 'COVID-19 Dashboard', 2020. Full dashboard here: 60 Decibel, 'COVID-19 Dashboard', 2020. Full dashboard here: https://singuser159k8vsm.eu.qualtrics.com/results/public/c2luZ3VzZXIxNTIrOHZzbS1VUl8zOEtzZ3JEZW1VZVU4UzEtNWVmYjNkZDNkZTU5NmYwM-DExNDBlYjBm#/pages/Page_8266db52-1c5c-4871-b9a2-c0a1a1f00b20

West Africa Insights

Nigeria Insights

Sales Trends

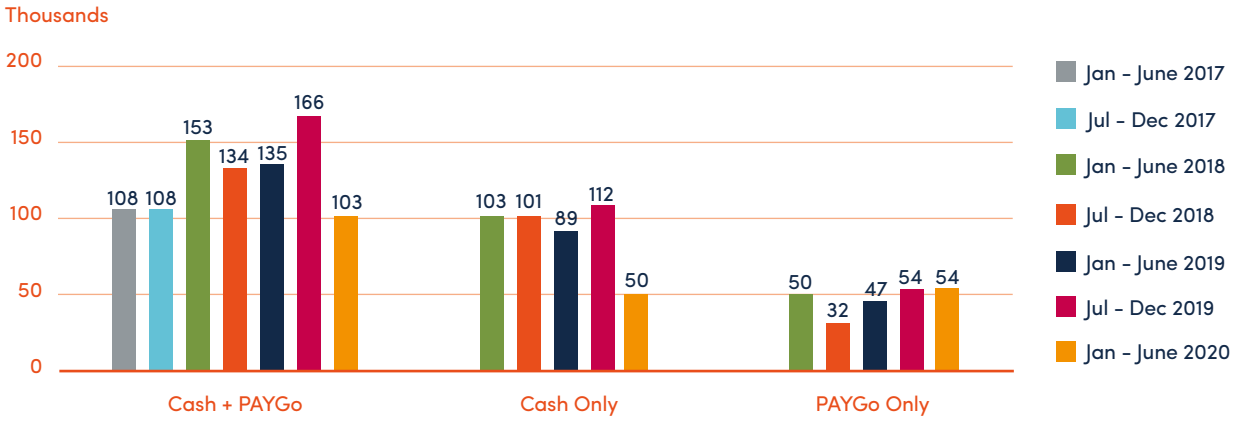
Off-Grid Solar Lighting

Sales of off-grid solar products in Nigeria totalled 103,000 units between January and June 2020. This is a 28% decrease compared to the second half of 2019, and a 24% drop in comparison with the first half of the same year. **The decrease was mainly on the cash sales side, while PAYGo sales remained stable around 53,000 units.**

Off-Grid Solar Appliances

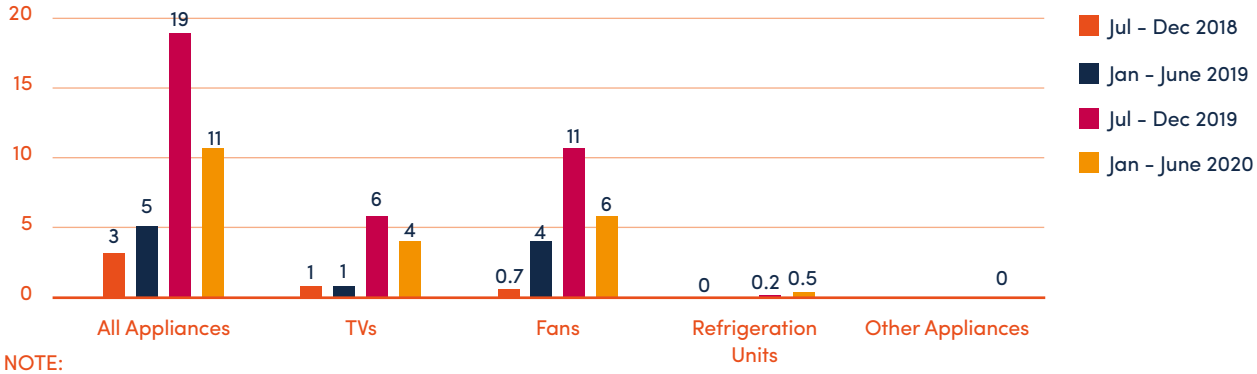
Between January and June 2020, the total recorded number of appliance sales in Nigeria were 11,000 units. This is a 39% decrease compared to the second half of 2019, but still double the volumes of the first half of 2019. Nigeria is one of the largest markets for fans, with them remaining the most sold appliance (at 6,000 units) with TVs following closely at around 4,800 products sold. Both segments saw decreases, more sharply on the fans side. On the other hand, sales of RUs doubled compared to last reporting round reaching over 500 units sold. Sales of SWPs and other appliances do not pass three-data point control.

Figure 57 - Semi-annual Evolution of Volume of Lighting Products Sold - Nigeria



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 58 - Semi-annual Evolution for Appliances Products - Nigeria



NOTE:

- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure.

West Africa Insights

Senegal Insights

Background

The government declared a national state of emergency in March and adopted strict containment measures. These included suspensions of international air travel, closure of borders, limits on inter-regional travel, bans on public gatherings, school closures, and a curfew. The President lifted the state of emergency and curfew on June 30. International air travel has resumed, while some restrictions such as land border closure remain in place.

Power supply provision, including off-grid solar, was designated as an essential service on April 1st and was exempt from the lockdown. This meant that companies could still operate.

The government announced that consumers in the social brackets consuming between 0 and 250 kWh per month (more than 975,000 households) did not have to pay their grid electricity bills for the month of April and May.[67] No equivalent measure was taken for off-grid solar customers.

Local industry stakeholders conducted interviews with government officials to bring attention to the negative effect of COVID-19 on off-grid solar companies. Concerns and requests for a relief fund were expressed to the Ministry of Energy in a letter written in collaboration with the local association COPERES (Conseil Patronat des Énergies Renouvelables du Sénégal).

On July 23rd, the government announced the adapted bill exempting VAT for solar products. The new measures aim to reduce the acquisition costs of renewable energy production equipment by 18%. Sales of this reporting round have not been affected by this exemption, but this will likely impact future sales in Senegal.

Since October 2019, one factor that has been positively influencing the PAYGo segment for SWPs in Senegal are the 2019-20 Global LEAP RBF incentives.[68]

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67 Pressafrik, 'Gratuité de l'électricité: les consommateurs de la tranche sociale ne paieront pas les factures', 2020. Full article here: https://www.pressafrik.com/Gratuite-de-l-electricite-les-consommateurs-de-la-tranche-sociale-ne-paieront-pas-les-factures-du-mois-d-avril-ou-de-mai_a214194.html

68 Global Leap Awards, 'Results-based financing. 2019-20 - Refrigerators & Solar Water Pumps', 2019. Full article here: https://globalleap-awards.org/results-based-financing

West Africa Insights

Senegal Insights

Sales Trends

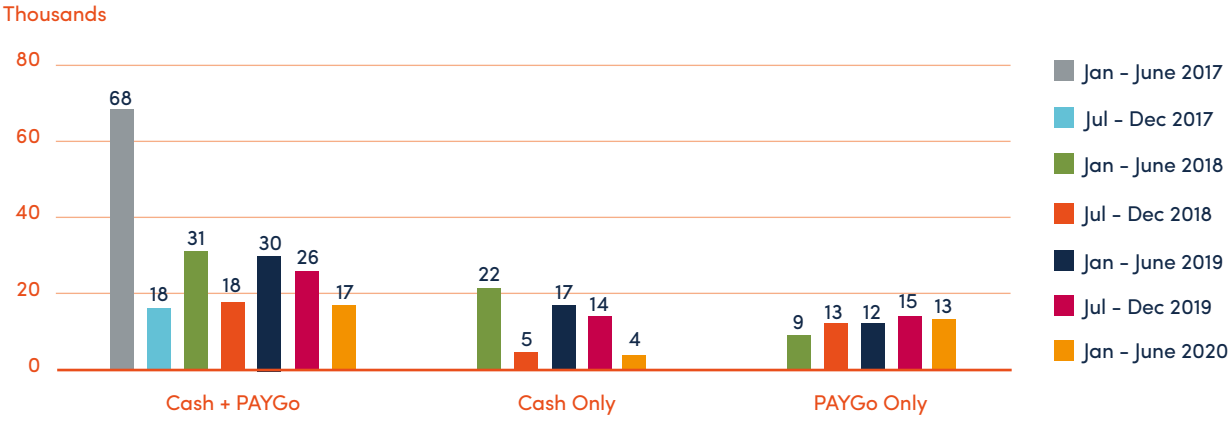
Off-Grid Solar Lighting

Sales of off-grid solar products in Senegal totalled 17,000 units between January and June 2020. This is a 32% decrease compared to the second half of 2019, and a 41% drop in comparison with the first half of the same year. **The decrease was mainly on the cash sales side, while PAYGo sales remained stable around 13,000 units.**

Off-Grid Solar Appliances

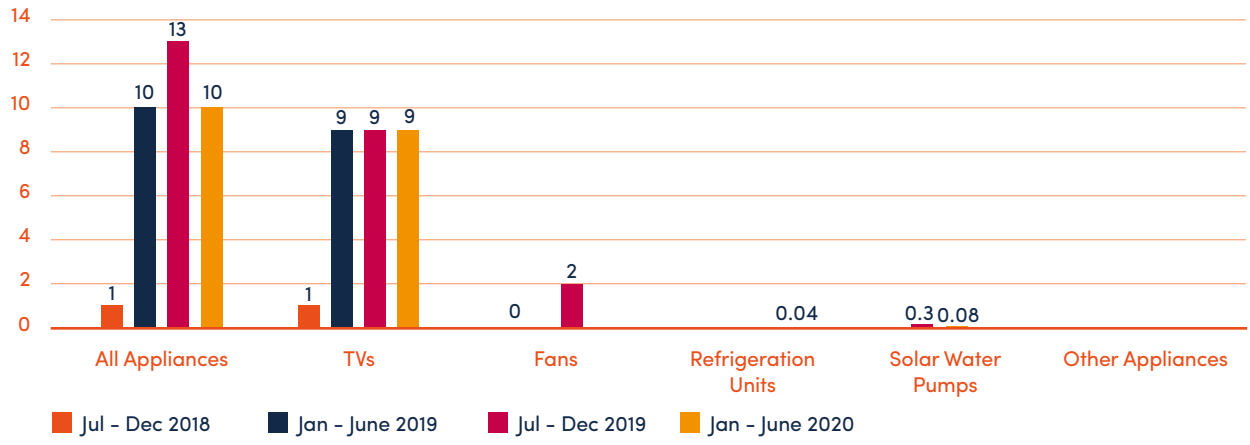
Between January and June 2020, the total recorded number of appliance sales in Senegal were 10,000 units. This is an 18% decrease compared to the second half of 2019, but roughly the same volumes of the first half of 2019. TVS represent nearly all appliances sold with over 9,000 units. Affiliates also reported 40 RUs and 79 SWPs sold in Senegal during the reporting period. Sales of fans and other appliances do not pass three-data point control.

Figure 59 - Semi-annual Evolution of Volume of Lighting Products Sold - Senegal



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 60 - Semi-annual Evolution for Appliances Products - Senegal



NOTE:
- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure.

West Africa Insights

Togo Insights

Background

In an attempt to contain the outbreak, Togo has taken a series of measures including closing land borders and airspace to flights from countries with high infection rates. Entries for non-citizens from countries with high infection rates are banned. Official travels to high-risk countries and gatherings of more than 100 people are banned until further notice. All sport or cultural events have been adjourned.

On April 1st, the Government of Togo announced free access to water and power for the following three months for the most vulnerable households, with the caveat of a cap on the monthly consumption amounts.[69] **A similar measure of free electricity for one month was extended to the customers of a selected cohort of off-grid solar distributors with a government licence under the national electrification plan.[70]**

The government continues to partner with off-grid solar companies under the Togo Electrification Strategy to guarantee service in return for citizens receiving subsidies towards the cost of SHS electricity access. This combined with other measures helped keep the sales volumes virtually unaffected by the COVID-19 crisis.

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69 Togo first, 'President Gnassingbé makes water and power free for the most vulnerable populations', 2020. Full article here: https://www.togofirst.com/en/social/0204-5267-president-gnassingbe-makes-water-and-power-free-for-the-most-vulnerable-populations

70 Afrik21, 'TOGO: Soleva and Bboxx offer free electricity to customers following Covid-19', 2020. Full article here: https://www.afrik21.africa/en/togo-soleva-and-bboxx-offer-free-electricity-to-customers-following-covid-19/

West Africa Insights

Togo Insights

Sales Trends

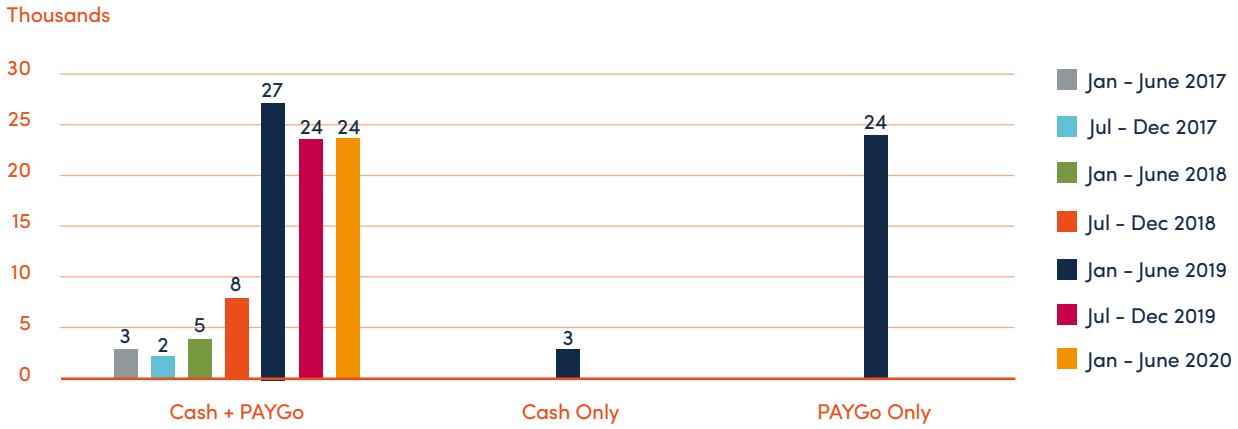
Off-Grid Solar Lighting

Sales of off-grid solar products in Togo totalled 24,000 units between January and June 2020. This is roughly the same amount recorded in the second half of 2019, and a 11% drop in comparison with the first half of the same year.

Off-Grid Solar Appliances

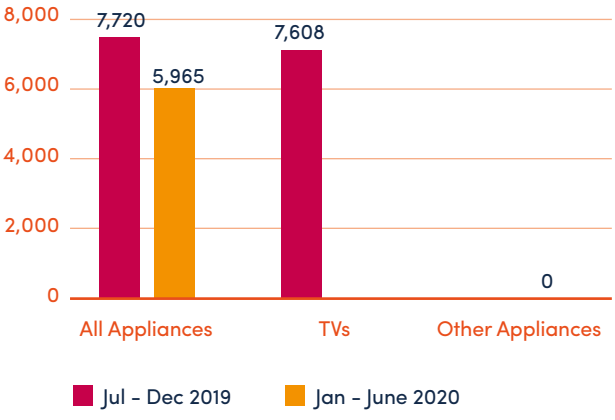
Between January and June 2020, the total recorded number of appliance sales in Togo were 6,000 units. This is a 23% decrease compared to the second half of 2019, while we cannot compare with the first half of the same year as sales were not reported by enough companies to pass the confidentiality rules. This round we cannot report any further breakdown of individual appliance category sales as sales of TVs and SWPs do not pass these three data point confidentiality rules. No sales were reported for fans, RUs and other appliances.

Figure 61 - Semi-annual Evolution of Volume of Lighting Products Sold - Togo



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 62 - Semi-annual Evolution for Appliances Products - Togo



NOTE:
- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure.

West Africa Insights

Other West African Countries

Sales Trends

Off-Grid Solar Lighting

Benin's sales volume saw a 29% decrease compared to the second half of 2019 and a 15% drop compared to the first half of 2019. Affiliates sold 21,000 units, halting the growth recorded round on round since 2018.

For the first time since 2018, sales in **Guinea** passed three-data point control, showing over 4,000 units sold.

Affiliates reported 10,000 units sold in **Liberia** between January and June 2020, a very large amount possibly inflated by bulk procurements.

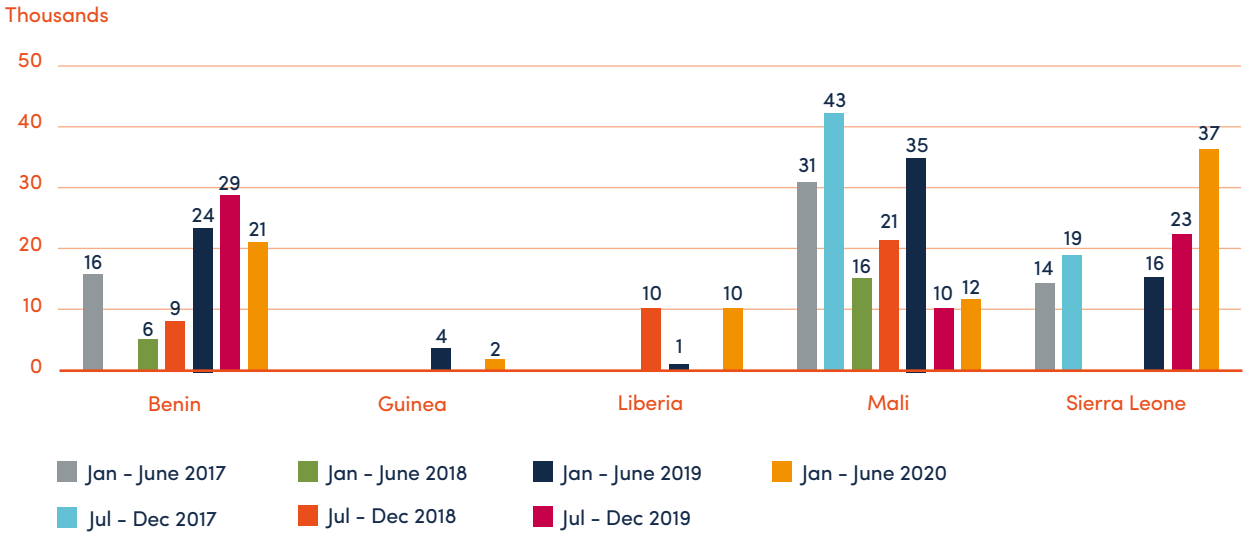
Mali recorded a 17% increase, seeing nearly 12,000 units sold by our affiliates. These volumes are still lower than those reported for 2019 and 2018.

Particularly notable is that the increase is entirely due to the PAYGo segment, while cash sales registered decreases.

In **Sierra Leone**, a large 64% increase in sales volume occurred compared to the second half of 2019 and double the sales volumes in the first half of 2019, with sales volumes reaching 37,000 units. These are the largest sales volumes recorded in the country since the reporting started, and future rounds will reveal if the growth trend continues or if it is connected to one-offs bulk procurements.

Niger did not see enough companies reporting to show volumes this reporting round.

Figure 63 - Semi-annual Evolution of Volume of Lighting Products Sold - Other West African Countries



West Africa Insights

Other West African Countries

Off-Grid Solar Appliances

We cannot share any breakdown of sales within any of the individual appliance categories in all following countries as sales were not reported by enough companies to satisfy our confidentiality requirements.

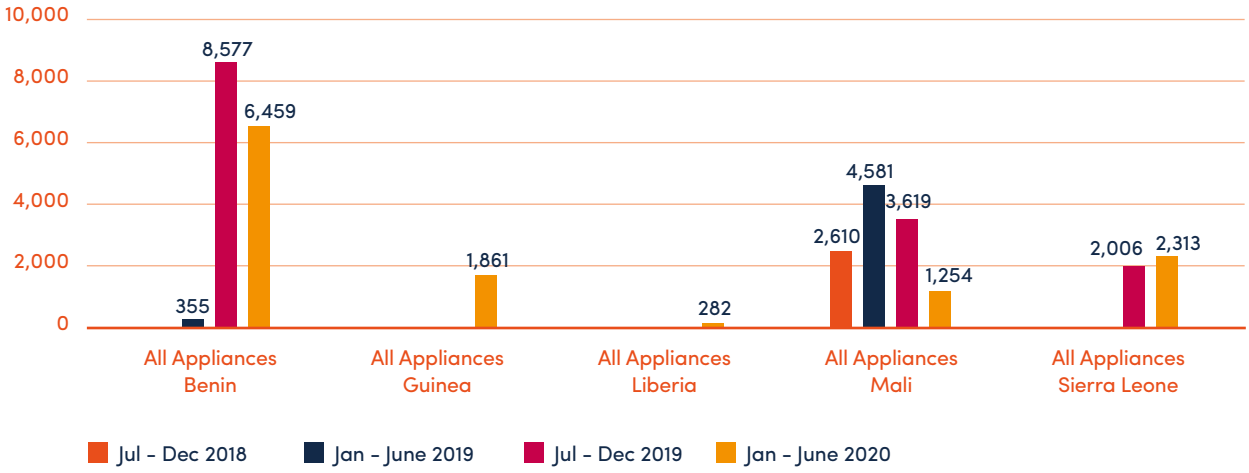
Benin's sales volume saw a 25% decrease compared to the second half of 2019 with 6,000 units sold. However, this is still much larger than in the first half of 2019 when only a few hundred units were reported.

For the first time since 2018, sales in **Guinea** and **Liberia** passed three-data point control, showing 2,000 and 300 units respectively.

Affiliates reported 1,200 units sold in **Mali** between January and June 2020, which is 65% less than the last reporting round and a 73% drop compared to the first half of 2019.

On the other hand, sales of appliances in **Sierra Leone** reached 2,300 units sold, 15% more than the volumes reported in the second half of 2019.

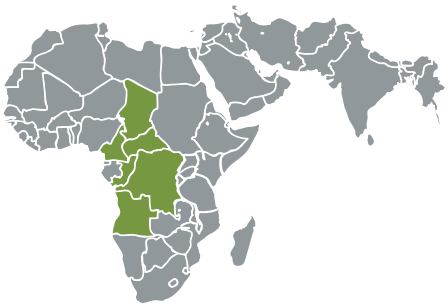
Figure 64 - Semi-annual Evolution of Volume of Lighting Products Sold - Other West African Countries



NOTE:
The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units.

Central Africa Insights

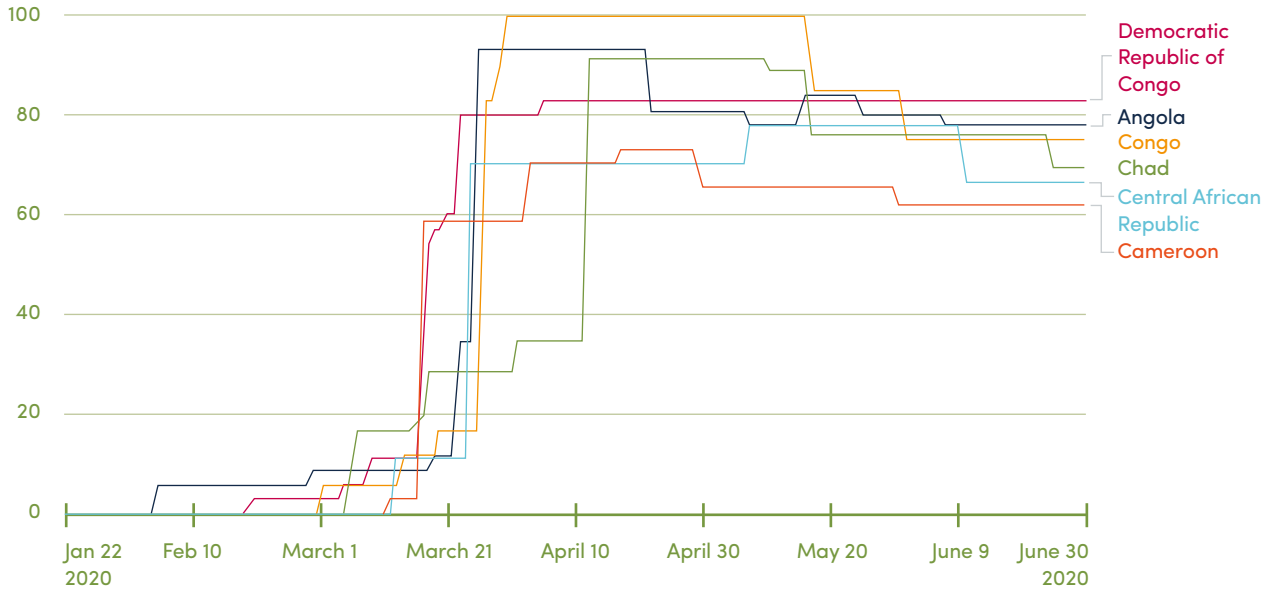
Central Africa Insights



Background

Overall, countries in Central Africa experienced slightly less stringent lockdown than the ones in East and West Africa. Congo seems to be an exception with values of the stringency index close to 100.[71] None of these countries recognised off-grid solar companies as an essential service.

Figure 65 - Evolution Government Response Stringency Index - Central Africa[72]



NOTE:
The Government Response Stringency Index is a composite measure between 0 and 100 encompassing 17 indicators of government responses to the pandemic. Note that these indices simply record the number and strictness of government policies, and should not be interpreted as 'scoring' the appropriateness or effectiveness of a country's response. A higher position in an index does not necessarily mean that a country's response is 'better' than others lower on the index, but rather that a country is stricter than another one.

71 Blavatnik School of Government and University of Oxford, 'Oxford COVID-19 Government Response Tracker', 2020. Full report here: https://www.bsg.ox.ac.uk/research/research-projects/oxford-covid-19-government-response-tracker
72 Ibidem

Central Africa Insights

Sales Trends

Off-Grid Solar Lighting Products

Sales of off-grid solar products in Central Africa totalled 130,000 units between January-June 2020. This meant there was no decrease compared to the first and second half of 2019, but rather a small relative increase.

The overall stability hides a decrease in cash sales, while PAYGo sales increased. In the first half of 2020, 74,000 units were reported to be sold in cash - a 17% decrease compared to the last reporting round and a 30% drop in comparison with the first half of 2019. PAYGo sales are on an upward trajectory, recording a 65% and 170% increase compared to the second and first half of 2019 respectively.

Portable Lanterns

Portable lanterns capable of charging mobile phones - i.e. with an indicative wattage of 1.5-2.999 Wp - experienced stable sales with 25,000 units compared to the second half of 2019 and a 28% decrease compared to the first half of 2019. The sales of portable lanterns without mobile charging - i.e. those with an indicative wattage of 0-1.499 Wp - do not pass the confidentiality rule, impending a trend analysis.

Multi-light systems

Central Africa recorded only 500 of multi-light systems sold between January and June 2020. This is nearly a 100% decrease compared to the last reporting round when 12,000 units were sold.

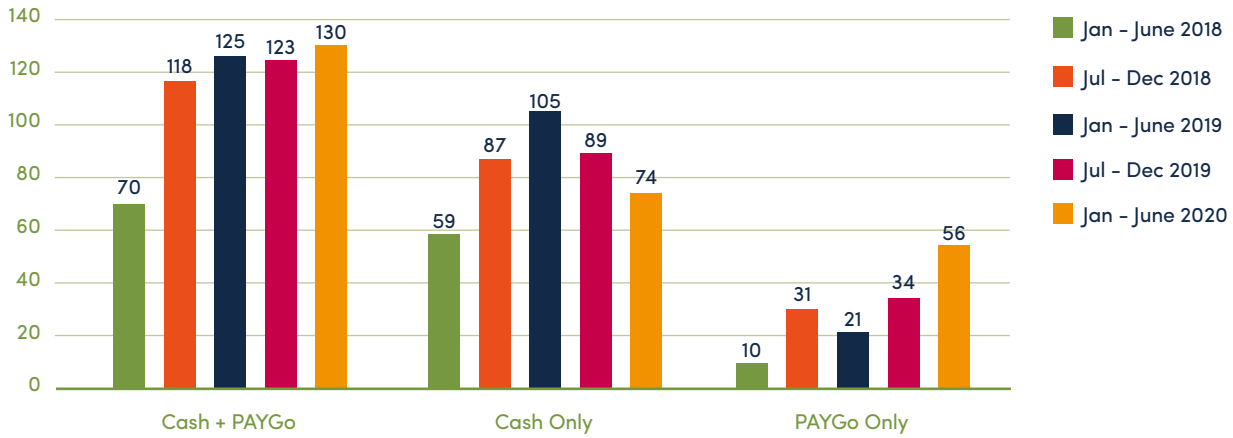
Solar Home Systems (SHS)

Less visibility is available on a product category compared to East and West Africa. Only the 50-100 Wp category passes three-data point control showing 30,000 units sold. This is roughly double the sales reported in the first and second half of 2019.

Affiliates reported 0 sales in the 21-49 Wp, quite a decrease compared to the 3,000 units of the last reporting round. The 11-20 Wp and 100+ Wp category do not pass the confidentiality rule.

Figure 66 - Semi-annual Evolution of Volume of Products Sold - Central Africa

Thousands

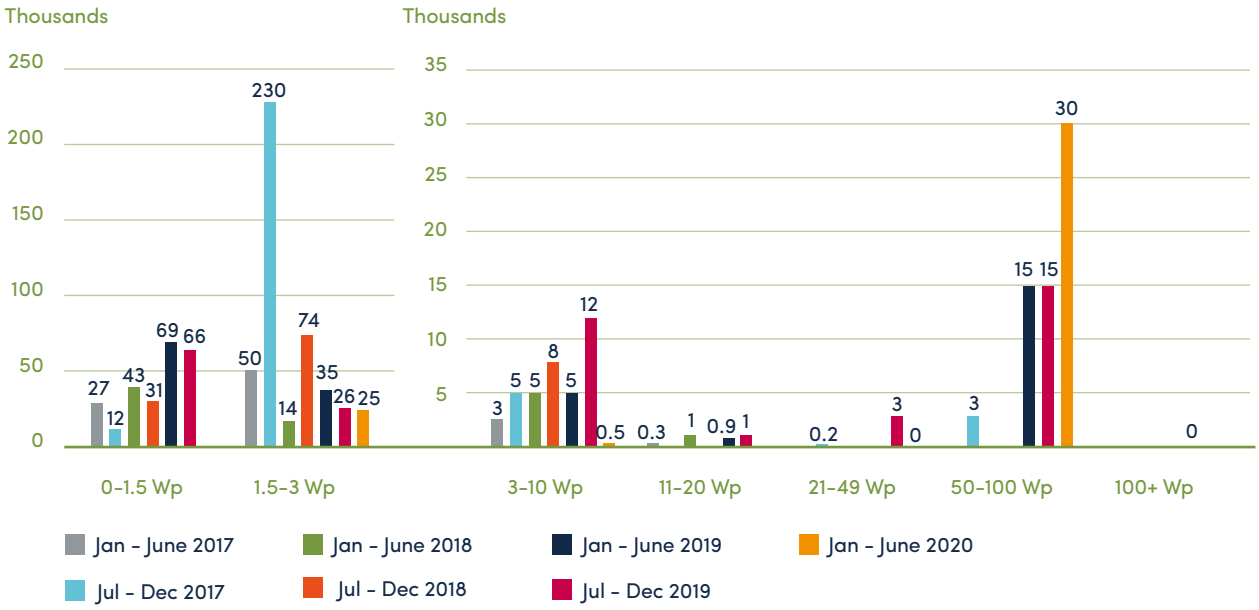


NOTE:

Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Central Africa Insights

Figure 67 - Semi-annual Evolution of Global Sales Volumes by Product Category - Central Africa



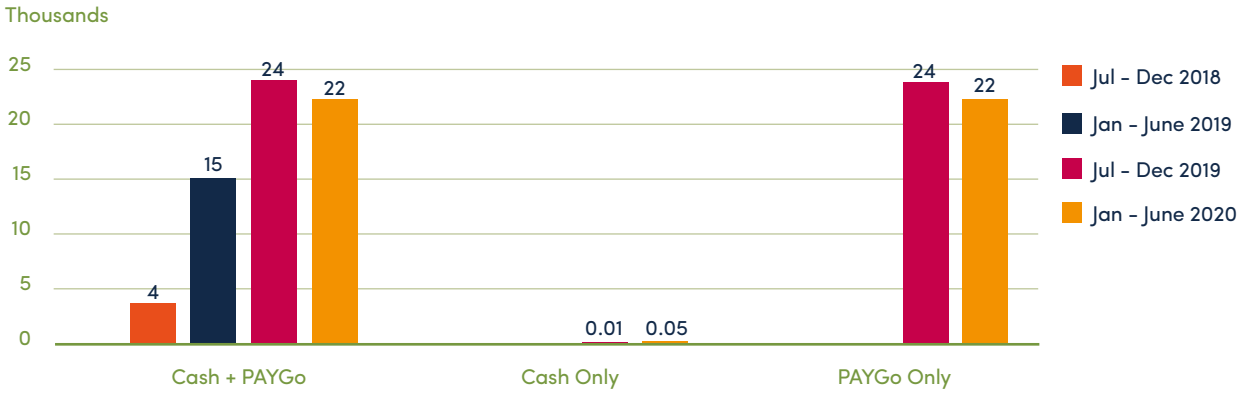
NOTE:
Lanterns 0-1.5 Wp include one light and no mobile charging, lanterns 1.5-3 Wp one light and mobile charging, and multi-light systems 3-10 Wp at least two lights and mobile charging. Solar Home Systems >11 Wp are classified based on panel wattage.

Off-Grid Solar Appliances

Between January and June 2020, the total recorded number of appliance sales in Central Africa reached 22,200 units sold. This is a 9% decrease compared to the second half of 2019 and a 50% increase compared to the first half of 2019. **In general, Central Africa saw the smallest decreases amongst the regions.**

TVs represented nearly 100% of the sales in Central Africa with 22,000 units. The refrigeration units represented remain marginal with 52 units, while sales of fans and solar water pumps did not pass three-data point control.

Figure 68 - Semi-annual Evolution for All Appliances - Central Africa



NOTE:
- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units.
- Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Central Africa Insights

Fans

In Central Africa, sales of fans do not pass three-data point control as in all the previous reporting rounds. As a result, no trends can be observed or evaluated.

TVs

In Central Africa TVs remain the most popular appliance type; 22,000 TVs were reported sold by affiliates in the first half of 2020, remaining the third largest regional market for this appliance type after East and West Africa. Sales volumes remained buoyant showing a 9% decrease compared to the second half of 2019 and a 51% increase compared to the first half of 2019.

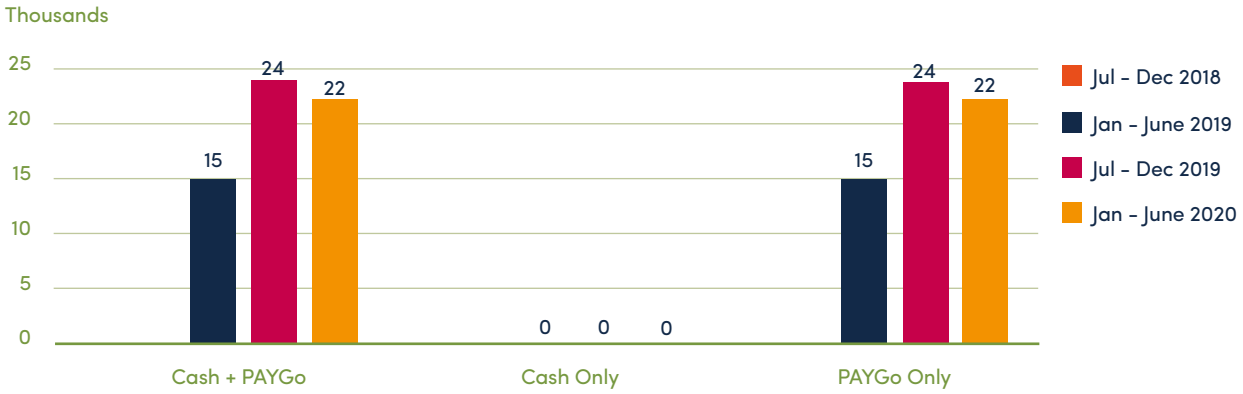
All the TVs in the region are sold via PAYGo. When looking at how many TVs are sold bundled with a power system, around 89% of the TVs are sold with a SHS, while the remaining 11% are not.

No split by further categories can be offered at this stage, as none of these passes three-data point control.

Refrigeration Units (RUs)

In Central Africa, the RUs volumes remain very low. Between January and June 2020, only 50 units have been sold. Of the 52 units, 40 RUs are reported to be sold without a power system; no insights can be elaborated on the split between cash and PAYGo as less than three companies are reporting in one or both segments. Given the small volumes, the trends are highly influenced by variable sales, therefore no comment can be made on the trajectory of the region for this appliance type.

Figure 69- Semi-annual Evolution for TVs - Central Africa



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 70 - Semi-annual Evolution for Refrigeration Units - Central Africa

NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Central Africa Insights

Solar Water Pumps (SWPs)

In Central Africa, sales of SWPs do not pass the confidentiality rule but do report sales. No company reported sales of SWPs in 2019 in this region.

Other Appliances

In Central Africa, no sales of other appliances were reported. This appliance type normally **includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery.** Radios are excluded from the count of other appliances, as they are regularly sold bundled with lighting systems, to such an extent that their large volumes would have skewed the overall results.

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Central Africa Insights

Cameroon Insights

Background

The government announced a package of 13 containment measures on March 17th. This included closure of land, air and sea borders, closure of schools and universities, prohibition of gatherings of more than 50 persons, closure of bars, restaurants, and entertainment spots after 6 pm, and a ban on overloading taxis and public transportation. **Seven additional measures were added starting from April 13th**, including wearing a mask in all areas open to the public, intensified screening, and an awareness campaign, among others.

On April 30th, the government announced a set of reopening measures. The restriction prohibiting bars, restaurants, and leisure facilities from operating after 6 p.m. was lifted, provided customers and users respect social distancing and wear protective masks. The limit on the number of passengers in public transportation vehicles (buses and taxis) was also relaxed but masks remain compulsory and overloading is prohibited. Primary and secondary school students returned to school on June 1st.

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Central Africa Insights

Cameroon Insights

Sales Trends

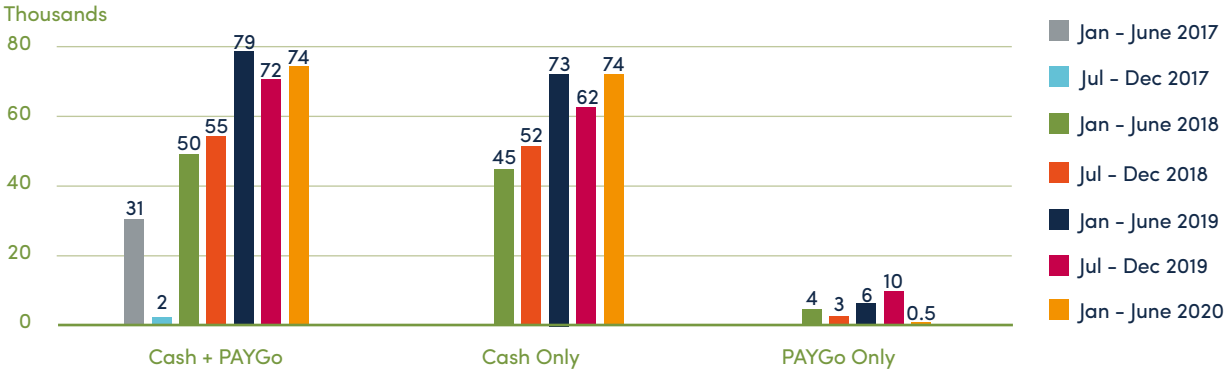
Off-Grid Solar Lighting

Sales of off-grid solar products in Cameroon totalled 74,000 units between January and June 2020. This is roughly the same amount recorded in the second half of 2019, and a 6% drop in comparison with the first half of the same year. In Figure 71, there is a significant difference between cash and PAYGo sales, with the first seeing an increase while the others almost fall to zero, after the several thousand units recorded in the past reporting rounds.

Off-Grid Solar Appliances

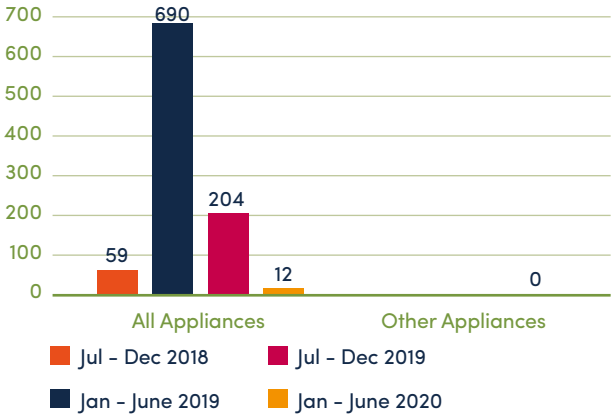
Between January and June 2020, the total recorded number of appliance sales in Cameroon were 12 units. This is a 94% decrease compared to the second half of 2019 and a 98% drop compared to the first half of the same year. Though we cannot compare with the first half of the same year as those sales did not satisfy our confidentiality rules. In this reporting round, affiliates did not report any sales of TVs, fans, or other appliances, but only of RUs and SWPs.

Figure 71 - Semi-annual Evolution of Volume of Lighting Products Sold - Cameroon



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 72 - Semi-annual Evolution for Appliances Products - Cameroon



NOTE:
- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure.

Central Africa Insights

Democratic Republic of Congo (DRC) Insights

Background

On March 24th, the government declared a state of emergency and imposed the confinement of the capital, Kinshasa. Restrictions included reduced travel between Kinshasa and the rest of the country and the prohibition of all gatherings of people in public spaces. These measures add to previous restrictions, such as closure of all education centers, suspension of all religious and sporting events, and closure of bars and restaurants.

Companies anecdotally reported that the government measures limited the distribution of off-grid solar products to rural areas.

Sales Trends

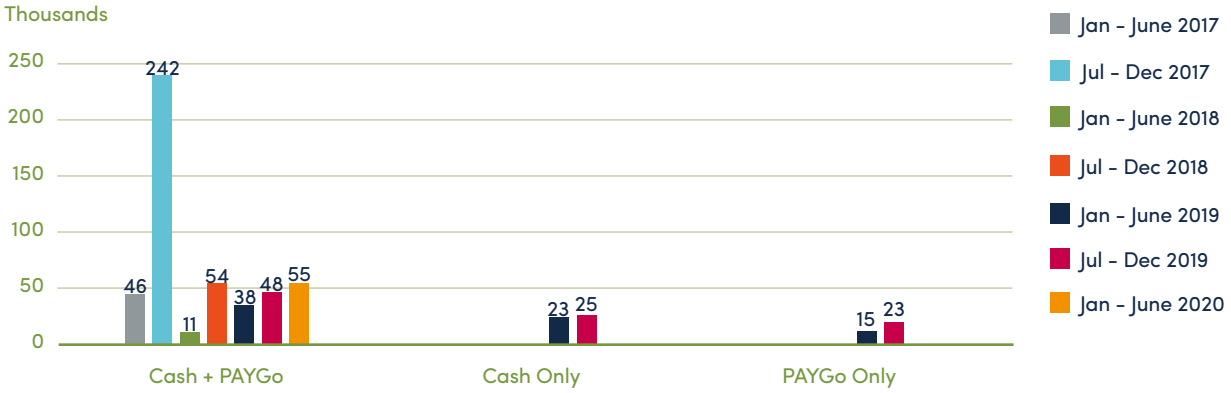
Off-Grid Solar Lighting

However, even facing these adversities, the country recorded growth. **Sales of off-grid solar products in DRC totalled 54,000 units between January and June 2020.** This is a 14% increase compared to the second half of 2019, and 44% more than in the first half of the same year. The split between cash and PAYGo is not available due to confidentiality rules.

Off-Grid Solar Appliances

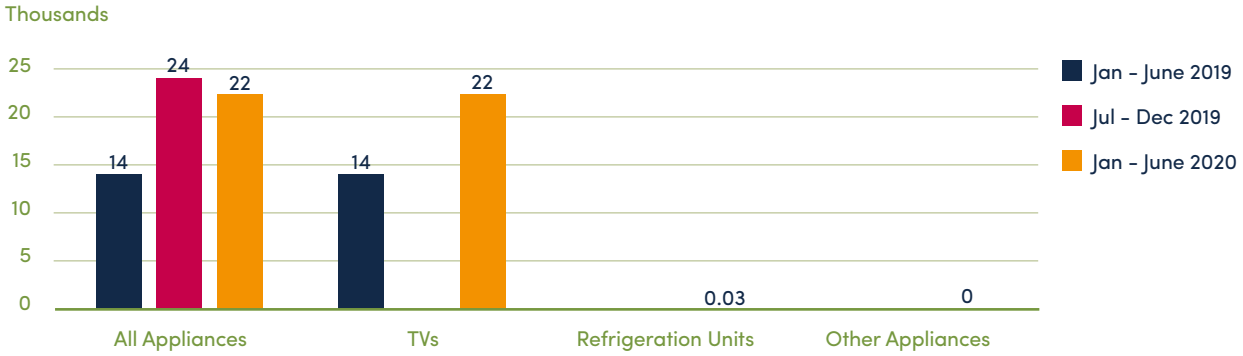
Between January and June 2020, the total recorded number of appliance sales in DRC were 22,000 units. This is only a 7% decrease compared to the second half of 2019 and a 69% more than in the first half of the same year. TVs represent nearly the totality of the sales of appliances this reporting round. Affiliates also reported sales of 35 RUs. Sales of SWPs and fans did not pass three-data point control, while no company reported sales of other appliances.

Figure 73 - Semi-annual Evolution of Volume of Lighting Products Sold - DRC



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 74 - Semi-annual Evolution for Appliances Products - DRC



NOTE:

- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure.

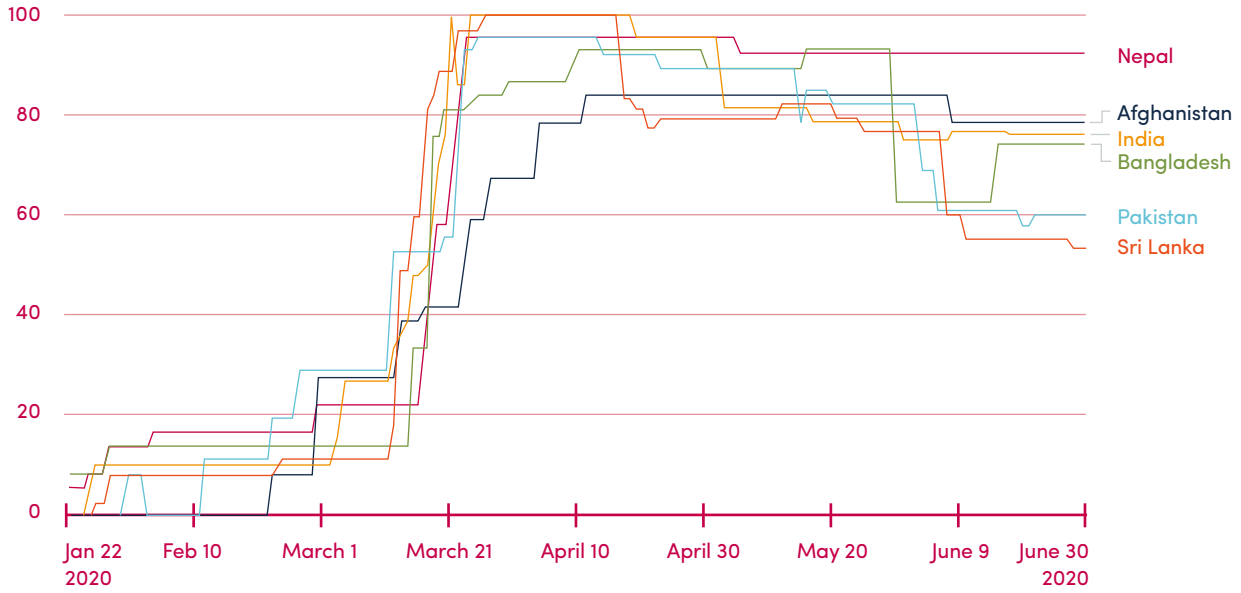
South
Asia
Insights

South Asia Insights

Background

Overall, countries in South Asia experienced very stringent lockdown measures. Particularly restrictive measures were enforced in India and Nepal according to the values of the stringency index at 100, the highest value possible.[73] **None of these countries granted off-grid solar companies the designation of essential service.**

Figure 75 - Evolution Government Response Stringency Index - South Asia[74]



NOTE:
The Government Response Stringency Index is a composite measure between 0 and 100 encompassing 17 indicators of government responses to the pandemic. Note that these indices simply record the number and strictness of government policies, and should not be interpreted as 'scoring' the appropriateness or effectiveness of a country's response. A higher position in an index does not necessarily mean that a country's response is 'better' than others lower on the index, but rather that a country is stricter than another one.

73 Blavatnik School of Government and University of Oxford, 'Oxford COVID-19 Government Response Tracker', 2020. Full report here: https://www.bsg.ox.ac.uk/research/research-projects/oxford-covid-19-government-response-tracker
74 Ibidem

South Asia Insights

Sales Trends

Off-Grid Solar Lighting Products

Sales of off-grid solar products in South Asia totalled 495,000 units between January-June 2020, the lowest volumes recorded since the regional reporting began in 2015. As visible in Figure 76, the downward trend has continued since the second half of 2018 and this round got accelerated by the COVID crisis. Compared to the second half of 2019, the sales volume saw a 41% drop, and a 57% decrease in comparison with the first half of the same year.

Both cash and PAYGo experienced large relative decreases, but given the different magnitude of volumes involved, the drop in cash sales is more prominent. Cash sales include MFI sales which have seen several challenges, exacerbating the drop in sales. Around 487,000 units were sold on a cash basis - a 41% decrease compared to the second half of 2019 and 58% less than the first half of 2019. In the first half of 2020, 8,000 units were reported sold via PAYGo - around half of the volumes of the last reporting round and a 27% decrease in comparison with the first half of 2019.

Portable Lanterns

Portable lanterns total sales reached 343,000 units in South Asia, 69% of the region's sales. Affiliates reported 172,000 sales units of portable lanterns without mobile charging - i.e. those with an indicative wattage of 0-1.499 Wp. This is a 29% decrease compared to the second half of 2019 and 53% when compared to the first half of 2019. Portable lanterns capable of charging mobile phones - i.e. those with an indicative wattage of 1.5-2.999 Wp - experienced a more drastic decrease of 60% with sales of 171,000 units compared to the second half of 2019 and a 71% increase compared to the first half of 2019.

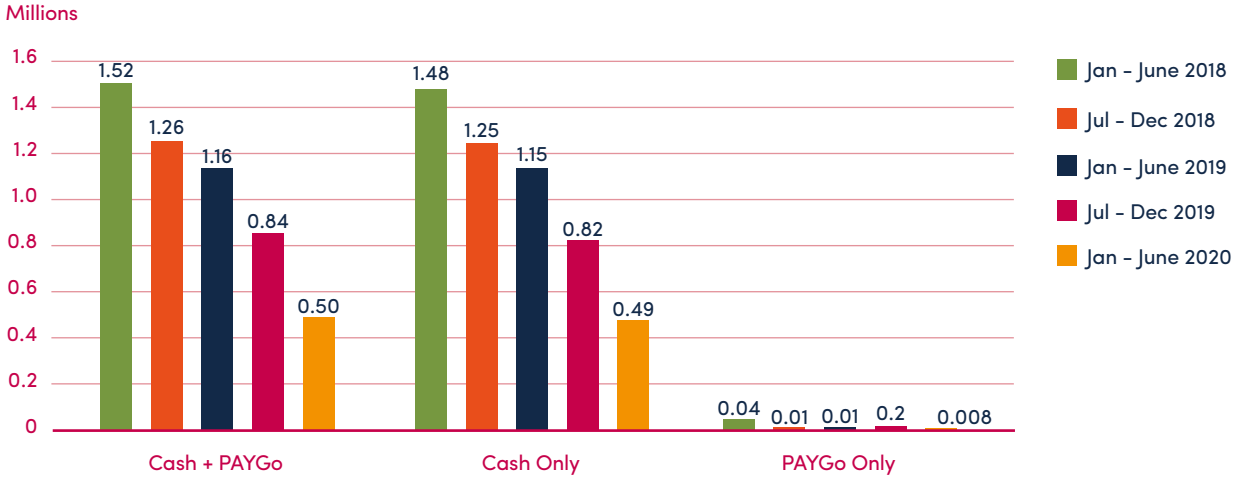
Multi-light systems

South Asia recorded around 86,000 multi-light systems sold between January and June 2020 and represented 17% of the regional sales. This category saw an increase of 31% compared to the second half of 2019 and 12% decrease in comparison with the volumes recorded in the first half of 2019. A slight seasonal pattern is emerging for this product category, for which the first half of the year sees higher sales than the second half.

Solar Home Systems (SHS)

Around 66,000 SHS were sold in South Asia in the first half of 2020. This is a 35% decrease compared to both the first and second half of 2019.

Figure 76 - Semi-annual Evolution of Volume of Products Sold - South Asia



NOTE:
Products are classified as 'Cash', when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

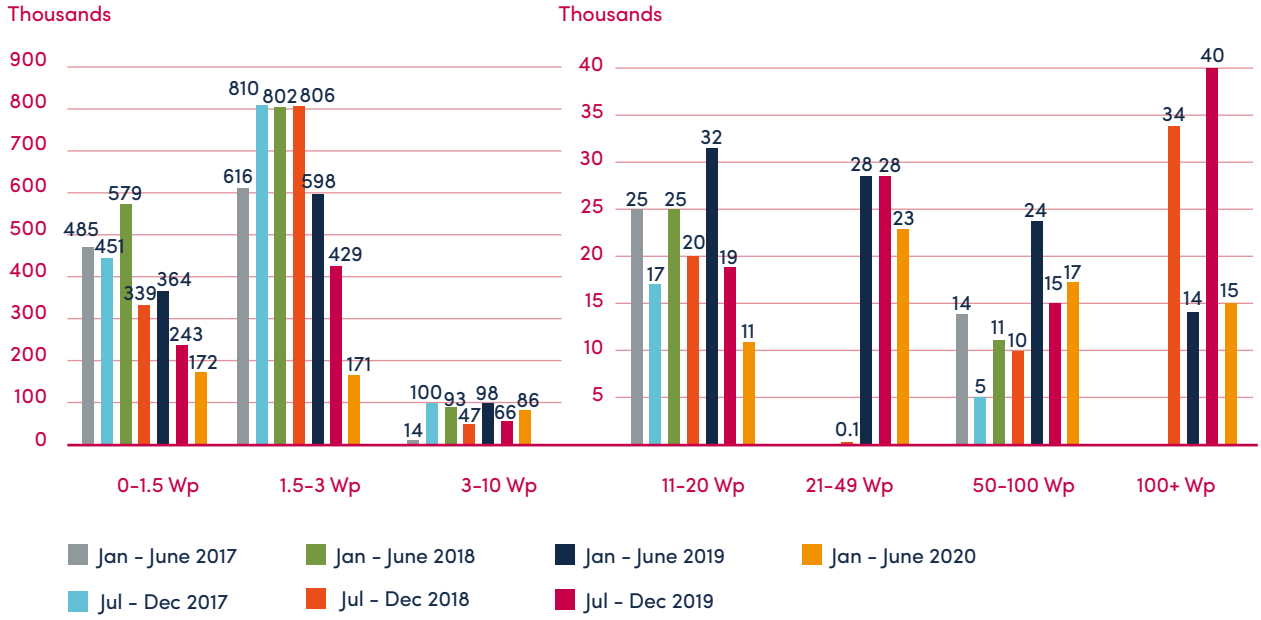
South Asia Insights

The 21-49 Wp category remains the bestseller in the region with 23,000 units, seeing a 16% decrease compared to the last two reporting rounds. While the 11-20 Wp category recorded 11,000 units sold in South Asia, a 44% drop compared to the second half of 2019 and a 67% decrease compared to the first half of the same year. Sales of the 100+ Wp category saw the largest relative decrease in the segment (63% drop), falling to 15,000 units, roughly the same volumes of the first half of 2019.

There may be a seasonal pattern on having larger sales in the second half of the year which will be monitored over time.

Interestingly, the trajectory of the 50-100 Wp segment saw a 16% increase in the region compared to the second half of 2019. Excluding the outlier experienced in the first half of 2019, a growth trajectory can be observed for this SHS segment which will be monitored over time.

Figure 77 - Semi-annual Evolution of Global Sales Volumes by Product Category - South Asia



NOTE:
Lanterns 0-1.5 Wp include one light and no mobile charging, lanterns 1.5-3 Wp one light and mobile charging, and multi-light systems 3-10 Wp at least two lights and mobile charging. Solar Home Systems >11 Wp are classified based on panel wattage.

South Asia Insights

Off-Grid Solar Appliances

Between January and June 2020, the total recorded number of appliance sales in South Asia reached 233,000 units. This is the only region which recorded an increase compared to the last reporting round, with a 68% increase. This seems contradictory considering the COVID-19 crisis outlined in the previous chapters. However, this increase is mostly due to the sales of fans which have a strong seasonal pattern with the first half of the year reporting much larger sales than the second one. Therefore, the effect of the COVID pandemic can be better observed comparing the sales volumes with the ones in the first half of 2019; this comparison shows a 55% decrease.

Fans represented nearly 100% of the sales in South Asia with 232,000 units. The 700 solar water pumps represented less than 1% of the regional sales of appliances, while volumes of TVs and refrigeration units remained marginal with 200 units each.

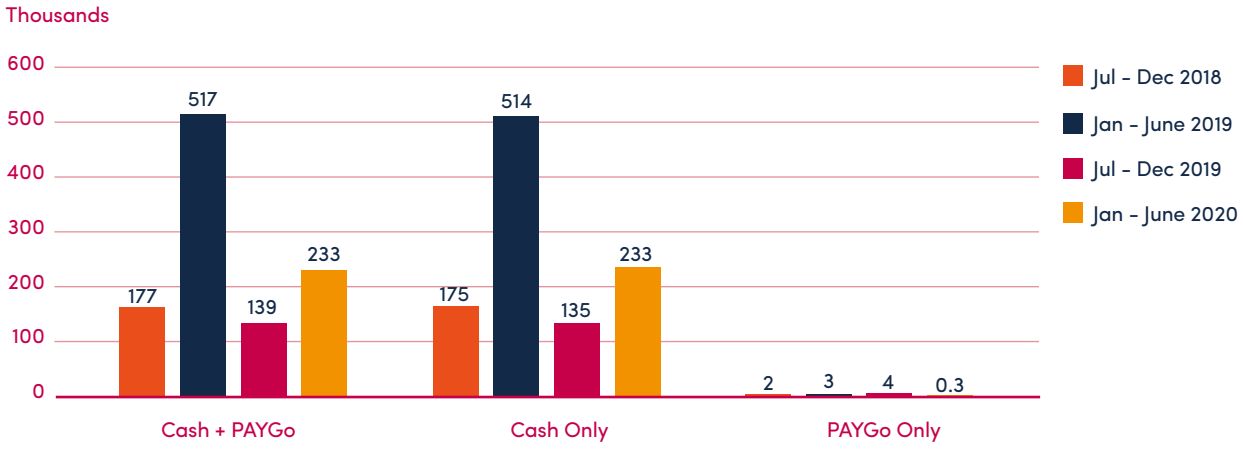
Since fans are mostly sold through cash in this region, all the increase can be observed in that segment, while the PAYGo sales experienced a 90% drop compared to the second half of 2019 and a 86% drop compared to the first half of the same year.

Fans

South Asia remains the largest regional market for this appliance type with 232,000 units sold between January and June 2020. These volumes show a 110% increase compared to the second half of 2019. However, a more appropriate comparison should be drawn with the first half of 2019 as there is a strong seasonal pattern in the sales - highlighted anecdotally by the companies and observable in the sales data trends. Companies have indicated that fan sales are run through a pre-booking system, causing distributors to purchase fans in bulk quantity early in the year and then selling stock to end-users from March onwards and only reordering next year when inventories run down. **Therefore, we should be comparing the sales of the first half of 2020 with the volumes in the same period of 2019; if we do so, we can observe a 55% drop in sales.**

Differently than in West Africa, only 2% of the fans are sold bundled with a power system. No split cash be offered between cash and PAYGo due to insufficient companies reporting sales of each payment type to meet our three-data point rule, but generally fans are largely a cash-based market in this region, given the lower price of the technology that typically enables rural customers to buy fans without requiring consumer financing.

Figure 78 - Semi-annual Evolution for All Appliances - South Asia



NOTE:

- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units.
- Products are classified as 'Cash', when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

South Asia Insights

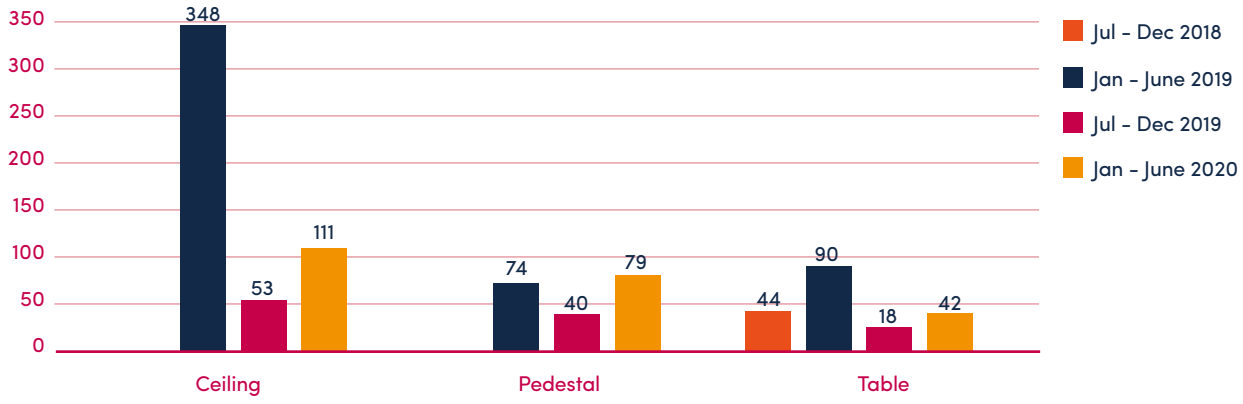
Figure 79 - Semi-annual Evolution for Fans - South Asia

NOTE:
Products are classified as 'Cash', when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

In terms of the portfolio of product categories sold, Figure 80 shows that in South Asia the most sold category are ceiling fans with 111,000 units sold. Anecdotally, the prevalence of ceiling fans in South Asia is due to the fact that its country markets are more mature for AC products which have diversified to produce DC fans to meet growing off-grid market demand. **Pedestal fans follow with over 79,000 units sold in the first half of 2020. Table fans are the last category in terms of volumes with 42,000 units sold.**

Key differences with West Africa are that the order of magnitudes of the three categories is completely reversed and that nearly no fans are sold bundled with a power system. Only table fans see a 13% of the products sold together with a SHS.

Figure 80 - Semi-annual Evolution of Fans by Product Category - South Asia



South Asia Insights

TVs

In South Asia, only 159 TVs were reported sold by affiliates in the first half of 2020. This is a large drop compared to the nearly 5,000 units of the second half of 2020. Anecdotally, companies reported, unlike in Sub-Saharan Africa, that customers and distributors were not interested in acquiring these products during the lockdown and that sales completely came to a halt.

Nearly all the TVs are reported sold with a SHS by the affiliates. No split by product category can be offered at this stage, as none of the categories passes three-data point control.

Refrigeration Units (RUs)

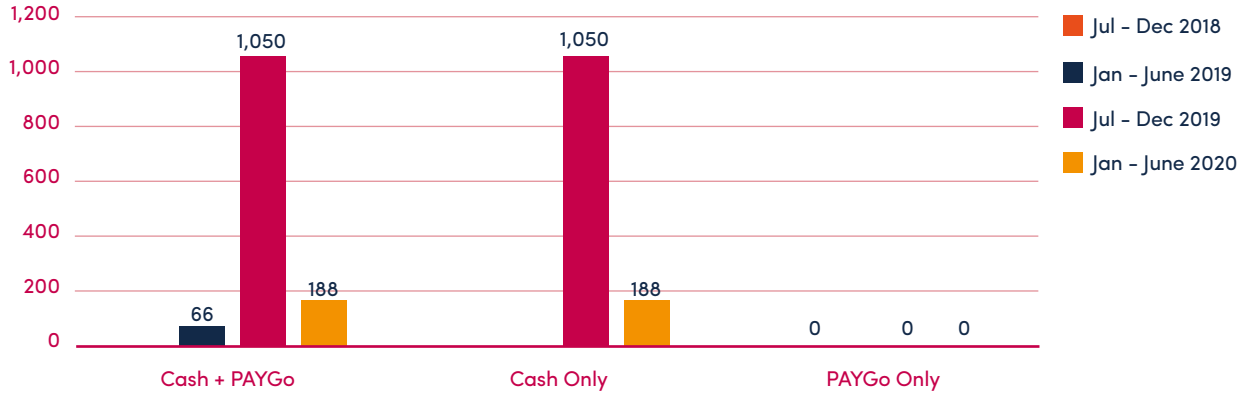
In South Asia, the RUs volumes remain very low. Between January and June 2020, only 188 units have been sold and fully on a cash basis. Of the 188 units, 122 RUs are reported to be sold with a power system. Given the small volumes, the trends are highly influenced by variable sales, therefore no comment can be given yet on the trajectory of the region for this appliance type.

In terms of product category diversity, affiliates sold 186 refrigerators, representing 99% of the sales in South Asia.

Figure 81 - Semi-annual Evolution for TVs - South Asia

NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 82 - Semi-annual Evolution for Refrigeration Units - South Asia



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

South Asia Insights

Solar Water Pumps (SWPs)

In South Asia, sales SWPs dropped to 667 units after the large volumes reported in the second half of 2002 due to the lack of bulk procurements in the cash segment under schemes such as the 'KUSUM' one in India. In comparison to the volumes recorded in the first half of 2019, sales of SWPs have increased.

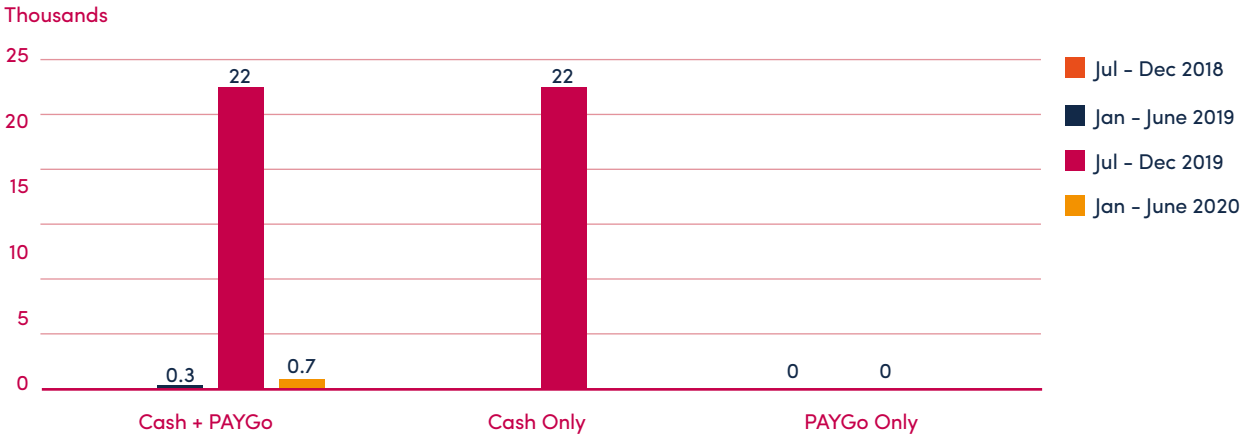
Unlike Sub-Saharan Africa, only 13% of the SWPs are reported sold together with a power system in South Asia.

Other Appliances

Sales are also recorded for a wide variety of other solar-powered appliances, amounting to 1,472 units in South Asia, all sold in cash.

These units are not reflected in 'All Appliances' and **include products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery.** Currently, if separated, these volumes would not pass our confidentiality rules. For the time being, they will be reported together, while their progress is monitored. Radios are excluded from the count of other appliances, as they are regularly sold bundled with lighting systems, to such an extent that their large volumes would have skewed the overall results.

Figure 83 - Semi-annual Evolution for Solar Water Pumps - South Asia



NOTE:
Products are classified as 'Cash', when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

South Asia Insights

Bangladesh Insights

Background

Starting from March 26th, in response to the COVID-19 outbreaks, the Bangladeshi Government declared a general holiday till May 30th, leading to the closure of government offices, private offices, and courts, and shorter operating hours for commercial banks. On April 8, the government restricted operations in Rohingya refugee camps to critical services and assistance only, citing the need to minimise risk within the camp setting. It seems that the deployment of off-grid solar lanterns was included in the critical services. **The authorities announced that closures and movement restrictions were to be gradually lifted starting May 31.**

Beyond the domestic impact of the health crisis, the two main channels through which the Bangladesh economy will be impacted are remittances and exports of ready-made garments (RMG). Remittances represent over 5 percent of GDP, and a majority of migrant workers are based in Gulf countries that are affected by the abrupt decline in oil prices. The RMG sector accounts for more than eighty percent of the country's exports.The industry has been hit by the cancellation or postponement of several billion US dollars in orders from major retailers in importing countries.

Another concern are the historic monsoon floods which affected close to four million people, with nearly one third of the country underwater. This will likely have a negative impact on agricultural production and incomes.

Solar manufacturers in Bangladesh have asked for government support to weather the COVID-19 crisis in the form of grants, interest-free loans, and tax incentives.[75]

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75 PV Magazine, 'Bangladeshi solar module companies seek Covid-19 stimulus package', 2020. Full article here: https://www.pv-magazine.com/2020/05/04/bangladeshi-solar-module-companies-seek-covid-19-stimulus-package/

South Asia Insights

Bangladesh Insights

Sales Trends

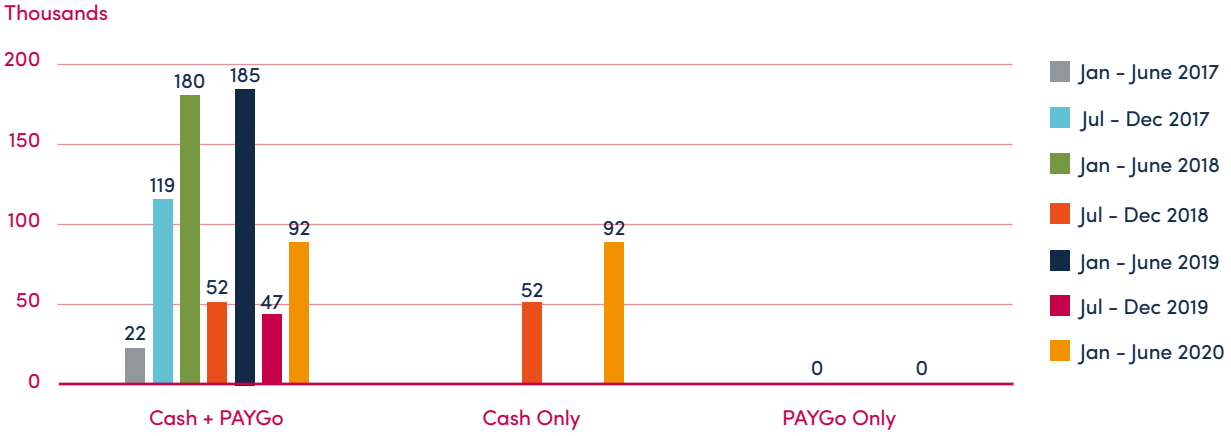
Off-Grid Solar Lighting

Affiliates' sales of off-grid solar products in Bangladesh totalled 91,000 units between January and June 2020. This is nearly double the amount of the second half of 2019. This follows a seasonal pattern in which the first half of the year usually sees bulk procurements of portable lanterns by humanitarian organisations. Therefore, the comparison with the sales volumes of the first half year of 2019 is more fitting, showing a 50% decrease. All the sales of lighting products are on a cash basis in Bangladesh, with no PAYGo activity.

Off-Grid Solar Appliances

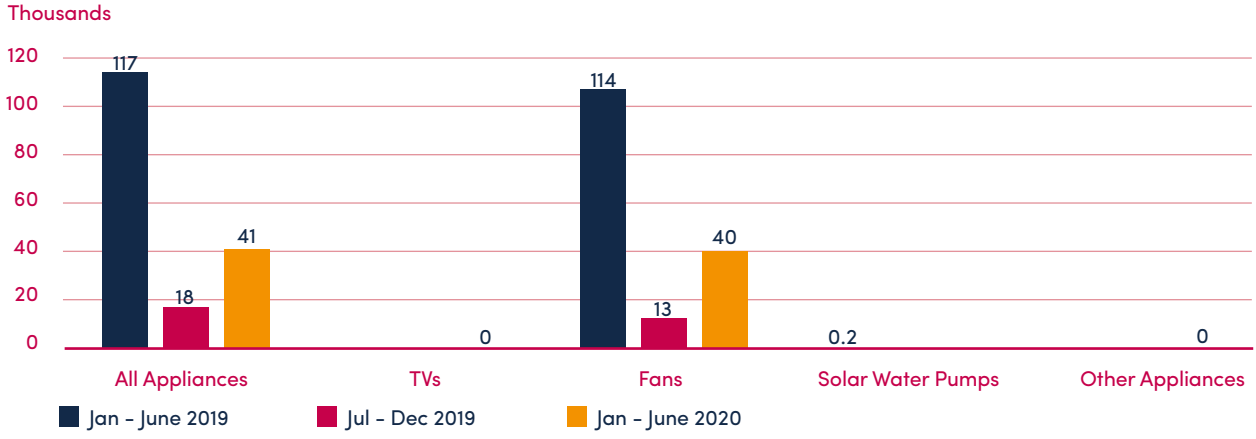
Between January and June 2020, the total recorded number of appliance sales in Bangladesh reached 41,000 units, almost entirely consisting of fans. This is double those seen in the second half of 2019. It is due to the seasonal pattern in the sales of fans, which runs through a pre-booking system, causing distributors to purchase fans in bulk quantity early in the year and then selling stock to end-users during the hottest months. Comparing the sales of the first half of 2020 with the volumes in the same period of 2019 shows that sales had a 65% drop in volumes. Sales of RUs and SWPs did not pass three-data point control, while no company reported sales of TVs or other appliances.

Figure 84 - Semi-annual Evolution of Volume of Lighting Products Sold - Bangladesh



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 85 - Semi-annual Evolution for Appliances Products - Bangladesh



NOTE:
- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure.

South Asia Insights

India Insights

Background

The Indian Government announced on March 24 that the entire country will go under lockdown, with localized lockdowns until August 31. Prior to the March 24 announcement, numerous containment measures had already been imposed, varying in intensity across the country, including travel restrictions; closing educational establishments, gyms, museums, and theatres; bans on mass gatherings; and encouraging firms to promote remote work. With a view to supporting economic activities, the government announced several relaxation measures in geographical areas designated as non-hotspot; however, major restrictions still exist.

The economic impact of COVID-19 has been substantial, and companies have reported to have come to almost a complete halt for long periods of time. Moreover, microfinance institutions (MFIs), the main distribution channel for off-grid solar products, suffered the crisis more than banks, given that the Central Bank of India allowed a 3-months loan moratorium for bank borrowers but not MFI ones. This aggravated the situation for the MFI borrowers, already suffering from losses of jobs and income. **Combined with the lockdown, collection of old due payments became a major task for MFIs and hence new sales of non-financial products such as off-grid solar products have suffered.**
Other factors which have influenced sales in India over the past few rounds are the 99.99% electrification reached through the grid extension under the 'Saubhagya' initiative in 2019, and the duty on import of solar products in order to favour the local manufacturing. Moreover, **companies have anecdotally shared that off-grid customer demand is shifting towards larger systems which can offer more energy services.**

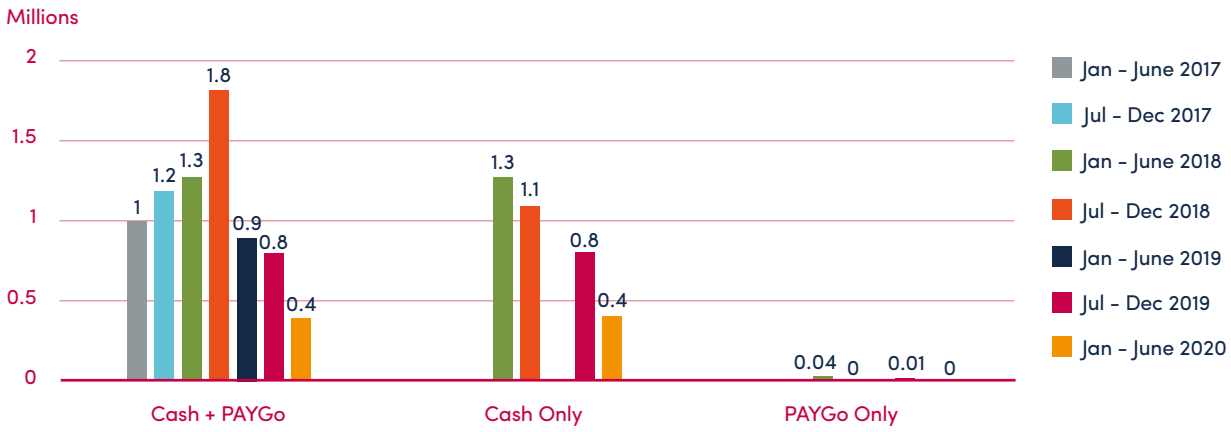
Sales Trends

Off-Grid Solar Lighting

Sales of off-grid solar products in India totalled 391,000 units between January and June 2020. The sales have been on a downward trend since 2018, which seem to have been accelerated by the COVID-19 crisis, reaching the lowest volumes on record. Volumes have decreased by 50% compared to the second half of 2019 and by 59% compared to the first half of the same year. The drops happened both on the cash and PAYGo segments.

The largest decreases have been experienced in the two portable lanterns segment, while multi-light systems have seen a 36% increase in volumes compared to the last round. SHS sales were essentially half compared to the second half of 2019.

Figure 86 - Semi-annual Evolution of Volume of Lighting Products Sold - India



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

South Asia Insights

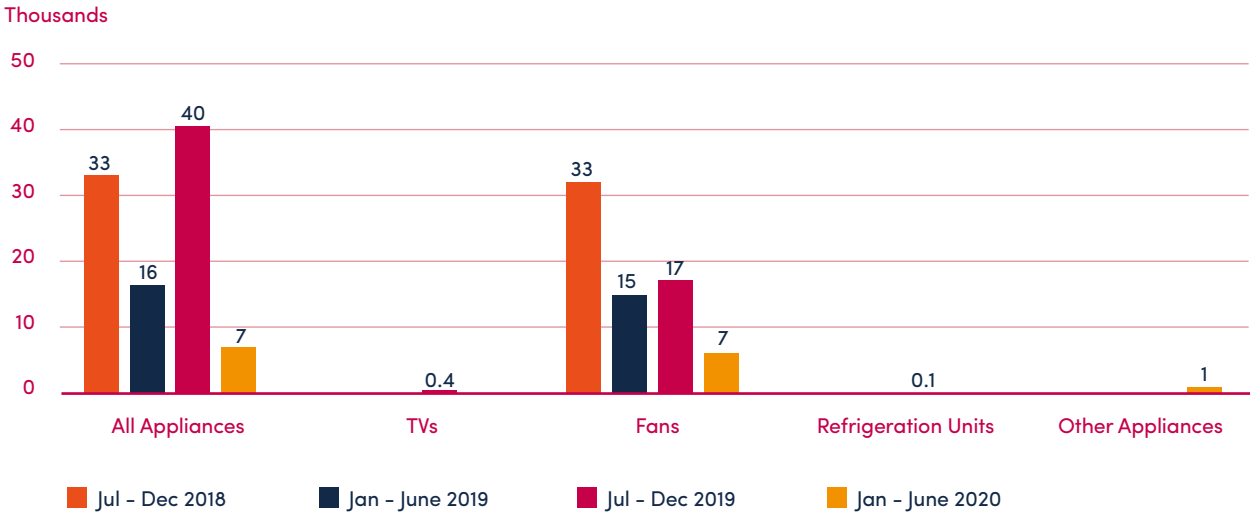
India Insights

Off-Grid Solar Appliances

Between January and June 2020, the total recorded number of appliance sales in India were 7,000 units, almost entirely consisting of fans. Differently than Pakistan and Bangladesh, the sales of fans do not seem to follow a seasonal pattern. This is likely to be due to the fact that in India we engage more closely with B2C distributors which sell the systems in the second half of the year, while in Pakistan and Bangladesh more B2B companies are involved which sell to distributors in the first half of the year.

Sales of appliances have decreased by 82% compared to the second half of 2019 and by 55% in comparison with the first half of the same year. Affiliates also reported small sales of TVs, RUs and other appliances, as shown in Figure 87.

Figure 87 - Semi-annual Evolution for Appliances Products - India



NOTE:

- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure.

South Asia Insights

Pakistan Insights

Background

Starting on March 23, both the federal and provincial Pakistani governments implemented measures to contain and mitigate the spread of the virus. These included selective quarantines, border closures with neighboring countries, international and domestic travel restrictions, school, and university closures, banning of public events, social distancing measures, and varying levels of lockdown across the country. **Both the COVID measure and the 7% depreciation of the Pakistani rupee have impacted the purchasing power of customers.**

Anecdotally, companies reported that their operations in rural areas have come to a complete halt when it comes to village meetings, product demonstrations and other marketing activities due to the inability to travel. This has heavily impacted the opportunity to get new customers. Moreover, the companies working in partnerships with Microfinance Institutions (MFIs) saw the product repayments delayed by several months, as instalments were waived for MFI clients.

Since mid-April, the federal government, in coordination with provinces, has gradually eased lockdown arrangements, by allowing 'low-risk industries' to restart operation and 'small retail shops' to reopen with newly developed Standard Operating Procedures.

© Greenlight Planet

South Asia Insights

Pakistan Insights

Sales Trends

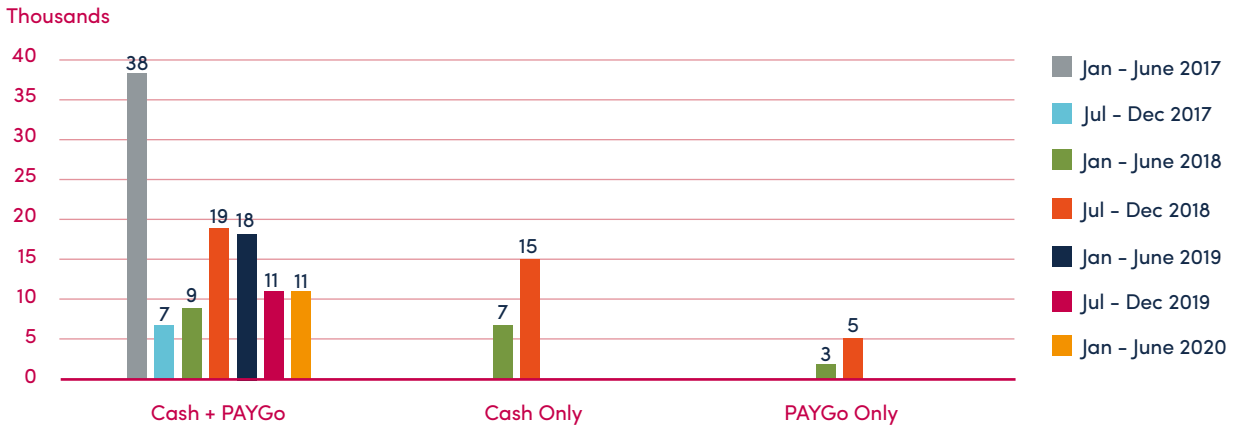
Off-Grid Solar Lighting

Sales of off-grid solar products in Pakistan totalled 11,000 units between January and June 2020. The sales volumes are stable compared to the second half of 2019, but it is still a 37% decrease compared to the first half of 2019.

Off-Grid Solar Appliances

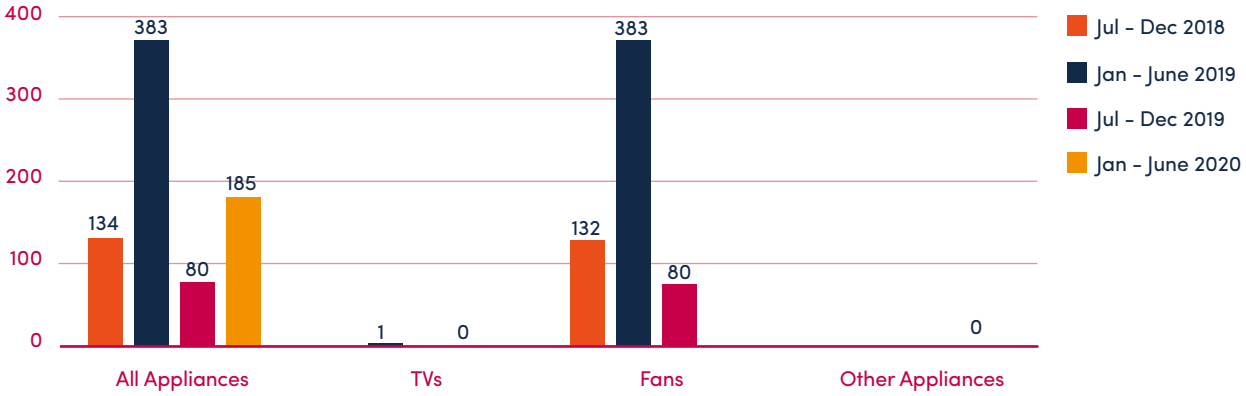
Between January and June 2020, the total recorded number of appliance sales in Pakistan were 185,000 units. This means more than double than the last round's volumes; like in Bangladesh this is anecdotally traceable back to the seasonal pattern in the sales of fans, which runs through a pre-booking system, causing distributors to purchase fans in bulk quantity early in the year and then selling stock to end-users during the hottest months. Therefore, we should be comparing the sales of the first half of 2020 with the volumes in the same period of 2019; this comparison shows that sales had a 52% drop in volumes.

Figure 88 - Semi-annual Evolution of Volume of Lighting Products Sold - Pakistan



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 89 - Semi-annual Evolution for Appliances Products - Pakistan



NOTE:

- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure

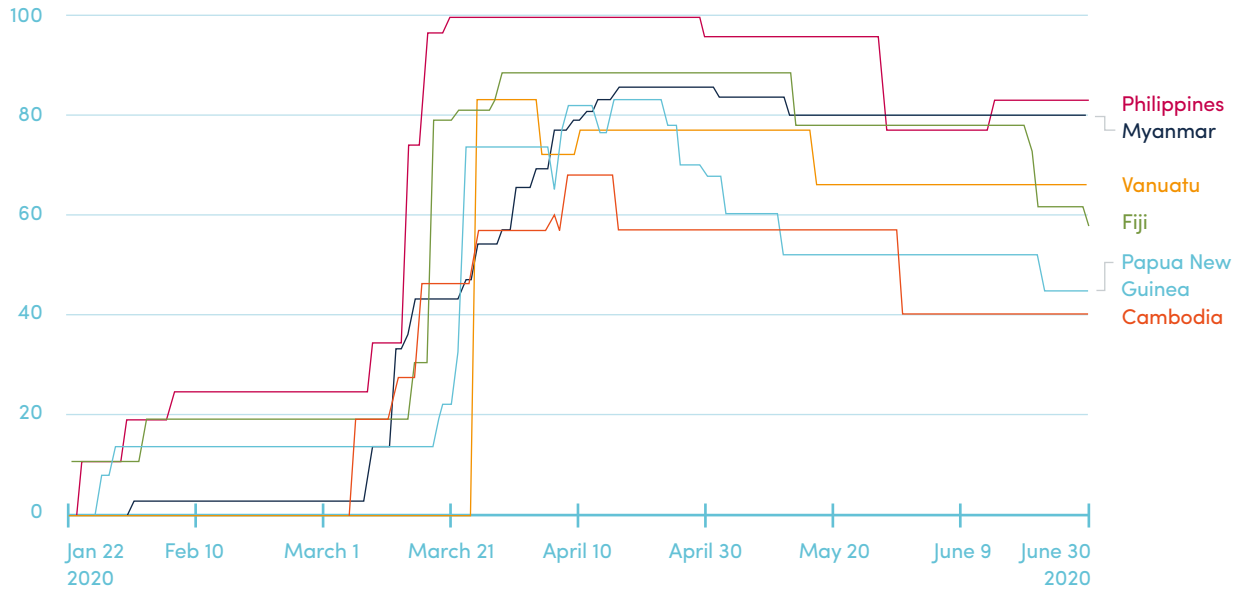
East Asia & Pacific Insights

East Asia & Pacific Insights

Background

Overall, countries in East Asia & Pacific experienced very stringent lockdown measures. Particularly stringent were the measures in the Philippines according to the values of the stringency index at 100, the highest value possible.[76] **Off-grid solar was not designated an essential service in any of these countries.**

Figure 90 - Evolution Government Response Stringency Index - South Asia[77]



NOTE:
The Government Response Stringency Index is a composite measure between 0 and 100 encompassing 17 indicators of government responses to the pandemic. Note that these indices simply record the number and strictness of government policies, and should not be interpreted as 'scoring' the appropriateness or effectiveness of a country's response. A higher position in an index does not necessarily mean that a country's response is 'better' than others lower on the index, but rather that a country is stricter than another one.

76 Blavatnik School of Government and University of Oxford, 'Oxford COVID-19 Government Response Tracker', 2020. Full report here: https://www.bsg.ox.ac.uk/research/research-projects/oxford-covid-19-government-response-tracker
77 Ibidem

East Asia & Pacific Insights

Sales Trends

Off-Grid Solar Lighting Products

Sales of off-grid solar products in East Asia & Pacific totalled 74,000 units sold between January-June 2020; the lowest volumes recorded since the regional reporting started in 2015. As visible in Figure 91, differently than South Asia, the region was not on a downward trend, therefore it is reasonable to assume that the COVID crisis has caused this decline in the sales volumes. Compared to the second half of 2019 - a record reporting period, the sales volume has seen a 70% drop, and a 49% decrease in comparison with the first half of the same year.

Both cash and PAYGo experienced large relative decreases, but given the different magnitude of volumes involved, cash sales are more prominent. Around 65,000 units were sold on a cash basis - a 71% decrease compared to the second half of 2019 and 44% less than the first half of 2019. On the other hand, in the first half of 2020, 9,000 units were reported sold via PAYGo - 66% less than in the last reporting round and a 68% decrease in comparison with the first half of 2019.

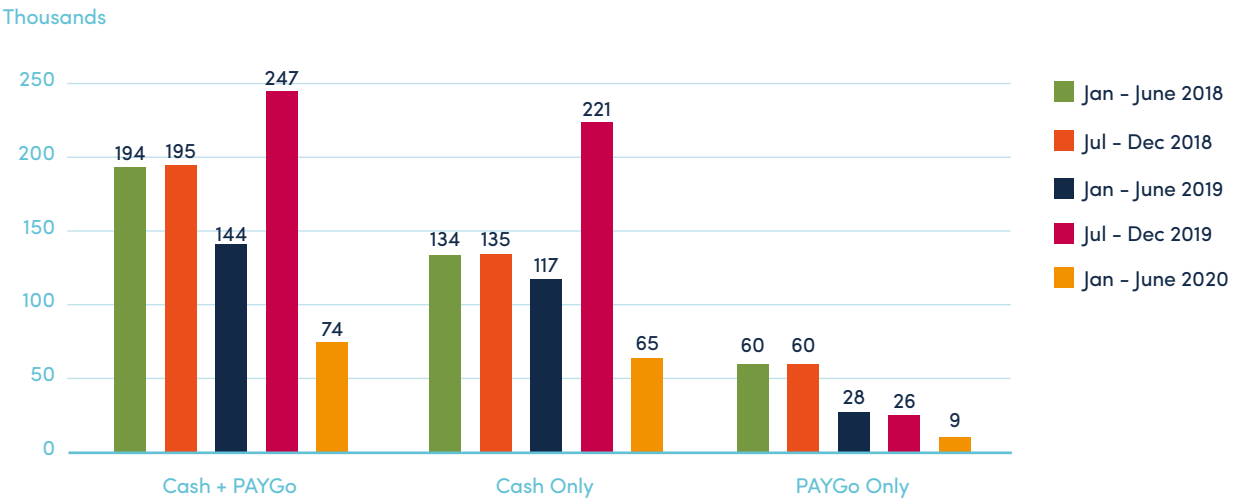
Portable Lanterns

Portable lanterns had total sales of 53,000 units in East Asia & Pacific, amounting to 72% of the region's sales. Affiliates sold 30,000 units of portable lanterns without mobile charging - i.e. those with an indicative wattage of 0-1.499 Wp. This is a 35% decrease compared to the second half of 2019 and a 18% one compared to the first half of 2019. Portable lanterns capable of charging mobile phones - i.e. those with an indicative wattage of 1.5-2.999 Wp - experienced relatively stable sales of 23,000 units compared to the first and second half of 2019.

Multi-light systems

East Asia & Pacific recorded around 13,000 multi-light systems sold between January and June 2020 and represented 18% of the regional sales. This category saw an increase of 54% compared to the second half of 2019 but a 51% decrease in comparison with the volumes recorded in the first half of 2019. Particularly this category seems to have been on a downward trend after the spike in the second half of 2018, as visible in Figure 92.

Figure 91 - Semi-annual Evolution of Volume of Products Sold - East Asia & Pacific



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

East Asia & Pacific Insights

Solar Home Systems (SHS)

The SHS categories are the ones seeing the largest decreases in East Asia & Pacific, particularly in the 50+ Wp categories. Our last report had identified that the large amount of products could have been due to government bulk procurements, which have not materialized this reporting round. Both the 50-100 Wp and the 100 Wp categories saw a nearly 100% decrease with sales volumes falling to 2,000 and 140 units respectively.

Affiliates reported 4,000 units sold in the 11-20 Wp category, a 51% decrease compared to the second half of 2019 and a 71% drop compared to the first half of the same year.

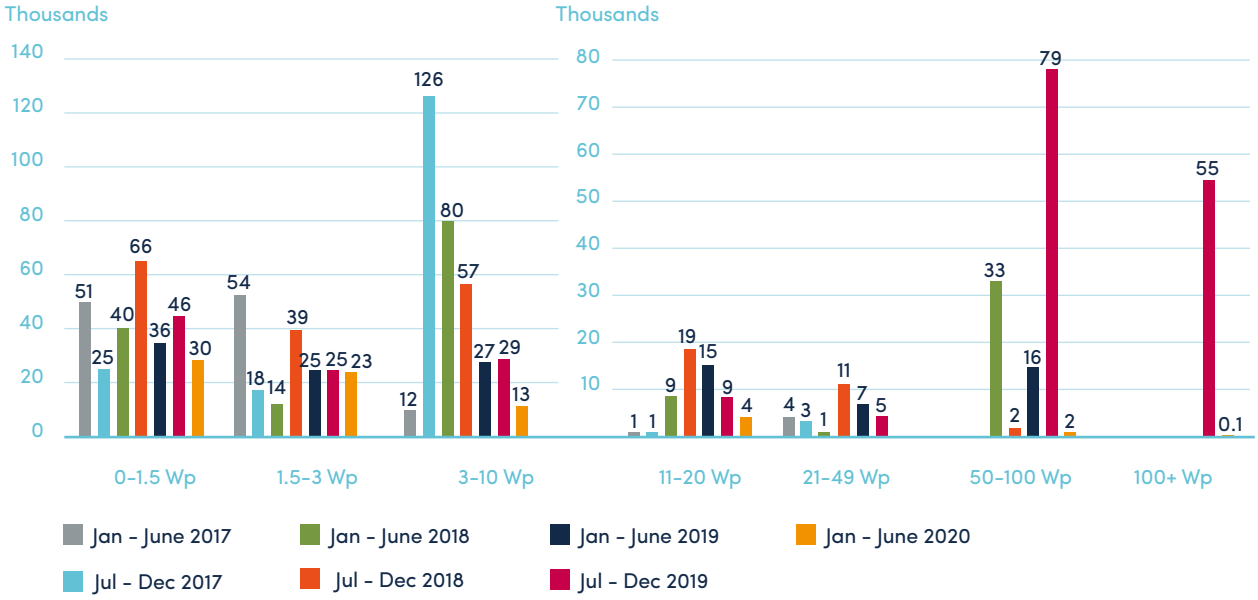
Not enough companies sold systems in the 21-49 Wp category to pass three-data point control, therefore numbers will remain undisclosed.

Off-Grid Solar Appliances

Between January and June 2020, the total recorded number of appliance sales in East Asia & Pacific reached 3,700 units sold. This is a 65% decrease compared to the second half of 2019 and a 64% drop compared to the first half of 2019. **In general, East Asia & Pacific seems to be the regional market most affected by the COVID pandemic with companies reporting either low or no sales this reporting round.**

Fans represented 56% of the sales in East Asia & Pacific with 2,000 units, followed by TVs seeing 1,400 units sold (37% of regional appliances sales). The 250 refrigeration units represented less than 1% of the regional sales of appliances, while volumes of solar water pumps remained marginal and did not pass three-data point control.

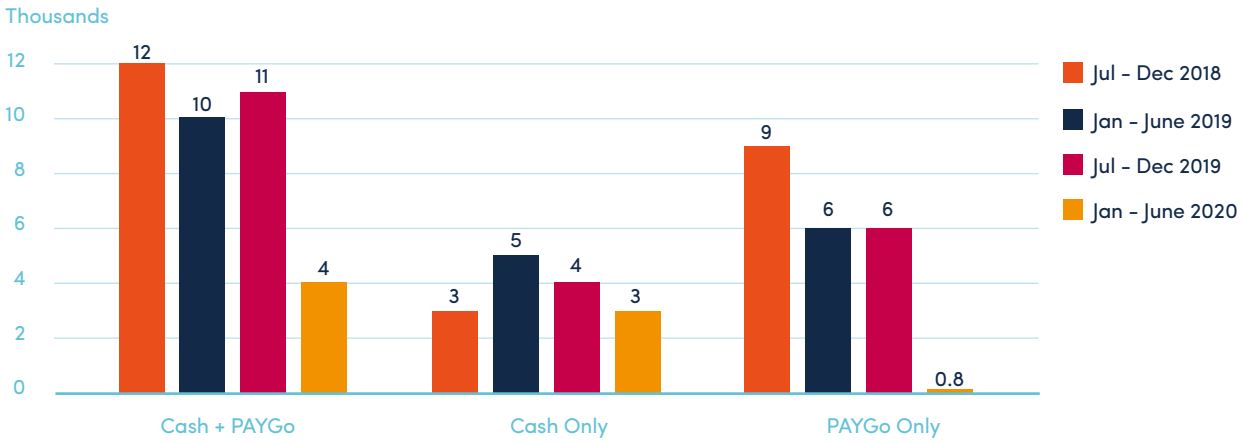
Figure 92 - Semi-annual Evolution of Global Sales Volumes by Product Category - South Asia



NOTE:
Lanterns 0-1.5 Wp include one light and no mobile charging, lanterns 1.5-3 Wp one light and mobile charging, and multi-light systems 3-10 Wp at least two lights and mobile charging. Solar Home Systems >11 Wp are classified based on panel wattage.

East Asia & Pacific Insights

Figure 93 - Semi-annual Evolution for All Appliances - East Asia & Pacific



NOTE:
- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units.
- Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

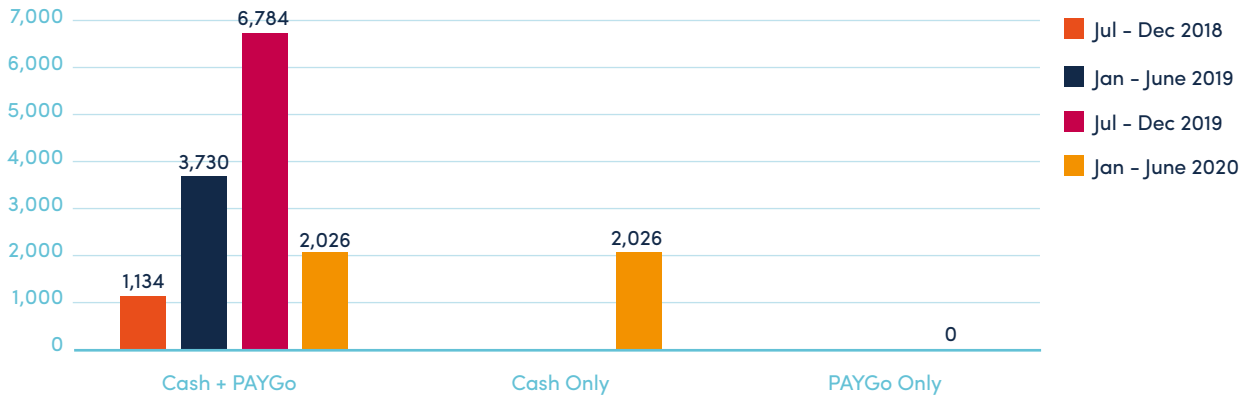
Fans

East Asia & Pacific remains the third largest market for fans globally with 2,000 units, after South Asia and West Africa. Sales experienced a 57% decrease compared to the second half of 2019 and a 79% drop in comparison with the volumes in the first half of 2019. This means that the seasonal pattern highlighted for South Asia is not applicable for this region.

Cash sales seem to dominate the market, covering the totality of the sales volumes. A key difference compared to South Asia is that 80% of the fans sold in East Asia & Pacific are reported to be sold bundled with a power system.

Given the limited sales volumes, the confidentiality rules do not allow us to reveal the breakdown between product categories in East Asia & Pacific.

Figure 94 - Semi-annual Evolution for Fans - East Asia & Pacific



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

East Asia & Pacific Insights

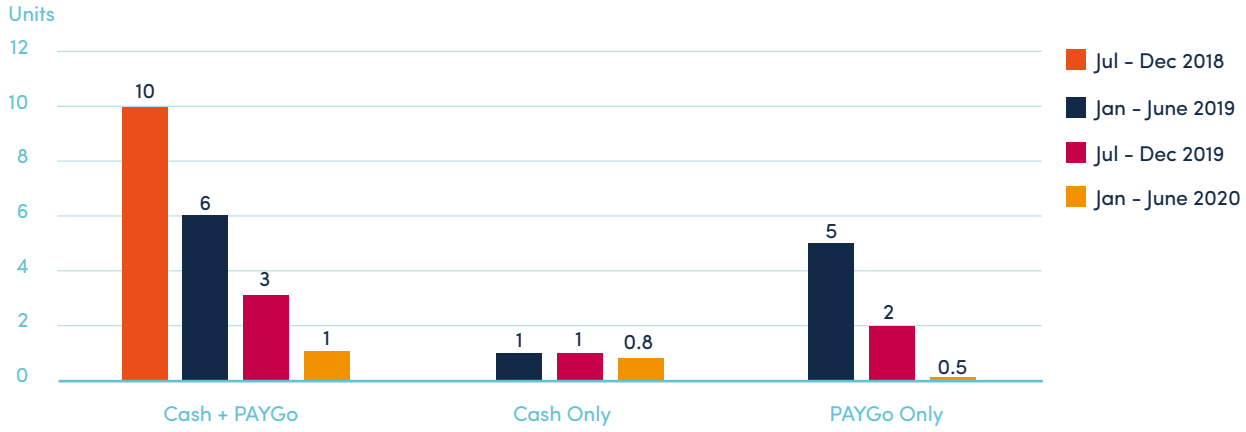
TVs

In East Asia & Pacific, 1,400 TVs were reported sold by affiliates in the first half of 2020. Sales showed a 57% decrease compared to the second half of 2019 and a 79% drop compared to the first half of 2019.

63% of TVs are sold on a cash basis (850 units) as opposed to 500 units via PAYGo. Roughly the same percentages can be observed for unbundled and bundled with a SHS respectively.

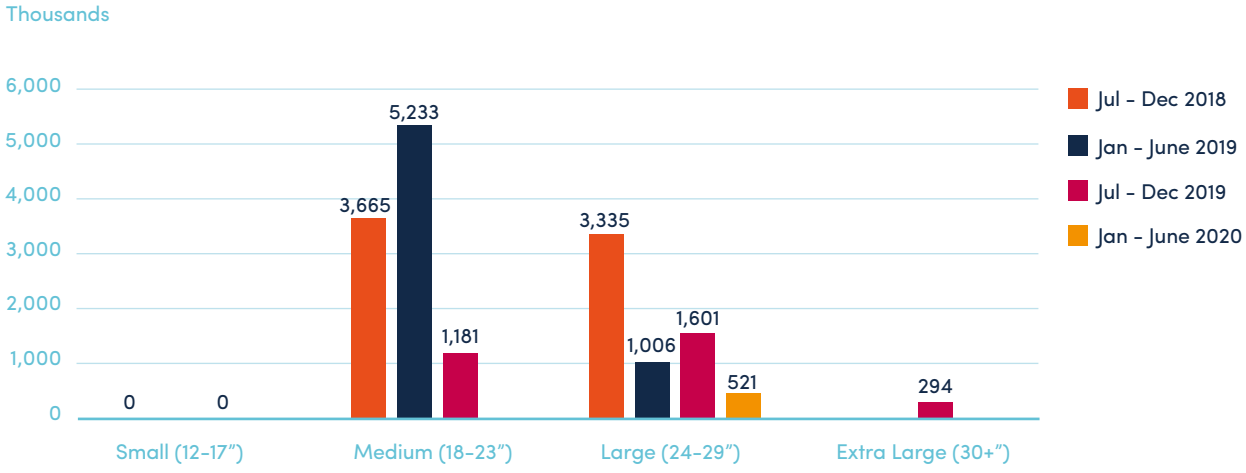
In terms of the diversity of product categories, only the large TV category passed the confidentiality rules for East Asia & Pacific in this reporting round. This makes it hard to comment on overall trends for all the categories, while for large TVs we can observe a 67% decrease compared to last reporting round and a 48% one compared to the first half of the same year.

Figure 95 - Semi-annual Evolution for TVs - East Asia & Pacific



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 96 - Semi-annual Evolution of TVs by Product Category - East Asia & Pacific



East Asia & Pacific Insights

Refrigeration Units (RUs)

As in South Asia, the RUs volumes remain very low in East Asia & Pacific. Between January and June 2020, with only 248 units sold; no insights can be elaborated on the split between cash and PAYGo as less than three companies are reporting in one or both segments.

Of the total units, the vast majority (222 RUs) are reported to be sold bundled with a power system.

Given the small volumes, the trends are highly influenced by lumpy sales, therefore no comment can be given yet on the trajectory of the region for this appliance type. Moreover, no split product category can be offered due to the confidentiality rule.

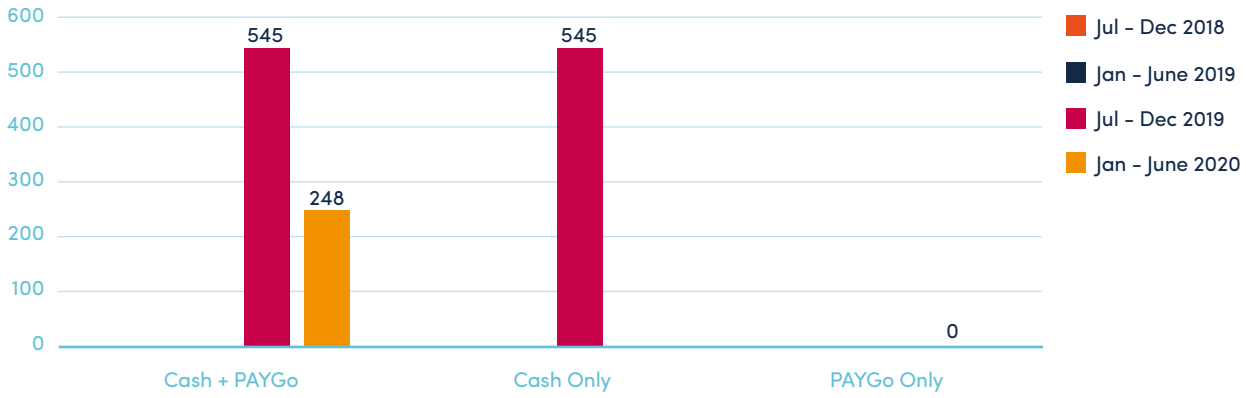
Solar Water Pumps (SWPs)

In East Asia & Pacific, sales of SWPs do not pass the confidentiality rule but do report sales. Note that no company had reported sales of SWPs last reporting round in this region.

Other Appliances

In East Asia & Pacific, no sales of other appliances were reported. This appliance type normally **includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery.** Note that radios are excluded from the count of other appliances, as they are regularly sold bundled with lighting systems, to such an extent that their large volumes would have skewed the overall results.

Figure 97 - Semi-annual Evolution for Refrigeration Units - East Asia & Pacific



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

East Asia & Pacific Insights

Myanmar Insights

Background

The Government of Myanmar announced at the end of March travel restriction, closure of several land borders, and bans on mass public gatherings. Lockdowns have eased coming into the summer which has improved business as usual for providers. All instructions (excluding some relaxations) relating COVID-19 prevention and control have been extended to August 15, 2020.

The economy has been deeply affected by the outbreak, with sharp declines in tourist arrivals, supply chain disruptions for the garment sector, and losses for SMEs, which have resulted in large layoffs and factory closures. The economic crisis related to COVID has taken a toll on the off-grid solar sector as well. Rising unemployment and consumers' unwillingness to commit to long term financial deals are the most notable impacts at this point.

On a positive note, the Japan International Cooperation Agency (JICA) approved on June 1st $46.5 million in low-interest loans to assist small and medium-sized (SMEs) businesses in Myanmar, providing working capital in local currency.[78] Off-grid solar companies operating in the country may have been able to tap into this facility, and this may influence future rounds of sales.

Sales Trends

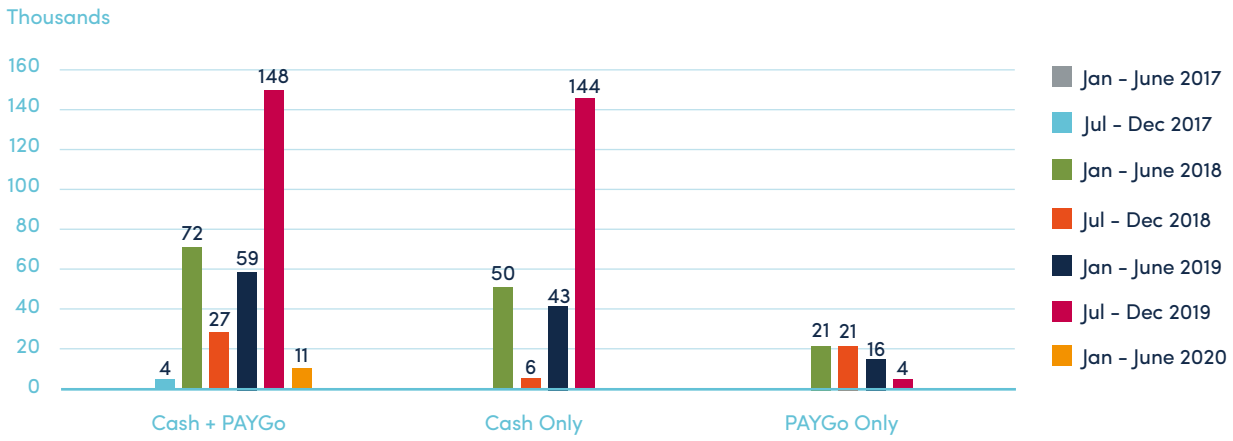
Off-Grid Solar Lighting

Sales of off-grid solar products in Myanmar totalled 11,000 units between January and June 2020. These volumes are much smaller than those we are used to seeing in the country, particularly in the second half of 2019. Volumes have decreased by 93% compared to the second half of 2019 and by 82% compared to the first half of the same year. It is to be noted that the spike reported in the second half of 2019 was likely due to government tenders for SHS of 50+ Wp.

Off-Grid Solar Appliances

Between January and June 2020, the total recorded number of appliance sales in Myanmar did not pass three-data point control. Therefore, we cannot elaborate on the market trends in the country.

Figure 98 - Semi-annual Evolution of Volume of Lighting Products Sold - Myanmar



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

78 ASEAN Briefing, 'Myanmar SMEs Receive Financial Support from Japan', 2020. Full article here: https://www.aseanbriefing.com/news/myanmar-smes-receive-financial-support-japan/

East Asia & Pacific Insights

Papua New Guinea (PNG) Insights

Background

The government had started imposing containment measures since early February, including a ban on travellers from Asian countries, reduced international flights, mandatory health declaration forms for incoming travellers and enhanced screening at designated ports of entries. On April 2, the PNG parliament voted to shut down the country and extended the State of Emergency until June 2nd, unless renewed.

In general, the lockdown interrupted all the supply chain of products coming from China, causing the companies to come to a standstill.

On a positive note, the Australian Department of Foreign Affairs and Trade (DFAT) launched the 'Pawarim Komuniti', a grant program aiming to incentivise innovative off-grid projects in remote parts of Papua New Guinea. The call for proposal was closed in the beginning of 2020 and disbursement was expected in the second quarter of the year. This program will foster sales of off-grid solar products in underserved or unserved communities in PNG.

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East Asia & Pacific Insights

Papua New Guinea (PNG) Insights

Sales Trends

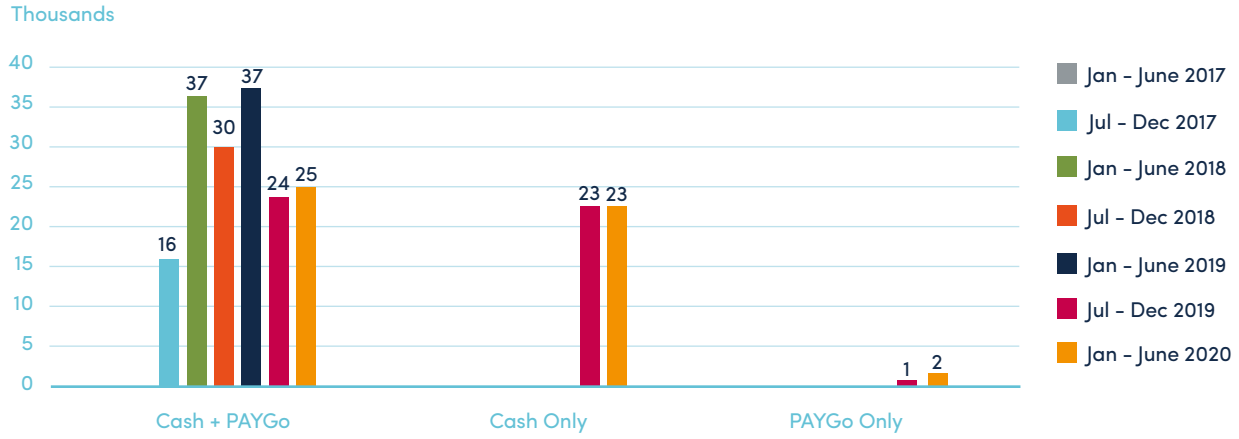
Off-Grid Solar Lighting

Sales of off-grid solar products in PNG totalled 25,000 units between January and June 2020. This means that the sales remained stable to the volumes recorded in the second half of 2019, while the volumes are 34% less than in the first half of the same year. In Figure 99, one can observe that while cash sales remained stable, PAYGo volumes have increased by 81% surpassing the 2,000 units sold mark.

Off-Grid Solar Appliances

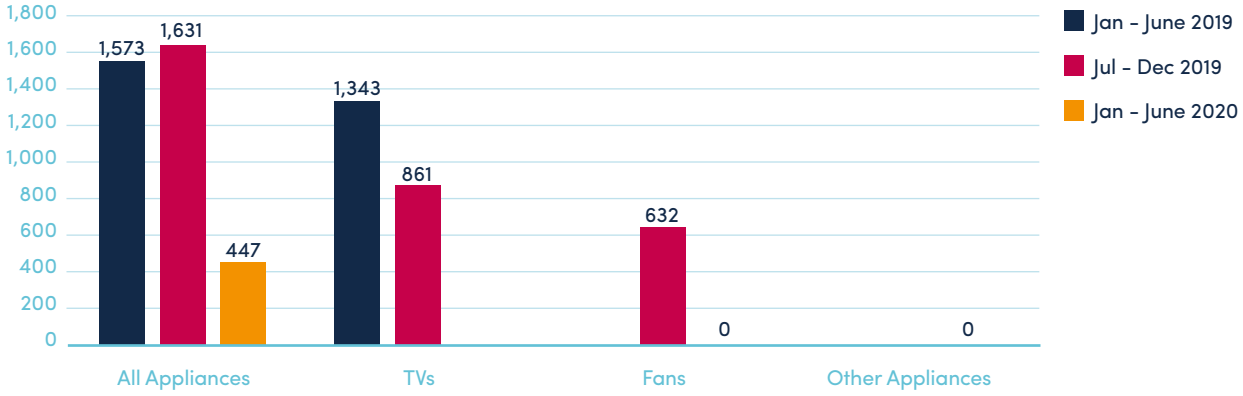
Between January and June 2020, the total recorded number of appliance sales in PNG were 400 units. This is a 73% drop compared to the second half of 2019 and 2018; no comparison can be offered with the first half of 2019 as sales did not pass confidentiality rules then. No split in appliance types can be offered for the volumes of this reporting period due to the number of companies not satisfying the three data point rule.

Figure 99 - Semi-annual Evolution of Volume of Lighting Products Sold - Papua New Guinea



NOTE:
Products are classified as 'Cash' when sold in a single transaction (including products purchased via tenders), or as 'PAYGo', when the customer pays for the product in instalments over time or pays for use of the product as a service.

Figure 100 - Semi-annual Evolution for Appliances Products - Papua New Guinea



NOTE:
- The category 'All Appliances' refers to the sum of all TVs, fans, solar water pumps and refrigeration units. The Category 'Other Appliances' includes products such as agro-processing machines, air-conditioners, irons, hair clippers, stereo, sewing machines, egg incubators and other machinery. Note that radios are excluded from the count of 'Other Appliances'.
- Only the appliances types that passed three-data point control any of the rounds are included in the figure.

Methodology

Methodology of Sales Data Collection

Scope

Eligible Products

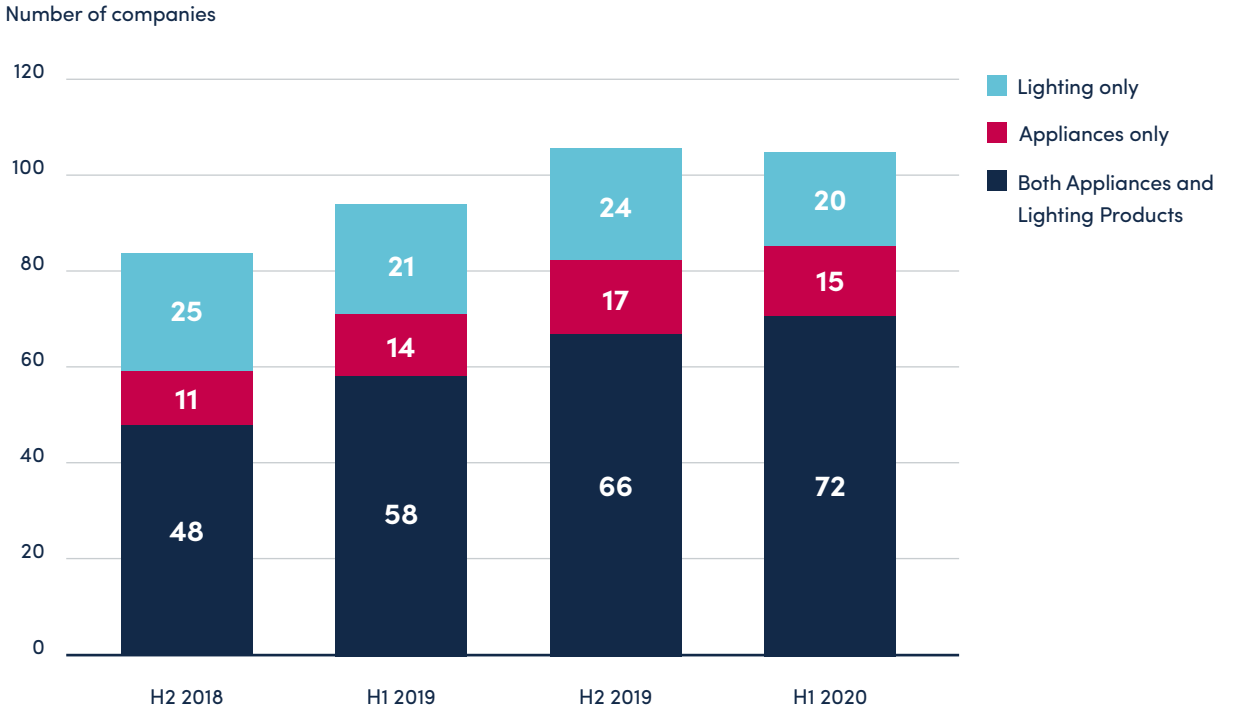
The off-grid solar sector has brought access to light and modern energy into homes for over a decade and became a key part of electrification strategies around the world. In addition to the essential lighting access, off-grid solar now powers a growing selection of appliances. **To accurately reflect this, the report presents sales data for two separate product segments** using the same methodology.

1. **Off-Grid Solar Lighting Products:** Systems that include a solar panel, a battery and at least one light point. Products which are sold as components such as individual panels, lights, batteries, or mobile phone chargers are not included.
2. **Off-Grid Solar Appliances:** A range of energy-efficient electrical appliances appropriate for both off-grid or weak-grid areas.[79] These devices are typically DC-powered and usually more energy efficient than traditional counterparts. This report focuses on TVs, fans, refrigeration units, and solar water pumps. Scope is further narrowed to those appliances most suitable for purchase by individual customers on a household or micro-enterprise level. In the case of solar water pumps, this means they must be less than 3 kW and solar-powered, while for refrigeration, large commercial scale walk-in units are not considered. Besides these four appliance types, sales are also gathered for other solar-powered appliances which include hair cutters, irons, agro-processing machines, air conditioners, stereos and others. Radios are currently excluded.

Eligible Companies

This report solely includes data on products sold by affiliates. Affiliates are companies connected to the partner organisations involved in the reporting process. Companies include GOGLA members, companies selling products that meet Lighting Global Quality Standards, and appliance companies that participated in the Global LEAP Awards or are engaging with the Low Energy Inclusive Appliances (LEIA) programme. **Out of a pool of 237 eligible companies, 107 participated in this round and reported sales covering the period January - June 2020. A breakdown is offered in Figure 101.**

Figure 101 - Breakdown of Companies per Segment



79 Off-grid' refers to populations that live beyond the reach of the national grid; 'weak-grid' refers to populations that have unreliable grid connectivity and suffer frequent and sometimes lengthy outages.

Methodology of Sales Data Collection

Table 4 - List of Participants reporting sales

#	Company Name	Off-Grid Solar Lighting	Off-Grid Solar Appliances
1	A4&T Power Solutions Limited	DIS	-
2	Agsol	-	MAN
3	Alternative Energy Technologies Group	DIS	MAN & DIS
4	Al Qaria Solar	DIS	
5	ARESS Sarl	DIS	MAN & DIS
6	Azimuth	DIS	
7	Azuri Technologies	MAN	
8	Baobab+	DIS	
9	Basil Energetics		MAN
10	BBOXX	MAN	
11	BeebeeJump Technology	MAN	
12	Bengal Renewable Energy	MAN	
13	BioLite	MAN	-
14	Bonergie	DIS	MAN & DIS
15	Bright Life by Finca	DIS	-
16	Bright Products AS	MAN	-
17	Cygni Energy	MAN	MAN & DIS
18	d.light	MAN	
19	Dassy Enterprise	DIS	MAN
20	Deevabits Green Energy	DIS	MAN
21	Devidayal Solar Solutions	MAN	
22	Dulas	-	MAN
23	EcoEnergy	DIS	MAN
24	Epicenter Africa	DIS	MAN & DIS
25	Fenix International	MAN	
26	Fosera	MAN	
27	Futurepump	-	MAN
28	GLOBAL ICE TEC	-	MAN
29	Greenlight Planet	MAN	MAN & DIS
30	Haipo Initiative Development and Education (HIDaE)	DIS	-
31	Innovation Africa	-	MAN
32	Jua Energy	MAN	
33	KickStart International	-	MAN
34	Koolboks	-	MAN
35	Lagazel	MAN	-
36	Little Sun	MAN	-
37	Lumos Global	MAN	-
38	M-KOPA	MAN	
39	M-PAYG	MAN	-
40	Mibawa Suppliers	MAN	
41	Micergy	MAN	
42	Mobisol	MAN	MAN & DIS
43	Moon	MAN	-
44	Mwezi Limited	DIS	
45	Nadji-Bi	MAN	
46	Namene Solar Light	MAN	-
47	National Solar Power Authority (NASPA)	DIS	
48	Niwa	MAN	
49	NRS Relief	MAN	-
50	Offgrid Sun	MAN	
51	OmniVoltaic Energy Solutions	MAN	
52	Oolu Solar	DIS	MAN
53	OVO Solar	-	MAN
54	OvSolar	MAN	
55	Pawame	DIS	
56	PEG Africa	DIS	MAN & DIS
57	Plug The Sun	MAN	DIS
58	Poly Solar Technologies	MAN	
59	Power Trust Uganda	DIS	MAN & DIS
60	Qingdao LEFF International Trading	MAN	
61	Qotto	MAN	
62	Rahimafrooz Renewable Energy	MAN	
63	RAL Consumer Products	MAN	
64	RDG Collective	MAN	
65	Renewit Solar	MAN	
66	SELCO	MAN	MAN & DIS
67	Shanghai Easy Renewable Energy	MAN	-
68	Shenzhen JCN New Energy Technology	MAN	-
69	Shenzhen LEMI Technology Development	MAN	MAN & DIS
70	Shenzhen Power Solutions	MAN	
71	Shenzhen Solar Run Energy	MAN	
72	Shenzen Solartech	-	MAN
73	Shenzhen Sun's Energy	MAN	
74	Signify Innovations	MAN	-
75	Simpa Energy	MAN	
76	Simusolar	-	MAN & DIS
77	Sinoware Technology	MAN	-
78	Smarter Grid International	MAN	
79	Solar Panda	MAN	
80	Solar Village	MAN	MAN & DIS
81	Solar Sister	DIS	MAN & DIS
82	SolarHome	DIS	
83	SolarNow	MAN	MAN & DIS
84	SolarWorks!	DIS	MAN & DIS
85	Solibrium Solar	DIS	MAN & DIS
86	Sosai Renewable Energies	DIS	MAN & DIS
87	Steca - Katek Memmingen	-	MAN
88	SUNami Solar	MAN	
89	SunCulture	MAN	
90	SUNKEN	DIS	MAN
91	Sunny Money (Solar Aid)	DIS	-
92	SunTransfer Kenya	MAN	
93	Super Star Renewable Energy (SSG Solar)	MAN	
94	Tamoor Fan Company	-	MAN
95	Total	DIS	
96	UpOwa	DIS	-
97	Village Boom	MAN	-
98	Village Power	MAN	DIS
99	Vision Plan Afrique Emergent	-	MAN
100	Vitalite Zambia	DIS	
101	Vitalite Senegal	DIS	
102	Volt Africa Renewable Energy	DIS	-
103	Youmma Solar	-	MAN
104	Zimpertec	MAN	
105	Zola Electric (former Off-Grid Electric)	MAN	MAN & DIS
106	Zonful Energy	DIS	MAN & DIS
107	Zuwa Energy	DIS	

NOTE:
Companies are classified as either distributors (DIS) of other companies' branded products, or as manufacturers (MAN) if they are selling their own-brand products. For the Off-Grid Solar Appliances category, there may be companies classified as both manufacturers and distributors, as companies often sell both their own branded appliances, while also distributing other companies' products..

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Market Share Represented

For Off-Grid Solar Appliances, the proportion of the total market that is represented by our affiliates has not yet been estimated. This is partly due to insufficient data on the total size and number of players in this market. Continuous efforts are made to estimate such coverage as well as ongoing efforts to engage a larger number of companies in upcoming rounds.

For Off-Grid Solar Lighting Products, based on the recently completed analysis for the '2020 Global Off-Grid Solar Market Trends Report ', it is **estimated that in 2018 sales of affiliates represent over 50% of the market for plug-and-play solar home systems. Although, when including portable lanterns and multi-light systems, the percentage of affiliates in 2018 goes down to 28%**, as non-affiliate products are particularly dominant in those two pico segments. It is estimated that 72% of the overall global market consists of sales from approximately 200 non-affiliate manufacturers. These market share percentages vary dramatically from country to country, as demonstrated in Table 2.

Table 5 - Market share estimates of affiliate and non-affiliates manufacturers for both Pico & SHS[80]

Country	Affiliates	Non-Affiliates
Global	**28%**	**72%**
Rwanda	97%	3%
Zambia	68%	32%
Kenya	54%	46%
Cambodia	47%	53%
Nigeria	33%	67%
Ethiopia	29%	71%
India	25%	75%
Uganda	22%	78%
Niger	14%	86%
Togo	7%	93%
Myanmar	5%	95%

NOTE:
The global market share is calculated using a weighted average of non-affiliate market share for 12 countries.

Countries and Regions

The regional groupings in this report follow those outlined by the World Bank country and lending groups[81]. Sub-regional groupings in Sub-Saharan Africa follow the United Nations' categorisation of geographical sub-regions[82].

Sales data is represented in this report for all countries in which at least three companies reported sales. For off-grid solar lighting products, this amounted to 39 countries while, for off-grid solar appliances, 25 country market sales are reported for all appliances combined. The amount of country breakdowns differs between appliance types with 12 countries passing three-data point control for TVs, 8 for refrigeration units, 4 for fans and 3 for solar water pumps.

Data Collection

Partner Organisations

In line with previous reports, data collection and affiliate reporting were overseen by Berenschot, a Dutch management consultancy firm. Specialised industry knowledge and insight was provided by a research team, consisting of GOGLA, Lighting Global, Energy Saving Trust, and CLASP. The online questionnaire and results platform were programmed by Outfox, a Dutch web development company.

Data Collection Process

This data collection process takes place semi-annually, collecting sales information for the January-June period and the July-December months of a given year. Affiliates are requested to provide their product and country-level sales through an online questionnaire in a three-week period every January and July. Great effort is made to ensure maximum participation, with GOGLA offering one-on-one support to companies throughout the reporting process. The data is then monitored for accuracy, aggregated with strict confidentiality rules, and analysed to compile the Global Off-Grid Solar Market Report.

Results Visualization

Each participating company receives access to a recently enhanced and improved online platform

80 Adapted from: Lighting Global, Vivid Economics and Open Capital Advisors, 2020 Global Off-Grid Solar Market Trends Report, 2020. Full report here: https://www.gogla.org/resources/2020-off-grid-solar-market-trends-report

81 World Bank, World Bank Country and Lending Groups' For more information, please visit: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups.

82 United Nations Statistics Division, 'Standard country or area codes for statistical use (M49)'. For more information, please visit: http://unstats.un.org/unsd/methods/m49/m49regin.htm#africa.

Methodology of Sales Data Collection

that provides each company with a dashboard to view and download the consolidated sales figures for all affiliates and their own performance since 2016. The interactive platform illustrates the market share in all geographies and product segments for which they have reported sales. We are confident that this information strengthens the companies' strategic decisions by providing an understanding of their relative position in markets and the competitive trends in the sector.

Accuracy

All data in this report is self-reported by t**he companies. Although it is cross-checked for consistency, the companies are ultimately responsible for accurate reporting** of product specifications, pricing information, sales volumes, and locations of sales. **It is also important to note that companies may choose to report sales volumes but not pricing information used to estimate the market value of such products.**

Data Checks

The research team monitored the reported data for consistency and logic with respect to previous data records. Based on these checks, some small adjustments have been made concerning product performance specifications and the 'quality verified' status of products where necessary. Companies were contacted, prior to publication, in any instances where changes to their data were required.

Data Aggregation and Segmentation

Definition of Manufacturers/Distributors to Avoid Double-counting Sales

Companies are classified as distributors when they are selling other companies' branded products, or as manufacturers when they are selling their own-brand products. Only data compiled from companies categorised as manufacturers is presented here to avoid any duplicate figures.

For Off-Grid Solar Lighting Products, companies are classified as either manufacturers or distributors (see Table 1). For Off-Grid Solar Appliances, it was necessary for any information provided to be classified by product. This means there may be companies classified as both manufacturers and distributors (see Table 1). This is a necessary allowance, because companies in this segment often sell both their own branded appliances while also distributing other companies' products.

Confidentiality and the Three-data Point Rule

Data on a specific region, country or product category is only included when at least three separate product manufacturers have reported sales for any single data point (**three-data point control**). Where there are fewer than three responses for a region, country or product category, no results are shown to protect the proprietary interests of the companies who have supplied data in support of this industry report. This is signalled by an empty bar next to the name of the region, country, or product category. To differentiate, if there are no companies reporting data, the graph shows a '0'.

Distinction between Cash and PAYGo Sales

Sales are split into two categories based on whether the products are sold to a customer:

a. As a **cash sale**, in a single transaction to the customer. Note that this category also typically includes products purchased as a tender by governments and humanitarian agencies.
b. On a **Pay-As-You-Go (PAYGo)** basis, where the customer pays for the product in instalments over time or pays for use of the product as a service. This includes products sold by distributed energy service companies (DESCOs), as well as those sold as lease-to-own.

Following the confidentiality rule, the split in sales volumes is shown for any single data point where at least three separate manufacturers have reported data for both cash and PAYGo products. Otherwise, when only one of the two payment categories passes this confidentiality rule, only the combined total is shown.

Computations

For both off-grid solar appliances and lighting products, the **sales volumes (in units)** are given by the sum of all the products sold by companies classified as manufacturers (products sold by distributors are not included to avoid double-counting as noted above).

Methodology of Sales Data Collection

Only for the off-grid solar lighting products, the report presents the **newly installed capacity (in MW);** this represents the total peak power output of solar panels deployed during this reporting round. This metric provides further insight and enables calculation of the average size of systems sold in a region or country.

Another indicator presented in this report is the **market value of the products (in USD)**, currently reported only for off-grid solar lighting products. In future rounds of data collection, the research team will evaluate the best methodology to measure the market value of off-grid solar appliances.

Given the difference in the nature of cash and PAYGo segments, two different proxies are used to compute their market value; therefore, the total value of all the products sold in each round cannot be calculated by combining the two values reported.

a. **The value of cash products** is determined by multiplying the sales volume by a wholesale per unit price reported by the product manufacturer and a multiplying factor to estimate the costs incurred in getting the product to customers. This includes transport, duties, taxes, clearance costs, sales channel overhead, and markups. The **wholesale Free-on-board (FOB) price** is defined as the United States dollar (USD) per unit price for a 1,000-unit minimum order quantity, at the point of supply.
b. Using the FOB price as a proxy for the value of PAYGo products would not be accurate because the time frame of payment is projected to the future in line with the business model, allowing customers to pay for their products over several months or years. **The value of PAYGo products sold** is calculated here by multiplying the sales volumes by the **Estimated Total Cost of Ownership (TCO)** in USD reported by the PAYGo company and applying a standard estimated loss rate to account for cases where customers do not pay back for the product in full (e.g. products lost or destroyed or customer default). The TCO represents the average amount received from a customer repaying the product in full and on time, including deposit payment and all regular daily, weekly, or monthly payments, without applying a financial discount rate to this value.

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Product Categorisation

Off-Grid Solar Lighting Products

This segment consists of systems that include a solar panel, a battery and at least one light source. This means that products sold as components such as individual panels, lights, batteries or mobile phone chargers, are not included.

Data has been grouped into product categories to present sales in a segmented manner that provides the most value and information to the market. **The categories of all products with less than 11 Wp solar module capacity are determined by the services provided by the product in question.** An example of this would be the number of light points and the possibility of mobile charging. Each of these categories is represented by an indicative wattage range of PV modules that is typical for most products providing these services. **Panel wattage in watt-peak (Wp) is used to categorise off-grid solar lighting products with solar modules of 11 Wp and above.** The definitions of these categories are presented in Table 4.

The level of energy access these off-grid solar lighting products provide is shown using the multi-tier framework for measuring energy access. This framework was developed by the World Bank's Energy Sector Management Assistance Program (ESMAP)[83] under the Sustainable Energy for All initiative.

Table 6 - Product Categories - Off-Grid Solar Lighting Products

Overall category	Solar module capacity, Watt Peak (Wp)	Categorization by services provided by product	Corresponding level of Multi-Tier Framework energy access enabled by use of product
Portable Lanterns 	0 – 1.499 Wp (indicative)	**Single Light only**	**Enables partial Tier 1 Electricity Access to an individual person**
	1.5 – 2.999 Wp (indicative)	**Single Light & Mobile Charging**	Enables full Tier 1 Electricity Access to at least one person and contributes to a full household
Multi-light Systems 	3 – 10.999 Wp (indicative)	**Multiple Light & Mobile Charging**	**Enables full Tier 1 Electricity Access to at least one person up to a full household**
Solar Home Systems 	**11 – 20.999 Wp**	SHS, Entry Level (3-4 lights, phone charging, powering radio, fan etc.)	**Enables full Tier 1 Electricity Access to a household**
	21 – 49.999 Wp	SHS, Basic capacity (as above plus power for TV, additional lights, appliances & extended capacity)	**Enables full Tier 2 Electricity Access to a household when coupled with high-efficiency appliances**
	50 – 99.999 Wp	SHS, Medium capacity (as above but with extended capacities)	**Enables full Tier 2 Electricity Access to a household even using conventional appliances**
	100 Wp +	SHS, Higher capacity (as above but with extended capacities)	

83 Energy Sector Management Assistance program of the World Bank group (ESMAP), Beyond Connections: Energy Access Redefined, 2015. Full report here: https://www.esmap.org/node/55526

Methodology of Sales Data Collection

Off-Grid Solar Appliances

This report features a range of off-grid solar appliances; TVs, fans, refrigeration units and solar water pumps, sold to targeted customers living in off-grid or weak-grid areas. At this early stage of data collection for appliances, just a small subset of all available appliances is considered, as only solar-powered appliances are accounted for. Our scope is further narrowed to focus on appliances most suitable for purchase by individual customers on a household or micro-enterprise level. In the case of solar water pumps, they must be less than 3 kW and solar-powered, while for refrigeration, large commercial scale walk-in units are not considered.

Companies and sector experts assessed how best to categorise and present the findings in this report to offer the greatest possible clarity for each appliance type and their sub-categories. The Global LEAP Awards' categorisation for refrigerators and solar water pumps was adopted, as it was designed to recognise high standards of technical performance, energy efficiency, and innovation specifically for off-grid appropriate appliances. Using this product categorisation means the data in this report is presented as clearly and consistently as possible. In future rounds, there may be a review of the solar water pumps categorisation and the terminology of the refrigeration units' section, due to the continued growth and evolution in these appliance areas.

Two of four appliance types were segmented not only by their size (e.g. the diameter in inches for the fans), but also by the type of products (e.g. table fans vs. ceiling fans). **The categorisation below was adopted as a way of future-proofing** and we accept that for now, most of these single categories will not be shown, as the three data point rule hides all data points where less than three responses have been collected.

Currently, the other appliances are not being segmented, because, if separated, these volumes would not pass our confidentiality rules. Therefore, for the time being we are going to keep reporting them bundled together while monitoring progress of each appliance type.

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Methodology of Sales Data Collection

Table 7 - Product Categories – Off-Grid Solar Appliances

Appliance Type	Categorization (in blue) and definition (in blue bold)
TVs	**Screen Size (diagonal,inches)**
Small	12–17"
Medium	18–23"
Large	24–29"
Extra Large	30+"
Fans	**Diameter (inches)**
Table Fan	**A smaller-diameter propeller-bladed fan having two or more blades and intended for use with free inlet and outlet of air. It may be a table fan or bracket-mounted fan for wall or ceiling mounting.**
Small	<12"
Large	12+"
Pedestal Fan	**A propeller-bladed fan having two or more blades mounted on a pedestal of fixed or variable height and intended for use with free inlet and outlet of air.**
Ceiling Fan	**A propeller-bladed fan having two or more blades and provided with a device for suspension from the ceiling of a room so that the blades rotate in a horizontal plane.**
Small	<48"
Large	48+"
Refrigeration Units	**Size (liters)**
Refrigerator	**One or more fresh food compartments for the storage and preservation of unfrozen food and beverages.**
Small	5–50 L
Medium	51–100 L
Large	101+ L
Refrigerator-Freezer Combination Unit	**At least one fresh food compartment and at least one freezer compartment**
Small	5–100 L
Medium	101–150 L
Large	151–200+ L
Extra Large	201+ L
Multi-temperature Refrigerator	**One or more compartments that can be operated either as a refrigerator or freezer by adjusting the thermostat control.**
Freezer	**At least one freezer compartment for storage and preservation of frozed food and beverages**
Solar Water Pumps	**No breakdown was possible due to limited variety of data reported**
Other Appliances	**No breakdown was possible due to limited variety of data reported**

Methodology of Impact Metrics Estimation

Impact is calculated using the Standardised Impact Metrics for the Off-Grid Solar Energy Sector.[84] These metrics were first launched in 2015 and recently revised in April 2020. They provide a framework for the off-grid solar sector to collectively estimate social, economic and environmental impact in a consistent and comparable way.

The metrics help build the evidence base for the many benefits that off-grid solar lighting products and services unlock for people previously living in energy poverty. These include unlocking financial savings, generating additional income, and using the light hours to work, study or spend time with family.

Methodology

Each impact metric in this report combines relevant company data, such as sales and product characteristics, with coefficients and default values. The default values of the coefficients have been developed by the GOGLA Impact Working Group, a body of industry practitioners and academic observers. They incorporate findings from a review of publicly available data and research, data made available by participating companies, and by the application of informed assumptions and calculations. The metrics have been reviewed by external experts and are aligned with the IRIS impact metrics.[85]

The impact estimates for this reporting round were calculated by applying these standardised impact metrics to the off-grid solar lighting products sales reported by affiliates. The impact of sales between July and December 2019, as well as all sales of off-grid solar lighting products reported by participating companies in previous reports since July 2010, are included in these calculations.

Please note that impact created by off-grid solar appliances is not included in this section. Metrics for fans and TVs have been created in 2020 in consultation with companies and experts, and results will be available starting from the next report in April 2021.

The preceding pages have presented the aggregated impact estimates of affiliates. This matrix of companies includes GOGLA members, companies selling products that meet Lighting Global Quality Standards, and appliance companies that participated in the Global LEAP Awards or are engaging with the Low Energy Inclusive Appliances (LEIA) programme. To avoid double-counting, the results are only drawn from data provided by manufacturers.

Limitations

This report estimates the impact made by participating companies. **Therefore, while the numbers shown represent the aggregate impact of key players in the off-grid solar sector, this report does not present an estimate of the overall global impact of off-grid solar lighting products sold outside the scope of this report for this reporting period.**

This report takes a conservative approach to data inclusion and may underestimate the total impact of participating companies. For example, to estimate when a product reaches its end of life, 1.5x its warranty period is used. This means that no impact is attributed to a product after that time. However, it is possible that a significant number of these products are continuing to benefit households beyond this estimated period. In addition, if companies have not provided all the product specifications needed for a particular impact metric, such as lumen output or runtime, the product is not included in the analysis for that metric.

Please note that the current approach is based on best available research information and data. All metrics used to create the impact numbers in this paper, as well as the default values and definitions including the methodology and sources, can be found in the GOGLA Standardised Impact Metrics for the Off-Grid Solar Energy Sector.[86] **Please note that all numbers calculated using the metrics should be expressed as estimates.**

84 GOGLA, Standardised Impact Metrics for the Off-Grid Solar Energy Sector, Version 4.0, 2020. Full report here: www.gogla.org/gogla-impact-metrics

85 IRIS+, The Global Impact Investing Network Impact Toolkit. For more information, please visit: https://impacttoolkit.thegiin.org/

86 GOGLA, Standardised Impact Metrics for the Off-Grid Solar Energy Sector, Version 4.0, 2020. Full report here: www.gogla.org/gogla-impact-metrics

Methodology of Impact Metrics Estimation

List of Impact Metrics

The following table gives an overview of all the metrics for which the estimated results are presented in this report.

Table 8 - List of the Impact Metrics

1ai.	**Number of people with improved energy access, cumulatively** Cumulative number of people who have ever lived in a household with improved energy access (as a result of access to off-grid solar)
1aii.	**Number of people with improved energy access, currently** Number of people who currently live in a household with improved energy access (as a result of access to off-grid solar)
1bi.	**Number of people with access to Tier 1 energy services** Number of people who currently access Tier 1 energy services, based on the Sustainable Energy for All Global Tracking Framework (as a result of access to off-grid solar)
1bii.	**Number of people with access to Tier 2 energy services** Number of people who currently access Tier 2 energy services, based on the Sustainable Energy for All Global Tracking Framework (as a result of access to off-grid solar)
2a.	**Number of people undertaking more economic activity** Number of people who are currently undertaking more economic activity as a result of using off-grid solar
2b.	**Number of people using products to support enterprise** Number of customers using their system to support an enterprise or income generating activities e.g. charging phones for a fee or operating a bar, restaurant or shop/stall at night
2c.	**Number of people that spend more time working** Number of customers spending more time working as a result of using off-grid solar e.g. as a household member can shift tasks to the evening time as a result of increased light hours or as they spend less time travelling to buy fuel – unlocking time for work
3b.	**Additional income generated, cumulatively** Cumulative amount of additional income generated as a result of off-grid system ownership; generated over the expected lifetime of the solar products
4.	**Kerosene lanterns replaced** Number of kerosene lanterns no longer in use because users have replaced them with solar lighting
5.	**CO_2e emissions avoided** Metric tons of CO_2 and black carbon averted due to reduction in kerosene use (in CO_2e) over expected lifetime of all solar products
6ai.	**Additional light hours used, by household** Average additional hours of light usage, per household; over the expected lifetime of their solar product
6aii.	**Additional light hours used, cumulatively** Cumulative number of additional light hours used by all households; over the expected lifetime of their solar products
6b.	**Change in quality of light, by household** Change in lumens of light used, per household (on average)
7ai.	**Savings on energy expenditure, by household (solar lanterns and multi-light systems <11Wp only)** Amount of US$ savings on energy-related expenditure, per household; over expected lifetime of solar product
7aii.	**Savings on energy expenditure, cumulatively (solar lanterns and multi-light systems <11Wp only)** Amount of US$ savings on energy-related expenditure, in aggregate of all sales ever; over the expected lifetime of products

NOTE:
In this context, 'improved' is used to reflect lighting and energy provided by appropriate (less expensive, less harmful, better quality) technologies such as solar, instead of baseline technologies such as kerosene lanterns, battery lights, candles, or even poor-quality solar products etc.

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