BEYOND COVID-19:
HOW THE PANDEMIC IS DRIVING STRATEGIC SHIFTS IN THE ACCESS TO ENERGY SECTOR

ANALYSIS OF MARKETS IN INDIA AND KENYA, APRIL 2021

Shell Foundation

Palladium IMPACT CAPITAL

Inclusive Growth Partners

ACKNOWLEDGMENTS

In researching this report our team engaged widely across the sector and with the impact investor community. We would like to extend particular thanks to the following organisations for their in-depth engagement and support:

- Acumen
- Amiran Kenya
- Bboxx
- Envirofit
- The Clean Network
- Council on Energy, Environment and Water (CEEW)
- Global Impact Investor Network (GIIN) R3 Coalition
- Global Off-Grid Lighting Association (GOGLA)
- Open Capital
- S4S technologies
- Sistema.bio
- SunCulture
- SunFunder
- Villgro

Cover Photo by Christian Dubovan on Unsplash.

LEGAL DISCLAIMER

This document does not constitute in any jurisdiction investment advice or an offering of, or solicitation to buy, securities of any kind and is intended to convey only basic background information and is not intended to form the basis of, or to induce, any investment decision.

RESEARCH TEAM

Shell Foundation

This report has been commissioned by Shell Foundation, an independent charity established in 2000 by the Shell Group and registered in England and Wales. Shell Foundation works to create and scale new solutions to global development challenges by applying business thinking to major social and environmental issues linked to energy and mobility.

Contact: Tanya Kothari, Shell Foundation
t.kothari@shellfoundation.org
www.shellfoundation.org

Palladium and Inclusive Growth Partners were engaged to develop this report in collaboration with Shell Foundation. The research team was led by Cassian Drew and included Steven Van Weede, Francois Ritchot, Dr Buyani Thomi and Rutuja Chaphekar.

Palladium IMPACT CAPITAL

Palladium is in the business of making the world a better place, and we believe that collaborative models and systemic approaches are the way to achieve progress and success. For the past 50 years, we've been helping our clients to see the world as interconnected – by formulating strategies, building partnerships, and implementing programs that have a lasting social and financial impact.

Contact: Steven Van Weede, Palladium Impact Capital
steven.vanWeede@thepalladiumgroup.com
www.thepalladiumgroup.com

Inclusive Growth Partners

Inclusive Growth Partners is an advisory firm that works with governments and investors to deliver sustainable and inclusive economic growth. We bring expertise in strategy, governance, economics and finance to infrastructure, energy, water and natural resources projects.

Contact: Cassian Drew, Inclusive Growth Partners
cassian.drew@inclusivegrowth.com.au
www.inclusivegrowth.com.au

ABOUT THIS REPORT

This report builds on the efforts to evaluate the impact of COVID-19 on the Access to Energy (A2E) sector to date and provides additionality to the body of knowledge through its forward-looking approach. The report seeks to identify the long-term consequences of the changes to strategy and business operations that the pandemic has forced on the sector. Furthermore, the report provides sector stakeholders, investors and A2E enterprises with a toolkit to understand how to plan for the competitive landscape that may emerge in the post-COVID environment. Whilst the focus of analysis has been on India and Kenya, the insights are relevant to the global A2E market.

The impact on the A2E industry has been well documented, with multiple surveys identifying the negative impact on sales, disruptions in supply chains, increased risk in customer collections and the cumulative impact of these factors on working capital of A2E enterprises. The industry has sought to tackle these challenges head-on, providing flexibility in consumer financing, and revising business operations and cost structures to adapt to market changes.

This report has identified a spectrum of enterprise responses to the COVID-19 pandemic and three scenarios of potential industry evolution are apparent. The first is a likely long-term shift towards industry consolidation in both economies of scale and in specialisation along the value chain. The second is a scenario where pricing becomes more sophisticated in the sector and can extract additional value up the demand curve, where users of A2E services with capacity to pay more than low-income households are offered bundles or products at higher price points. The third is the scenario of evolution in last mile solutions that take advantage of lower cost digital channels.

In consideration of the potential future scenarios for the sector, this report is structured in three main sections. Part I focuses on the capacity of the market today, Part II considers how the A2E sector's competitive landscape may evolve going forward, and Part III examines a toolkit for A2E enterprises to assess their internal investment priorities to prepare for the future.

This report refers to the IEA definition of A2E, which considers both access to energy at household level and for productive use:

- Household access to a minimum level of electricity
- Household access to safer and more sustainable (i.e. minimum harmful effects on health and the environment as possible) cooking and heating fuels and stoves
- Access to modern energy that enables productive economic activity (i.e. mechanical power for agriculture, textile, and other industries)
- Access to modern energy for public services, e.g. electricity for health facilities, schools and street lighting (International Energy Agency, 2019)

In this report, the A2E value chain has been defined as manufacturing and sourcing; import and assembly; sales and customer service; consumer financing; and repairs and maintenance.

EXECUTIVE SUMMARY

CAPACITY OF THE MARKET TODAY

Beyond the devastating human toll that COVID-19 has had on developed, emerging and developing countries alike, the impacts of COVID-19 will likely have a profound effect on the Access to Energy (A2E) sector which provides essential energy products and services to millions of households around the world. In researching this report, interviews with A2E enterprises, industry bodies and investors in the sector revealed commonalities in how A2E enterprises were responding to the constraints imposed by the pandemic and what strategic investments were being made that may have a long-term impact on the economics and competitiveness of the sector.

This report identifies seven capability areas that are expected to impact how value is delivered to customers, as well as an assessment of where the A2E sectors in India and Kenya are benchmarked today. The seven capability areas are *access to capital*, *market diversification*, *business model innovation*, *pricing and product innovation*, *ability to leverage external resources*, *low-cost sales and distribution models*, and *capability to attract and retain talent*. These capabilities represent dimensions of competitiveness and are potential sources of strategic advantage and growth in the post-COVID business environment.

Industry representatives and investors were asked to perform an assessment of the Indian and Kenyan A2E sectors across the seven capability areas, as of October 2020. The findings for India identified a significant difference between the average and the high performers in their ability to leverage external resources, followed by the capacity for low-cost sales and distribution, and access to capital; enterprises doing well have a significantly greater level of capacity than the average enterprise in these three dimensions. The capacity for low-cost sales and distribution was considered the weakest area for the Indian A2E sector.

Business model innovation and access to capital are regarded as the most well-developed areas in the Kenyan market, potentially linked to the relatively consolidated structure of the market. In Kenya, high performing A2E enterprises are distinguished from the industry average through their capacity for low-cost sales and distribution and capacity to leverage external resources. Interestingly, capacity for low-cost sales and distribution is the least developed capability in the Kenyan market.

TOMORROW'S COMPETITIVE LANDSCAPE

The pandemic has triggered financial liquidity issues, supply chain disruptions, and limited access to capital for expansion – amongst other impacts. However, emerging markets and developing economies are projected to show steady increases in their energy demands over the coming years. It is expected that India will lead this recovery. While it is expected that demand for energy will continue to increase, the key medium- to longer-term concerns are over household affordability. The three areas expected to impact household income in the coming year are reduced labour income from mobility restrictions and reductions in global remittances, delays to imports of staple goods inflating local prices, and disruptions to public services including school closures.

HOW WILL IMPACTS ON DEMAND CHANGE THE ACCESS TO ENERGY LANDSCAPE?

Capabilities to conduct market research and generate insights into rural consumer and household spending, combined with capabilities to source and integrate new product offerings will be important to maintain competitiveness. Capabilities to price and drive product innovation is linked to an enterprise's capacity to identify market insights through consumer consultation and research. Use of digital platforms and processes can enable sales agents to submit ideas and customer insights to marketing teams, enabling innovation. Moreover, investing resources in engaging front line staff around brainstorming and ideation for new offerings will establish valuable capacity in this key area.

Enterprises operating last mile distribution channels that are flexible and low cost will have an advantage over those with fixed costs in terms of ability to scale up and down quickly. Shifting fixed costs of a retail footprint to variable costs through partnerships – using variable payment incentives linked with new customer acquisition or specific tasks of distribution is one approach to reducing cost of sales and distribution. A2E enterprises with digital sales, fund raising channels and customer care capabilities have developed a cost advantage and are positioned well for rapid growth into a larger addressable market as the economy begins to recover.

WHAT ARE THE LONG-TERM IMPACTS OF THE COVID-19 PANDEMIC ON THE SUPPLY SIDE?

Supply-side impacts are expected to endure beyond the peak of the pandemic and diversification of revenue is expected to be a priority for firms. Several enterprises interviewed identified strategies to focus on less price sensitive customers that can continue to afford to pay for services, enabling cross-subsidisation for lower-income customers. Businesses able to cross-sell productive use products into households, and vice versa will benefit from economies of scope as the market evolves over time. Diversification will often require new capabilities and gaps can be filled through leveraging of external resources, for example developing a mutually beneficial partnership with complementary organisations operating in other geographies can assist with geographic market diversification.

With significant economic uncertainty expected over the coming years, operating a flexible cost structure and generating economies of scale on any fixed costs is expected to build competitive advantage. The challenge is for executive teams to reorganise capabilities and resources, shift fixed costs to variable costs and enable an efficient, scalable and flexible operation. Identifying new ways to create customer value that mitigates threats to the underlying asset finance models of most A2E enterprises will be an important feature of business model innovation.

THE ECOSYSTEM RESPONSE

The A2E ecosystem is a valuable and likely overlooked resource for enterprises operating in the sector. With multilateral agencies and donors focused on enabling progress towards SDG7, as well as impact investors and industry bodies championing the sector. Building an organisational culture that enables staff to look beyond the boundaries of what is available within the enterprise is the key to building a flexible and adaptive enterprise, capable of leveraging external resources and support. Development of an organisational culture that embraces external resources to address gaps, or access additional capacity; whether in the form of financial resources, expertise, or market presence, can help teams to think beyond traditional business constraints.

Human capital is a critical resource for the ecosystem, and central to the ability for the sector to grow over time. The economic effects of COVID-19 have impacted the ability for some A2E companies to pay staff and flexible compensation structures have been used in favour of laying-off good people. Beyond remuneration, enterprises have the opportunity to engage workforces to generate greater insights into what attracts and motivates people to work in the enterprise or sector as a whole, and then seek ways to enhance those aspects of value, whilst mitigating against issues that detracted from the experience.

The A2E sector has been attractive for donors and investors alike. However, there has been movements in how capital is targeting the sector. COVID-19 has trigged a shift in philanthropic and donor funding, prioritising other sectors such as education and health. Renewable energy investors have broadened their investment thesis to include more productive use energy and investors are looking for businesses with sound management and growth potential. In a sector characterised by relatively homogeneous service offerings, organisations with strong management teams and executive capability to navigate the crisis will be attractive to investors and may be more likely to raise capital.

PRIORITISING INVESTMENT

An enterprise self-assessment toolkit has been developed for each of the seven capability areas identified in this research. A2E enterprises are encouraged to look objectively at the seven key capabilities outlined in this report, using the assessment framework provided. Completing a self-assessment aims to help enterprises understand the capabilities and their relative importance in the post-COVID A2E landscape, enabling scarce resources to be applied effectively in responding to the crisis today, whilst preparing for tomorrow.

This report seeks to bring out each aspect the supply, demand and ecosystem responses, answering the key question of how the COVID-19 pandemic might reshape the A2E ecosystem. It provides a toolkit for enterprises to evaluate internal investment priorities in the context of potential changes to the future A2E competitive landscape.

RECOMMENDATIONS

Built on the global efforts to evaluate the impact of COVID-19 on the A2E sector to date this report provides additionality to the body of knowledge through a forward-looking approach. The report identifies the long-term consequences of the changes to strategy and business operations that the pandemic has forced on the sector which should be considered by enterprises and investors in the sector alike, as such, four broad recommendations have been developed:

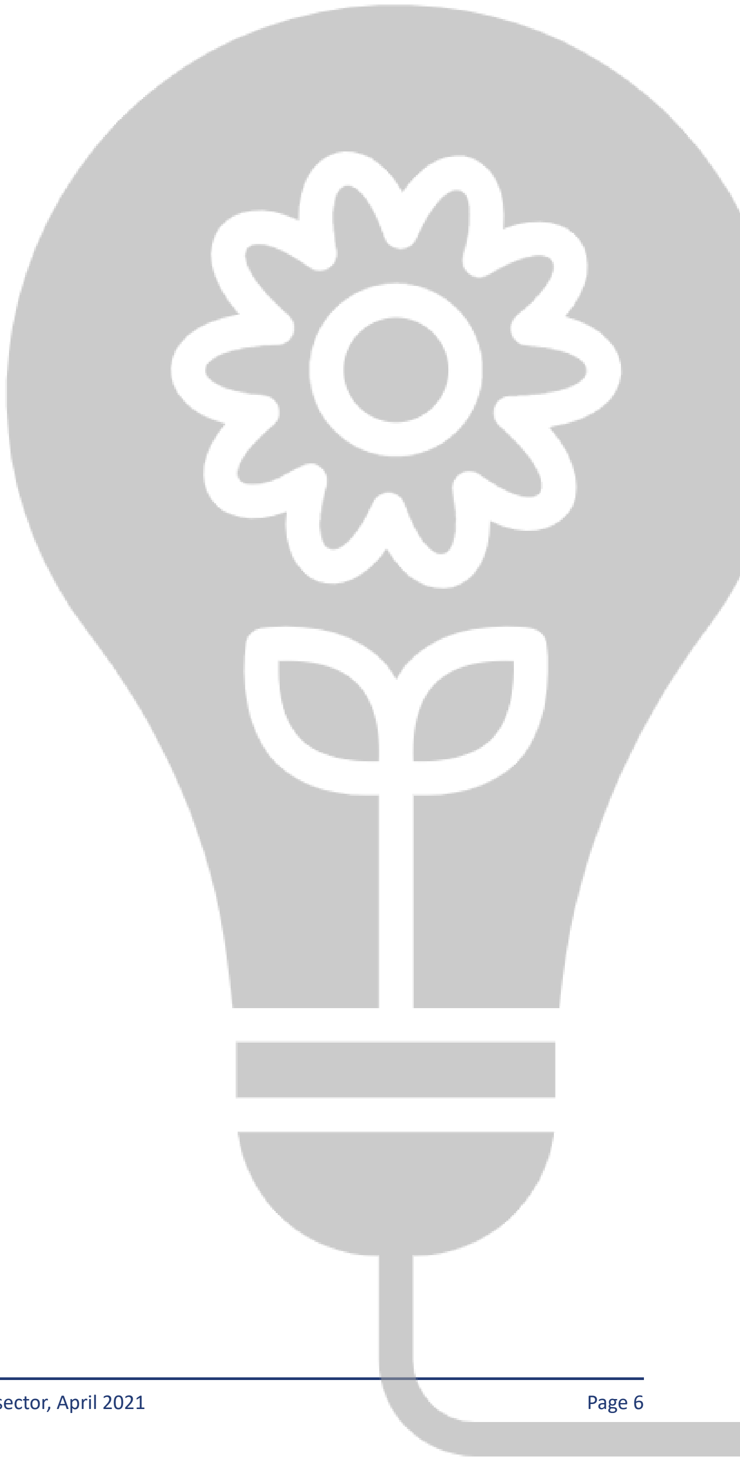
Recommendation 1. Investors and enterprises should consider the potential competitive landscape that will emerge following the pandemic period and make decisions today on where to invest scarce resources in strengthening enterprise capabilities. Investors should consider how insights from this report might shape the investment thesis for the future Access to Energy sector and enterprises should use the report as the basis for strategy development across the seven capability areas, which may form the basis for discussions with capital partners on how the enterprise is positioned for the post-COVID marketplace.

Recommendation 2. Enterprises should undertake a self-assessment through the matrix provided with this report and reassess strategies for each of the seven capability areas identified in the report. These capabilities are expected to impact how value is delivered to customers, and enterprises can compare their position today with the benchmark assessment the sector in India and Kenya. The seven capability areas are access to capital, market diversification, business model innovation, pricing and product innovation, ability to leverage external resources, low-cost sales and distribution models, and capability to attract and retain talent.

Recommendation 3. Investors should review how the seven dimensions of competitiveness are being considered by investment candidates, and whether the enterprise is building strategies for each capability area as potential sources of strategic advantage and growth in the post-COVID business environment. Investors should encourage investment candidates to complete the self-assessment benchmark, which aims to help enterprises understand capabilities and their relative importance, enabling scarce resources to be applied effectively in responding to the crisis today, whilst preparing for tomorrow.

Recommendation 4. Investors and enterprises should consider the spectrum of enterprise responses to the COVID-19 pandemic and use the insights to consider how the three scenarios of potential industry evolution identified in the report may impact on an enterprise. The likely long-term shift towards industry consolidation in both economies of scale and in specialisation along the value chain was one key scenario identified during the work. The second scenario identified the potential for more sophisticated pricing across the sector. The third scenario identified the potential for evolution in last mile solutions that take advantage of lower cost digital channels.

In summary, this report identifies the long-term market impacts resulting from the COVID-19 responses and investments being made today. Furthermore, the report provides sector stakeholders, investors and A2E enterprises with a toolkit to understand how to plan for the competitive landscape that may emerge in the post-COVID environment. We invite the sector to engage in the findings, provide feedback and undertake a self-assessment using the toolkit provided by this report to identify new opportunities as the world begins its recovery from this pandemic.



How might the pandemic drive market evolution?

INTRODUCTION

The COVID-19 pandemic has shown how an unforeseen global calamity can disrupt trends and policies of long standing, with outcomes both expected and unpredictable, dire, and surprising. With widespread impact on societies and economies, disrupted supply chains, and the limited ability of many households and businesses to pay for electricity services, the pandemic is certain to affect the energy transition and progress toward SDG 7 (IEA, 2020). The crisis has exacerbated underlying economic and social problems around the world and in June 2020 the World Bank projected that the impact of the pandemic will push an additional 71 million people into extreme poverty (World Bank, 2020).

The crisis is highlighting the urgent need for access to reliable, affordable and sustainable Access to Energy (A2E) — including for critical pandemic response capabilities in hospitals and health facilities, in communities for clean water, and in supporting households to get access to information (IEA, 2020). The importance of Access to Energy (A2E) for households and productive users has only been further highlighted by the need for energy to support health care and maintain incomes in rural areas. Beyond the devastating human toll, over the coming months and years the impacts of COVID-19 will likely have a dramatic effect on the A2E sector and there is little doubt that many A2E enterprises will be wound up or acquired.

The Global Off-grid Solar Market Report for H1 2020, published by the World Bank Group's Lighting Global program and GOGLA, has provided a recent view on how COVID-19 has affected the global market for off-grid solar products. A slowdown across all regions was identified, with sales of solar lighting products falling 26% in comparison to the same period in the previous year, and sales of solar appliances including fans, pumps and refrigeration also declining. South Asia has been affected the most, recording a 60% drop in sales of off-grid solar lighting products (GOGLA, 2020).

There are many factors that have contributed to the downturn, for example COVID-19 impacts on microfinance institutions (MFIs) which act as major sales channels for A2E enterprises has been a significant factor in the decline of sales in India. Disruptions to supply chains from restrictions on movement and production stops in China were compounded by containment measures including closed ports in Africa and India when production restarted. The impact on the A2E industry has been well documented, with multiple surveys identifying the negative impact on sales, disruptions in supply chains, increased risk in customer collections and the cumulative impact of these factors on working capital of A2E enterprises.

Three potential scenarios for industry evolution are apparent.

Three potential scenarios for industry evolution are apparent. Firstly, it is likely that the pandemic will accelerate industry consolidation in both economies of scale and in specialisation along the value chain. The pandemic will also likely drive a scenario where pricing becomes more sophisticated in the sector – where enterprises are able to extract additional value along the demand curve – customers with higher capacity to pay are offered bundles or products at higher price points to offset low-income segments. Finally, there is a scenario where the pandemic sparks a permanent evolution in last mile solutions that can take full advantage of lower cost digital channels.

Long-term industry consolidation

Much speculation has been made over the past few months on the rate of enterprise failure in the A2E sector globally. Many smaller enterprises with limited financial resources have collapsed, with those serving low-income markets hardest hit following reduced international remittances and contraction in rural household spend. Reverse migration, from urban to rural and global to local, is reported to have abated although it is likely rural households have seen reduced income paired with higher demands on scarce household resources.

With contraction in rural expenditure there will be greater emphasis on unit economics and economies of scale in A2E enterprises serving low-income markets. Firms with access to capital looking for new market opportunities through diversification in product and service offerings will be looking for value in acquisition of distressed enterprises. With few government subsidies reaching smaller A2E enterprises and philanthropic capital pivoting towards the healthcare sector, significant consolidation across the sector is expected.

The three key areas of the value chain where greater specialisation can occur are consumer credit, sales and product distribution, and manufacturing / assembly. Globally headquartered enterprises with parent company support are less likely to consolidate at the production level, however, may seek to drive acquisitions in key local capabilities for consumer credit and sales. This makes sense given the highly localised knowledge required to compete successfully at the retail level. As government policy targets local manufacturing, particularly in India, new local production capacity will emerge and may only be viable with a minimum scale. This will be a segment of the value chain where consolidation is a natural evolution.

Given the price sensitivity in the A2E market and the need for scale economies, many economists would view sector consolidation as inevitable. With capital availability and investment transactions continuing, consolidation is likely as larger firms take advantage of the economic contraction.

Shifts in product and pricing strategy

The pandemic has stimulated a greater level of engagement between productive use A2E enterprises and rural producers. Enterprises are increasingly risk-sharing with customers and entering into contracts that enable deferred repayments from operating profits. This is also an important step forward in development of more sophisticated value-based pricing models in the productive use sector.

Community assets for post-harvest handling, such as bulk refrigeration, may be an early candidate for new pricing models. The approach differentiates market segments with higher capacity to pay for the same services over others. For example, greater utility of a bulk refrigeration asset would be achieved if it were filled with high value perishable produce, such as chicken meat, over lower value produce. Post-harvest storage is in demand across many commodities and A2E enterprises may consider allocations by crop type, and differentiate prices based on value. Temperature reliability could be introduced into the service, where cooler zones in refrigerators were linked to premium pricing. A value-based approach would enable greater economic utility and higher financial incentives to asset providers.

At the consumer level the pandemic polarised the market into segments of those able to afford A2E services, and those that were not. A2E providers sought to assist customers with a variety of incentives and supports during the crisis, however in many cases found it challenging to identify the best means to identify those most in need. Investments in customer relationship management and new awareness of multiple segments within the low-income market may enable a long-term shift in product and pricing strategy.

Evolution in operating models and consumer engagement approaches

“Scalable last mile solutions” is the mantra in many enterprises serving low-income markets. The pandemic has brought the cost of sales and customer servicing into sharp relief as A2E enterprises fight to curtail costs in an economic contraction. In line with the global shift towards digital engagement, developing economies and emerging markets alike have rapidly adopted technology to enable digital access to customers. Investments in digital assets including production of self-service videos that were made during the pandemic will likely improve economies of scale in the sector and become an important factor of competitiveness.

Videos of how to use and maintain products in the productive use market have already enabled enterprises to reduce the number of customer site visits required in the post-sale period. With customers able to share cleverly designed video material (both serving as a promotional asset as well as having instructive benefits for consumers) it is expected that peer-to-peer sharing of media will promote products and drive sales at lower costs for each new customer acquired.

COVID-19 has catalysed increased levels of creative digital content which will reach critical mass for some firms, reducing last mile costs, improving customer engagement and retention, and bringing the potential to reshape the competitive landscape over the long-run.

What is the capacity of the market today?

Part I

MARKET CAPACITY

What is the context for A2E enterprises operating in India and Kenya?

India is one of the fastest growing economies in the world with a population of 1.4 billion and a rapidly growing energy demand – both at household and industrial levels. To satisfy this demand the Government has made remarkable progress, with 700 million people gaining access to electricity since 2000 and 80 million new LPG connections for clean cooking established (IEA, n.d.). India has been lauded for its energy market reforms like the creation of one national power system and the implementation of nationwide subsidy schemes to make electricity and clean cooking solutions affordable (CEEW, 2019) (CEEW, 2020).

However, there remains work to do. Indian-based think-tank, the Council on Energy, Environment and Water (CEEW) found that in six energy poor states, while over 90 per cent of villages are electrified, only 63% of households have a connection to an electricity grid. Over 78% of India's households still rely entirely on biomass for cooking (Abhishek Jain). These findings suggest an opportunity to adapt policy approaches such that India may continue to lead progress towards universal access to energy by 2030.

India needs to leverage more private investment in the renewable energy sector to achieve its ambitious target of 175GW of renewable energy capacity by 2022. The most critical issue facing India's financing framework is the lack of innovative financing options that offer larger sums at lower interest rates and for longer durations – particularly for smaller-scale clean energy projects in under served markets. India requires innovation in decentralised solutions including rooftop solar, mini grids and off-grid solutions which are generally unexplored, despite persistent demand. For instance, rooftop solar only reached 1.2GW of installed capacity as of 2018, well below the 40GW by 2022 target (NRDC, CEEW, IREDA, 2018). Moreover, government support for these decentralised solutions is less than 1% of total electricity subsidy (How India can continue to be a leader on energy access, 2018).

Kenya is on the cusp of reaching universal access to electricity, with aspirations to be a newly industrialised middle-income country providing its citizens with a high quality of life by 2030 (Vision 2030). The Medium-Term Plan (2018-22) of Vision 2030 is centred on four pillars of universal healthcare, affordable housing, food security, and manufacturing, with all four dependent on the provision of adequate, affordable, and reliable electricity (The World Bank, 2018).

Kenya has made notable progress in deploying renewables. From 2000 to 2018, the percentage of population with access to electricity increased from 8% to 75%, with most gains in recent years. Comparably, over the same period, the percentage of population with access to clean cooking has only increased from 3% to 15% in the past 18 years (IDA, 2019). The National Electrification Strategy is regarded as a significant enabler for progress in electrification, coupled with ubiquity of mobile payment platforms, penetration of mobile phones, and access to PAYG technology.

The Government of Kenya is providing electricity services to remote, low density, and traditionally under served areas through the Kenya Off-Grid Solar Access Project (KOSAP), utilising US$150 million of World Bank financing to target 14 of the 47 counties considered marginalised, which represent 72% of Kenya's total land area and 20% of the population (Government of Kenya, 2020).

What capabilities have A2E enterprises invested in during the pandemic?

The A2E sector seeks to provide low-income populations with lighting and household appliances, including fans, televisions and refrigeration, as well as productive use equipment for rural environments. The dominant business model creates value through lease-to-own contracts between providers and consumers. Enterprises serving productive use applications focus on identifying additional value created in processing, from which payments are made for more expensive industrial equipment. As products in this market are reasonably commoditised and undifferentiated, with substitute products available, enterprises tend to compete on price, after sales support, and product quality and reliability.

To date pricing has been a critical success factor and firms have been proactive in structuring affordable contracts – balancing cash flow needs of households and industrial users with asset lifespans and the cost of capital. In some cases success has been a function of the ability to raise capital, the capacity to attract and retain high quality staff, and the management team's configuration of capabilities and resources to optimise operations in the context of government policy and regulations in an area. Technology and offerings are often differentiated through product bundling and pricing, and there has often been some degree of intellectual property established by each firm that creates aspects of competitive advantage.

It is no surprise that COVID-19 has forced changes across almost all aspects of A2E enterprise strategy and operations. Much has been written on the immediate impacts of the pandemic. Commonly cited are supply chain disruptions, mobility restrictions, operational shutdowns, as well as impacts of reduced demand, all contributing to liquidity crunches in the A2E sector. As A2E enterprises rapidly reconfigure, develop workarounds, and make decisions to invest in new ways of doing business, they are also creating the potential for a new competitive dynamic in the sector. For example, enterprises that invest heavily in digital capabilities can develop an advantage through lower cost of sales. As new best practices emerge, the key success factors for enterprises in a post-COVID market could look quite different to those of today.

Interviews with A2E enterprises, industry bodies and investors in the sector revealed commonalities in how businesses were responding to the constraints imposed by the pandemic and what strategic investments were being made that may have a long-term impact on the economics and competitiveness of the sector. This report identifies seven *capability areas* that will impact how value is delivered to customers, as well as an assessment of where the sector is benchmarked today in both India and Kenya. A self-assessment guide is provided with this report to enable enterprises to benchmark themselves and establish key areas for focus over the months and years ahead.

While other factors will also play a role in industry evolution, such as mergers and acquisitions driving consolidation or specialisation in the value chain, the seven competitive dimensions have been identified through application of well-established strategy and economics frameworks to the behaviours of firms in the A2E sector, and validated with industry body and investor interviews and surveys supporting this report.

Our research has identified seven capability areas for A2E enterprises that will be important for competition in the post-COVID business environment

Capability Areas	Framing Issues
Access to Capital	Enterprises with the organisational capacity to navigate the COVID-19 crisis will give confidence to investors when raising capital. This capacity may include the strength of management team decision making and the maturity of institutional processes. It is further reflective of investor confidence in the business model and the prospect of maintaining a return on capital employed, as well as capacity in the other competitive dimensions identified.
Market Diversification	The capacity to diversify is expected to be an important factor in business resilience and competitiveness in the future A2E sector. Enterprises able to diversify their product offering and pivot into new market segments or geographies can decrease revenue risk from a single customer group. As examples, enterprises serving the household sector have diversified into productive use products, whilst some productive use companies are exploring new rural market segments.
Business Model Innovation	Being able to adapt business models to meet changes in the market has been identified as an important competitiveness factor. New customer and shareholder value can be achieved through reorganising existing capabilities and resources to meet changes in cash flow cycles including negotiating trade payment terms, for example, lease-to-own has proven a successful business model for the sector and finding ways to shift fixed costs to variable costs is another example used to improve return on capital.
Pricing and Product Innovation	The capability to identify underlying needs and trends in consumer and business markets is important for maintaining competitiveness. Identifying new products that fit consumer demand at specific price points, or finding new ways to price and bundle products, as well as creating means to differentiate a range of products at different points on the demand curve, are examples of price and product innovation.
Leveraging External Resources	The capability to make use of human, operational, and intellectual property resources outside of the organisation will continue to be an important factor of competitiveness during and beyond the pandemic. This could be done through partnerships with external organisations which offer complementary value chain capabilities or through influencing stakeholders to create enabling policies.
Low-cost Sales and Distribution	Lowering the cost of sales and distribution will enable greater potential for growth and scale. Enterprises employing lower cost sales and distribution models (e.g. digital channels for sales and user training, and the use of last mile distribution models) will have an advantage in their ability to engage a larger market at lower costs beyond the pandemic.
Attracting and Retaining Talent	Attracting and retaining quality talent is a critical business capability, as recruitment and training is time consuming and costly. The capacity to retain staff through the pandemic will drive competitiveness. Some enterprises are introducing flexible compensation structures, rather than laying-off people, and some are using payment technology that can provide sales agents with commission on the day of sale, helping household cashflow.

Table 1 - Seven key factors of competitiveness in the post-COVID market

Analysis of enterprise capacity in India

The Government of India rallied behind the energy sector from the onset of the pandemic. The primary focus has been on supporting traditional distribution companies with debt repayment subsidies, although some states in India have announced policies to provide free solar power for farmers, as well as to facilitate the leasing of land for renewable energy production. The A2E sector in India is fragmented with many enterprises relying on local knowledge and context to provide niche solutions to localised A2E challenges (Sharma, 2020). The fragmentation and small-scale presents a challenge for government engagement. The sector was recognised in policies announced during the pandemic outbreak, falling into the list of "must run" status industries. The intention of this policy was to allow movement of goods and commodities required by the sector, to ensure continuity of service. Furthermore, a moratorium of loan repayments was offered to assist with enterprise cash flow (The road ahead for India's solar power sector, 2020). However, despite best intents, many of the small enterprises operating in India's A2E sector have been unable to access COVID-19 support measures. Lack of alignment between local administrators and central policy makers has been cited as a potential cause. A2E enterprises deemed ineligible, or otherwise unable to access financial support, have been forced to innovate and find ways to maintain and diversify their customer base. It is understood that many of these businesses have not survived the crisis.

Industry representatives and market investors undertook the assessment of the India A2E sector as of October 2020. The survey identified the industry average capacity across the seven competitiveness dimensions, while also identifying the average assessment of five "high performing" enterprises. Figure 1 illustrates the current state capacity.

- The most remarked difference between the average and the high performers was in the ability to leverage external resources, followed by the capacity for low-cost sales and distribution, and access to capital; enterprises doing well have a significantly greater level of capacity than the average enterprise in these three dimensions.
- In general, the sector is performing well in its capacity to drive *business model innovation* and *market diversification*, with no significant difference between the high performers and industry average groups.
- The capacity for low-cost sales and distribution was considered the weakest area for the India A2E sector. This aligns with the need for localised solutions but must be overcome for enterprises to develop and maintain economies of scale.

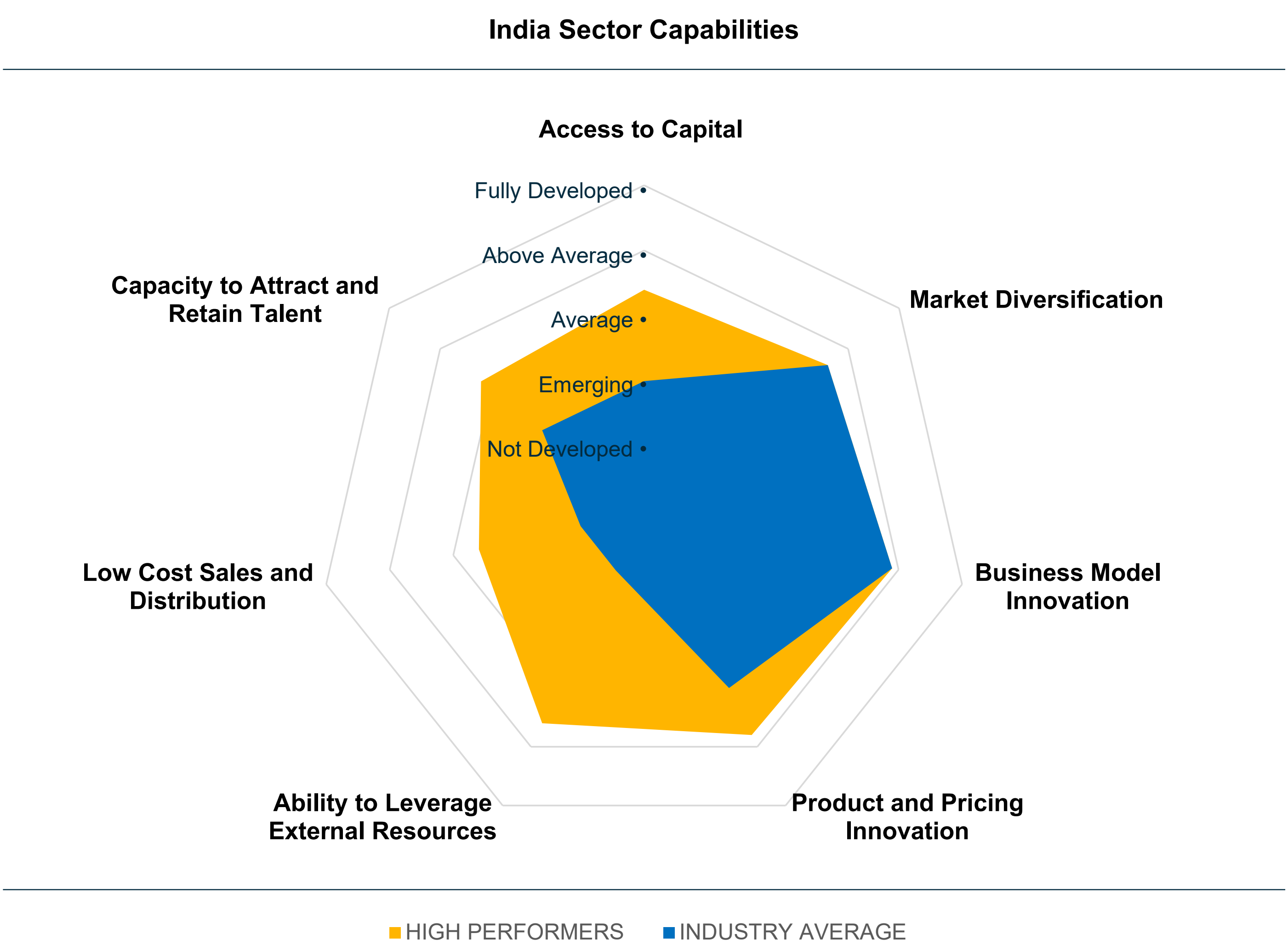


Figure 1 – India: Assessment of the Access to Energy Sector's Capacity Across Seven Key Capability Areas

Analysis of enterprise capacity in Kenya

Kenya is among the sub-Saharan African nations worst affected by the pandemic, in terms of number of people no longer able to afford basic electricity services. Across sub-Saharan Africa, 30 million people who had access to electricity in 2019 may no longer be able to afford basic electricity services by the end of this year, representing around 6% of the connected population (IEA, 2020).

The A2E market in Kenya is oligopolistic with approximately 15 large providers that are reasonably vertically integrated across the value chain. Many of these enterprises have the capacity to raise capital to meet the high expenditure needed to finance consumers and productive users in the sector. The household and productive use markets are very similar in structure however productive use providers require assets that need significantly greater capital investment and serve industrial applications and markets.

Whilst the Government of the Republic of Kenya did not announce any targeted policies for the A2E sector, changes to exemptions on imports did negatively impact the sector, increasing the cost of critical components required by A2E services. Without government support the effects of the pandemic have been devastating to many firms in Kenya's A2E sector and enterprises able to obtain financial lifelines from international parent companies have been fortunate.

The state of the sector as it stood in October 2020, has been assessed by industry representative bodies and investors focused on the Kenya market. The survey identified the industry average capacity across the seven competitiveness dimensions, while also identifying the average assessment of five "high performing" enterprises. Figure 2 illustrates the current state capacity.

- The differences between the industry average and high performer baseline is less pronounced in Kenya than it is in India, with the greatest gaps between average and high performers in the areas of low cost sales and distribution and capacity to leverage external resources.
- Business model innovation and access to capital are regarded as the most well-developed areas in the Kenyan market, potentially linked to the relatively consolidated structure of the market.
- Capacity for low cost sales and distribution is the least developed area followed closely by capacity for market diversification.

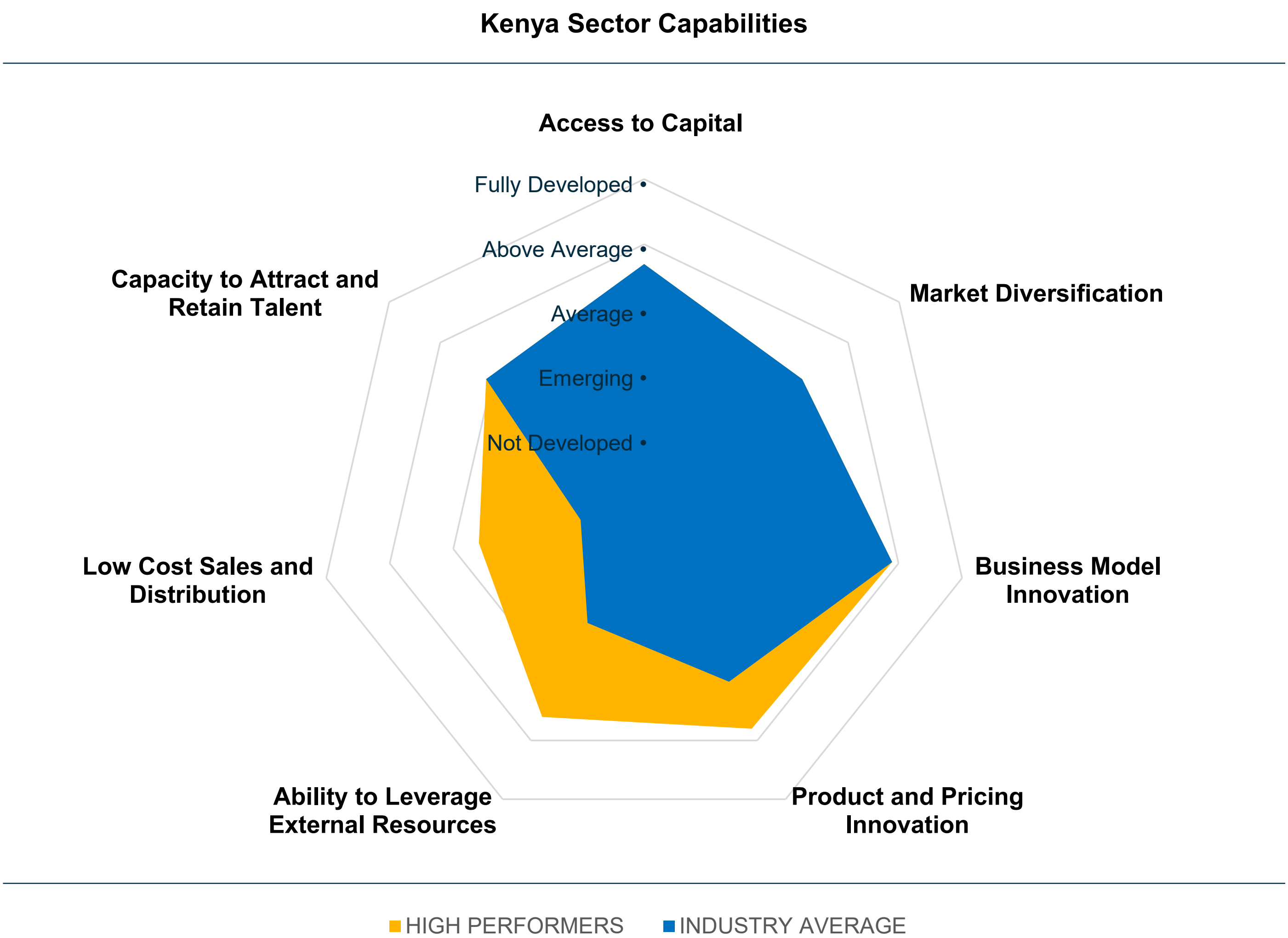


Figure 2 – Kenya: Assessment of the Access to Energy Sector's Capacity Across Seven Key Capability Areas

What are the long-term consequences for the A2E market?

Part II

TOMORROW'S COMPETITIVE LANDSCAPE: THE LONG-TERM MARKET IMPACTS OF TODAY'S COVID-19 RESPONSE

The purpose of this analysis is to assist executives with limited resources and time to prioritise where to invest effort in development of capability. It seeks to answer the overarching question of how enterprises and investors can identify and navigate key medium to long-term business risks and issues from COVID-19 such as cash flow management, changes in trade credit, or inventory management.

Key questions guiding the market analysis are:

1. *What are the expected medium and long-term changes in demand and consumer capacity to pay for household and productive-use energy in rural markets across India and Kenya?*
2. *What are the expected medium and long-term changes in supply side markets for A2E enterprises?*
3. *How are social enterprises and investors expecting to respond to market changes and where in the value chain may innovation be required now and in the in future?*
4. *How can enterprises and investors identify and navigate key medium to long-term business risks and issues from COVID-19 such as cash flow management, changes in trade credit and inventory management?*

Figure 3 presents the overarching structure of this analysis and guiding scope of seeking to understand the medium and long-term implications of COVID-19 for organisations in the household and productive use A2E ecosystem serving low-income customers in India and Kenya.

INDICATIVE

Scope	Guiding questions		Illustrative issues
How might the COVID-19 pandemic reshape the Access to Energy ecosystem that serves low-income customers in India and Kenya?	How will impacts on demand change the Access to Energy landscape?	What are the expected medium and long-term changes in demand and consumer capacity to pay for household and productive-use energy in rural markets across India and Kenya?	▪ What are the macro-economic impacts on markets in the medium to long-term? ▪ How is population movement and impacts on global diaspora affecting poorer regional areas?
	What are the long-term implications on the supply side?	What are the expected medium and long-term changes in supply side markets for Access to Energy enterprises?	▪ How will shifts in global renewable energy product supply chains affect costs? ▪ What are the cost implications of movement restrictions and regulatory changes? ▪ How will cost restructuring today affect the sector tomorrow?
	How is the ecosystem responding?	How are social enterprises and investors expecting to respond to market changes and where in the value chain may innovation be required now and in the in future?	▪ How has the customer base been affected and what is the outlook for the medium term? ▪ Where are SE's changing their value chain? ▪ How has impact shifted? ▪ How are investors responding and how have investment expectations shifted?
	What should investors and enterprises be considering?	How can enterprises and investors identify and navigate key medium to long-term business risks and issues from COVID-19 such as cash flow management, changes in trade credit, inventory management?	▪ What activities can Access to Energy executives engage in to strengthen key capability areas? ▪ What are the capabilities most in need of development in the short and long term? ▪ What examples can be identified in A2E enterprises across the sector?

Figure 3 – Assessment of Long-term Impacts of COVID-19 on the A2E sector

HOW WILL IMPACTS ON DEMAND CHANGE THE ACCESS TO ENERGY LANDSCAPE?

This section discusses capacity building in the areas of pricing and product innovation, and low-cost sales and distribution. It seeks to explore the expected medium and long-term changes in demand and consumer capacity to pay for household and productive-use energy in rural markets across India and Kenya.

What are the impacts on demand?

Over the past 10 years India has experienced an average annual GDP growth rate of 6.7%. However, since then India's annual GDP growth has been on a downward trend. India's GDP is projected to contract by 6.4 per cent in 2020-21 (The Economic Times, 2020). As a result of this economic downturn, adverse impacts on household income are expected in the coming year which will impact household energy demand and productive use applications. The A2E sector is sensitive to household debt levels. Accumulation of household debt can lower credit worthiness, and coupled with higher proportions of non-performing loans, has the effect of dampening investor confidence, being an indicator of financial hardship for borrowers.

The pandemic has triggered financial liquidity issues, supply chain disruptions, and limited access to capital for expansion, amongst other impacts. However, emerging markets and developing economies are projected to show steady increases in their energy demands over the coming years. The immediate challenge is financial liquidity. Analysts expect distribution companies' annual losses to double to about $15 billion. As a result, cash will be scarce, and new investments will face more hurdles. India's only recent energy-generation investments were in renewables; these may also be at risk because they concern capital rather than labour.

It is expected that India will lead this recovery (International Energy Agency, 2020). While it is expected that demand for energy will continue to increase, the key medium- to long-term concerns are over affordability in developing countries and A2E enterprises need to be monitoring reports on increasing household debt.

Between 2012 and 2019, Kenya's annual growth in GDP has been reasonably stable averaging at an annual growth rate of 5.8%. Following COVID-19 the African Development Bank forecast a decline in Kenya's GDP to 1.4% growth for 2020. This forecast reflects an expected reduction in household capacity to spend on goods and services which is expected to become more pronounced for households impacted by job losses. More positively, the African Development Bank is forecasting that Kenya will be able to recover quickly and achieve a 6.1% growth in GDP by 2021, coupled with improvements to lower inflation. If realised, the forecasted 2021 annual GDP growth indicates that Kenyan households and rural industries will have an increased demand for energy.

Three key areas expected to have a significant impact on household and rural industry capacity to pay for energy in the coming year are:

- **Labour income**: Restrictions in global labour markets will reduce expatriate remittances, projected to decline by about 20% in 2020 due to COVID-19 (The World Bank, 2020).
- **Staple goods impact**: Delays to imports and reduced domestic production has constrained supply of household consumptive goods which will likely inflate prices and reduce available household cash flow in the short term.
- **Service disruptions**: Government-imposed controls (i.e. school closures and limited public transport access) have the most short-term direct impacts but could lead to medium- to long-term impacts around student retention, learning and nutrition in low income countries.

Pivoting to demand

Changing product bundling, offering new payment structures and pivoting to where the demand is have all been demonstrated in enterprise responses to the pandemic. D.Light for example are bundling products more relevant to their consumers, while Envirofit is focusing on developing a smart PAYG cooking solution for households.

The capacity to move an existing offering into new demand segments is powerful. In India S4S pivoted its offering, processing farm gate outputs for the restaurant sector, to serve increased demand from multinational companies needing to manufacture FMCG food products locally, as well as "cloud kitchens" while the local hospitality industry was suppressed by COVID operating restrictions.

As consumer and business confidence decreases, A2E firms have observed households and rural enterprises becoming less willing to take on high monthly cost contracts. Organisations serving productive use markets have in the past used a risk sharing approach, where revenues have been directly linked with on-farm productivity increases. One productive use firm in India is now piloting lease-to-own models on longer periods (1.5-2 years) to reduce customer anxiety over repayment risk.

How can enterprises enhance capabilities for pricing and product innovation?

With COVID-19 dramatically impacting many household and rural business incomes, A2E enterprises need capabilities to develop market insights, enabling a sophisticated approach to pricing and product bundling to best meet the needs of multiple market segments. Capabilities to conduct market research and generate insights into rural consumer and household spending, combined with capabilities to source and integrate new product offerings will be important to maintain competitiveness. Capabilities to price and drive product innovation is linked to an enterprise's capacity to identify market insights through consumer consultation and research. Furthermore, use of digital platforms and processes that enable sales agents to capture customer insights may contribute to establishing valuable capacity in this key area.

During the pandemic incentives to consumers have included reducing minimum repayments such as reducing pre-purchase commitments from one-week supply of energy down to three days. Also, advance purchase bonuses such as "buy one month, get five days free" were deployed. Capabilities to understand the timing and duration of these incentives has been critical. At the beginning of the COVID-19 outbreak incentives had an important impact on low income households, however by the 2-3 month mark the incentives were ineffective - households hardest hit had run out of cash. Enterprises that engaged in market research discovered that segments responding to incentives were not the segments most in need, and that for those most in need, the incentives on offer were not tailored to their needs.

Some household energy enterprises are innovating in how products are bundled, while others are exploring potential for pricing at different points on the demand curve. With disruption to supply chains and policies driving manufacturing nationalism, there is opportunity for enterprises in India to drive product innovation locally to meet the unique demands across India's rural market segments. Investors believe that the refrigeration market will be the next boom in the household energy segment, noting that they did not believe any company had "really cracked that market yet".

Reducing cost of sales and distribution

Amiran are piloting automated drip irrigation on credit, targeting micro and small enterprise farmers. The product solution uses smart solar pumps to improve irrigation efficiency and facilitate remote technical monitoring and support. The company is taking a collective marketing approach to groups of farmers, targeting those in contract farming arrangements where revenues are reliable.

By developing relationships with groups of farmers in specific value chains and geographies with common product needs, the approach is anticipated to increase productivity and monetisation opportunities for the farmer; and consequently reduce credit risk whilst enhancing customer acquisition and retention for Amiran.

One key challenge in the rural sector is that smallholder farmer clients cannot afford energy solutions without government support, these subsidies have been delayed or reduced as governments rally to fund pandemic response activities in other sectors. Firms are responding with cost cutting measures, for example one enterprise that is streamlining distribution costs through aggregating delivery into single bulk orders into rural areas, rather than offering single bespoke deliveries to each client.

How can enterprises lower cost of sales and improve last mile distribution?

Enterprises with essential business status were able to continue operating throughout the pandemic, while mobility of goods and services and communication with customers was restricted for those without exemptions. Enterprises that reorganised teams for effective remote working generated additional cost advantages that may carry over into the post-COVID period. Flexible cost structures have enabled enterprises operating last mile distribution channels to scale up and down quickly. Shifting fixed costs of retail footprint to variable costs through partnerships – using variable payment incentives linked with new customer acquisition or specific tasks of distribution is one approach to reducing cost of sales and distribution while increasing business flexibility. A2E enterprises with digital sales, fund raising channels and customer care capabilities have developed a cost advantage and are positioned well for rapid growth into a larger addressable market as the economy begins to recover.

Proactive enterprises have invested in digital sales channels and online training material to reduce the cost of new customer acquisition and servicing. Short videos demonstrating products and explaining maintenance have been shared around communities and user groups via WhatsApp. This approach has an additional advantage within the productive use sector where a substantial amount of after-sales care in education and training on equipment use and maintenance is required. Some enterprises have also invested in digital channels to crowdfund and reach individuals who might be interested to fund/sponsor clean energy solutions for low-income households and productive users. A2E enterprises with digital sales, fund raising channels or digital customer care capabilities have developed a cost advantage and are positioned well for rapid growth into a larger addressable market as the economy begins to recover.

To match staffing costs with lower sales volumes, some enterprises have shifted full-time employee sales agents onto lower base salaries with higher incentive payments for sales. Incentives of same-day commission payments have been attractive to staff facing cash flow issues, however industry representatives in Kenya do not believe this model will be sustained beyond the pandemic. With sales talent in short supply and workers traditionally preferring the security of a stable regular income over commission models, a return to 'business as usual' is expected during the pandemic recovery.

WHAT ARE THE LONG-TERM IMPLICATIONS OF THE COVID-19 PANDEMIC ON THE SUPPLY SIDE?

This section explores capacity for market diversification and capacity for business model innovation while seeking to address the expected medium and long-term changes in supply side markets for access to energy enterprises.

Global supply chains are a critical component of the A2E sector. The disruption to supply chains, in particular affecting goods manufactured in China, has triggered nationalistic policy agendas in some countries. As the pandemic started to take hold in February 2020 the OECD identified that shipping ports were reporting a 10% to 20% drop in cargo volumes (OECD, 2020). Long term, these disruptions are likely to influence consolidation and vertical integration decisions as firms attempt to achieve better control across the supply chain and as nationalistic policy incentivise domestic manufacturing in India and in sub-Saharan African countries. Domestic production of inputs would have advantages for A2E enterprises which are exposed to purchasing power and foreign exchange (FX) volatility where local affordability is linked to foreign priced inputs.

For Indian enterprises, increasing or stable foreign reserves will help provide a buffer against any volatility in the Indian Rupee, creating a more stable business environment for enterprises exposed to trade and global supply chains. Over the past decade India's exchange rate to the USD has slowly weakened but has turned since April 2020, with the INR strengthening against the USD with an average exchange rate of INR75.33 to the dollar between April and August 2020. Positive impacts on investor, business and consumer confidence could be realised well into the post-COVID-19 era if modest strengthening of the Indian Rupee is maintained.

Enterprises operating in Kenya face a different scenario due to a slight weakening of Kenya's exchange rate to the USD over the last 10 years. With the onset of COVID-19, the Kenyan shilling has deteriorated to Kshs108 per USD, which has been partially driven by foreign investors exiting riskier markets. Should the KSh continue to deteriorate it will increase the cost of imports which will affect cost of goods sold for enterprises in Kenya.

How can A2E enterprises build capabilities to improve market diversification?

A2E enterprises form part of the supply-side equation in the sector, being responsible for creating outcomes for households and productive users through the business decisions made on which markets to serve and which products and services to offer. Capabilities to broaden and diversify markets and customer groups is an important competitiveness factor as it creates growth opportunities while improving business resilience.

As household income dropped, several companies interviewed identified strategies to focus on those households less affected, diversifying by market segment and enabling cross-subsidisation to support lower-income customers. Furthermore, some enterprises serving the household sector in India diversified into productive use products, whilst productive use companies explored pivots into new rural market segments and new geographies. In Kenya A2E enterprises observed an increase in demand for productive use products as rural households sought new means to generate income. This demand shift was also noted across other geographic markets as governments sought to provide stimulus targeting production activities in the agricultural sector through targeted household subsidies.

Understanding threats to the status quo business model should be a focus for executives today

The dominant lease-to-own asset finance business model has enabled the success and scalability of the A2E sector. Executives and investors in the sector need to develop an understanding of how the impacts of COVID on the supply and demand sides of the sector threaten this business model, and what changes might mitigate those threats.

Diversification can entail building entire new supply chains, product offerings, and customer support capabilities. Diversification can be de-risked by pivoting from an established capability. For example, one organisation with an established consumer credit capability and access to customers sourced new complementary products to supply at lower price points, whilst leveraging its existing business infrastructure. In the short-term capability gaps can be filled through partnerships and leveraging external resources. In southern India one firm developed a mutually beneficial partnership with a complementary organisation operating in northern geographies – it had available inventory, was able to move goods, and was able to provide its product to the partner's established customer bases in the north.

What can an enterprise do to improve business model innovation?

The pandemic has impacted A2E enterprise revenues and introduced delays in consumer payments, coupled with delays and shortages in inventory (EnDev survey, 2020). Many A2E companies faced liquidity issues and some businesses stopped signing up new customers due to the inability to fulfill orders. The liquidity crunch came quickly to businesses where higher operating costs coincided with lower revenues and constraints on inventory. In a sector with limited financial capacity, such issues are critical to the survival of a significant proportion of A2E enterprises. In a survey on COVID-19's impact on the A2E sector, 43% of respondents indicated limited capacity to sustain losses beyond one to two months and an additional 27% beyond three to five months (EnDev survey, 2020).

The capacity of firms to continue to create customer value through new business models will be a key dimension of competition in the post-COVID A2E market and it has been ranked as a matter of urgency by investors and industry representatives.

Businesses will ultimately need to shift increased operating costs through to customers. Several firms have started to explore the option of sweating assets. Here longer customer contract periods aim to deliver affordability with lower costs over longer time frames. Emphasis has been placed on identifying unit economics that work, including pricing models that are in line with consumer ability and willingness to pay with lower unit cost of sales and cost of goods sold. However, some firms that have renegotiated consumer contracts have found that the process introduced more consumer finance risk, with higher rates of default following the changes.

Enterprises can be competitive if they can operate a flexible cost structure and generate economies of scale on any fixed costs they have. The challenge is for executive teams to reorganise capabilities and resources, shift fixed costs to variable costs and enable an efficient, scalable and flexible operation, while identifying new ways to create customer value that mitigates threats to the underlying asset finance models of most A2E enterprises.

New opportunities for partnership

Bboxx collects approximately 1,000,000 payments per month from more than 350,000 pay-as-you-go (PAYG) customers. PAYG electricity products can provide real time data on the household impacts of the COVID-19 crisis that would otherwise take a much longer time frame to show up in national statistics.

Consumer and household insights may position access to energy firms as important partners of governments, changing the relationship towards one of partnership. This could enable a two-way dialogue on the needs of the sector whilst providing government with valuable insights.

WHAT IS THE ECOSYSTEM RESPONSE?

This section explores capacity to leverage external resources, capacity to attract and retain talent, and access to capital. It explores how social enterprises and investors are expecting to respond to market changes and where in the value chain innovation may be required now and in the future.

What can an enterprise do to improve the capacity to leverage external resources?

The A2E ecosystem is a valuable resource for enterprises operating in the sector. With multilateral agencies and donors focused on enabling progress towards SDG7, as well as impact investors and industry bodies championing the sector. Building an organisational culture that enables staff to look beyond the boundaries of what is available within the enterprise is the key to building a flexible and adaptive enterprise, capable of leveraging external resources and support. Development of an organisational culture that embraces external resources to address gaps or access additional capacity can help teams to think beyond traditional business constraints. External capacity may be in the form of financial resources, expertise, or market presence.

Stronger partnerships between productive use customers and equipment suppliers will emerge as a greater level of risk sharing and collaboration between buyer and seller are established. This will likely increase customer loyalty and provide A2E firms with more reliable income from business customers. Well established business to business relationships and reputations for risk sharing may assist in long term customer retention, creating barriers to entry against new market entrants.

While it is not considered the most urgent capability for A2E enterprises to invest in, *capacity to leverage external resources* was one of the areas that received the strongest endorsement during the validation phase of this research. The *capacity to leverage external resources* was also viewed as an area of relative weakness for many, indicating it should be a long-term development area for all enterprises in both the Indian and Kenyan markets.

Retaining talent through win-win initiatives

COVID-19 movement restrictions have limited access to customers, inhibited sales, and affected sales agent remuneration (many sales agents are women which risks a broader impact on economic empowerment).

To overcome this, waste to energy enterprise Sistema.bio created a new system of micropayment incentives where a successful sale generates and pays commission on the day of sale. In an environment where talent is scarce, and where recruiting is difficult and expensive; the focus is on introducing more flexible compensation structures that reward employees and households quickly.

Organisations that are able to attract and retain talent using innovative cost and incentive structures may develop a talent advantage in the long-run.

What can enterprises do to improve capacity to attract and retain talent?

Human capital is a critical resource for the ecosystem, and central to the ability for the sector to grow over time. The economic effects of COVID-19 have impacted the ability for some A2E companies to pay staff and flexible compensation structures have been used in favour of laying-off people. Beyond remuneration, enterprises are seeking ways to enhance the employee value proposition through insights on what it is that staff connect with in the enterprise's purpose.

Investors and industry representatives agreed that the capacity to attract and retain talent will be a critical factor in the post-COVID A2E market. The research identified that this capability should be a long-term development area for enterprises in India and that in general there was a higher capacity of firms to attract and retain talent in Kenya.

How can access to capital be improved across the sector?

The A2E sector has historically been attractive for donors and investors alike. However, there have been movements in how capital is targeting the sector. COVID-19 has trigged a shift in philanthropic and donor funding, prioritising other sectors such as education and health. Renewable energy investors have broadened their investment thesis to include more productive use energy. For example, one of the early-stage investors interviewed for this report is now embarking on a second thesis in A2E with an emphasis on community solutions at scale, and energy for growth.

Investment has continued throughout the pandemic. There is a clear split in investor focus, with some dedicating resources to work with the current portfolio until signs that growth capital is available again, while others remain actively investing and looking for value in well managed companies. In a sector characterised by relatively homogeneous service offerings, organisations with strong management teams and executive capability to navigate the crisis may be more attractive to investors and may be more likely to raise capital.

There are some suggestions that investors are shifting risks to enterprises with "COVID-19 discounts" on valuations, and, although investment processes are taking longer to complete for the most part, investors have remained engaged. Some valuations are dropping 20% against pre-COVID levels which may reflect general uncertainty or specific reforecasting of future cashflows. Not all companies have been interested in reduced equity values and have made decisions to postpone plans for growth until the investment environment is more favourable.

With pressures impacting enterprises on both sides, from reductions in customer payments to increased operating costs and logistical impacts on the supply-side, the second half of 2020 has been critical for many enterprises in the sector. Given the cash flow crisis facing enterprises, there is potential for capital shortfalls to trigger enterprise collapse or acquisition, and it can be expected that the post-COVID landscape will have fewer firms participating in the market.

Businesses cannot rely on philanthropic capital to subsidise consumer products and will need to strengthen links to non-financial outcomes to engage investors seeking a balance between returns and impact. Investors are looking for businesses with sound management and growth potential. The capacity of a firm to access capital is reflective of a wider set of organisational capabilities, ranging across all the seven capability areas identified in this report. For example, it is reflective of investor confidence in business models, the ability of enterprises to understand market demand and to configure pricing and products effectively whilst maintaining a return on capital employed.

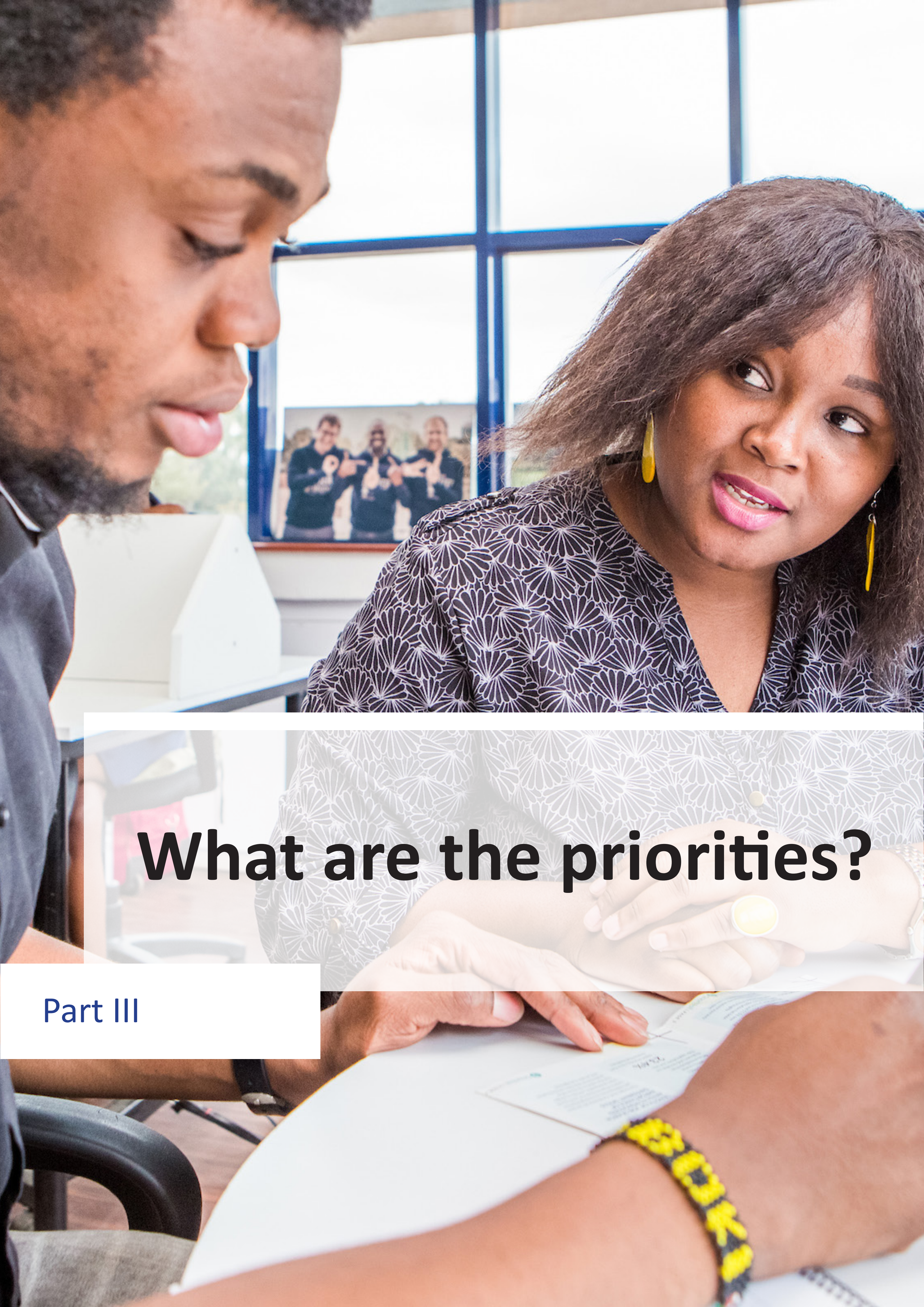
Investment has continued through the COVID period

Government release of fiscal stimulus into economies introduces inflation risk which can have a negative effect on availability of finance in the sector. Higher inflation rates will squeeze household affordability and risk energy repayments.

A high inflation environment will have an impact on consumer credit providers, allowing borrowers to pay back lenders with money that is worth less than it was when it was originally borrowed. Furthermore, the ratio of non-performing loans links to risk of payment default, and more broadly to investor confidence as higher or increasing proportions of non-performing loans demonstrates financial hardship at the household level.

Despite the environment, investment transactions up to US$5million have continued through the COVID-19 period, with follow-on investments considered relatively “low hanging fruit” for funds needing to deploy capital.

One seasoned company taking on its fourth round of equity investment was willing to accept a discounted valuation. Some other companies have decided to postpone plans for growth until the investment environment is more favourable. In Kenya this includes postponing expansion of retail shop fronts in new geographies. In other transactions investors have used alternative instruments and structures to place capital while deferring the equity valuation to a point in the future.



What are the priorities?

Part III

WHERE SHOULD ENTERPRISES INVEST EFFORT?

An enterprise self-assessment toolkit has been developed for each of the seven capability areas identified in this research. A2E enterprises are encouraged to look objectively at the capabilities using the assessment framework provided. Completing a self-assessment aims to help enterprises understand the capabilities and their relative importance in the post-COVID A2E landscape, enabling scarce resources to be applied effectively in responding to the crisis today, whilst preparing for tomorrow.

This research engaged investors, enterprises, and industry representative bodies to rank the relative urgency for building capacity across the seven capability areas for both markets. All seven capability areas have been qualified as important considerations for long-run competitiveness in the A2E sector. A forced-ranking exercise described in the Appendix has identified the capability areas that require the most urgent attention and provides a guide for A2E executives in prioritising effort. The urgency has been mapped against the relative capability strength assessment undertaken in the benchmarking.

Our analysis matrix can be read as follows:

- Capabilities falling into the top left "priority focus" quadrant represent high urgency and low strength of capacity and should be of immediate urgency for executives to address. For India, *access to capital* is the most urgent capability area needing attention for the industry in general. Based on the industry average in Kenya there are no immediate urgent capacity building needs identified, noting the intended approach being for each enterprise to undertake its own assessment and mapping.
- Capabilities falling into the top right "build advantage" quadrant represent high urgency and high capacity. Executives should focus on building competitive advantage around the capabilities in this quadrant as investors and industry representatives hold the view that it is these capabilities that will be of greatest importance in the post-COVID competitive landscape.
- Capabilities falling into the "maintain" quadrant, that is the low urgency, high strength capabilities, should be maintained and integrated into long-term strategy. As one of the seven key capability areas identified in this research these remain important but of lower immediate urgency than others. Strength in these areas is an asset.
- Capabilities falling into the "long-term development areas" quadrant represent low urgency, low strength capabilities that remain important but will likely be part of long-term strategy, prioritised lower than other capabilities ranking higher in urgency.

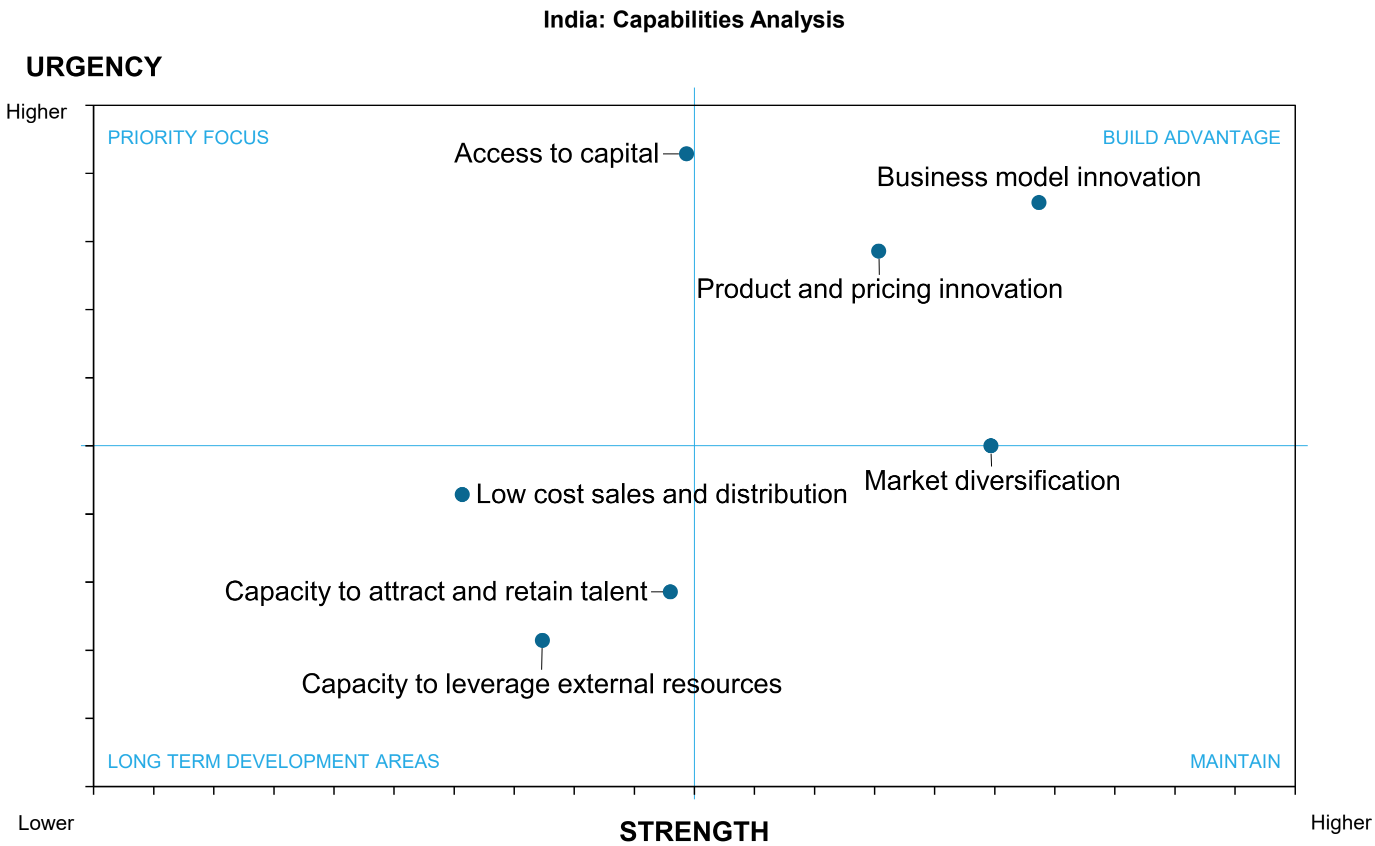


Figure 4 – India: Urgency vs Relative Strength of the Seven Key Capability Areas

Analysis of Market Capabilities in India

The India A2E sector is highly fragmented with small enterprises providing localised solutions into geographically disparate markets. In general terms for the India sector, *access to capital* has been identified as a key area that enterprises in India need to build capability in.

Executives need to focus on building competitive advantage from existing strengths in capability to innovate business models, capability in product and pricing innovation, and capability to diversify markets.

Over the long-term A2E enterprises need to incorporate into strategy, initiatives that further develop capabilities to lower the cost of sales and distribution, improve capacity to attract and retain talent, and improve capacity to leverage external resources.

This analysis has been conducted at a market-wide level and priorities should be set based on tailored analysis for each individual firm operating in the Indian A2E sector.

Analysis of Market Capabilities in Kenya

As a market generalisation, A2E enterprises operating in Kenya should be focusing on building competitive advantage from strengths in market diversification capability, strength in product and pricing innovation, strength in capability to access capital, and strength to attract and retain talent.

Strengths in business model innovation is a capability that should be maintained and incorporated into strategy.

Capacity to leverage external resources and low-cost sales and distribution capabilities should be considered as long-run development areas for enterprises in Kenya.

This analysis has been conducted at a market-wide level and priorities should be set based on tailored analysis for each individual firm operating in the Kenyan A2E sector.

Enterprises are encouraged to look objectively at the seven key capabilities outlined in this report, using the assessment framework provided. Completing a self-assessment aims to help enterprises understand the capabilities and their relative importance in the post-COVID A2E landscape, enabling scarce resources to be applied effectively in responding to the crisis today, whilst preparing for tomorrow. The self-assessment questionnaire is available in the appendix of this report.

Where do your enterprise capabilities map on the quadrant analysis? A self-assessment matrix provided in the Appendix can help you identify your strengths. Map these against the urgency values charted below as identified by industry bodies and investors.

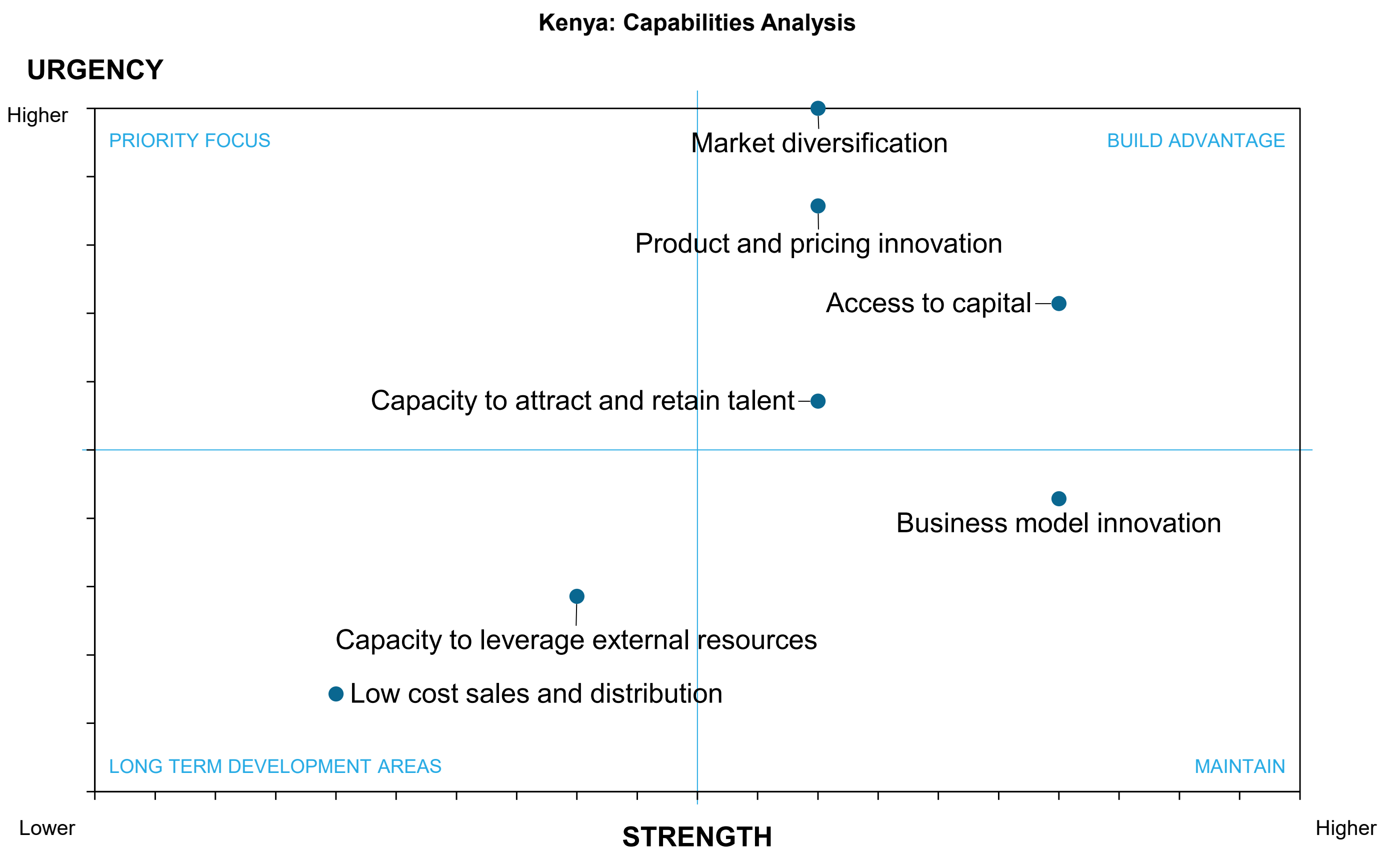


Figure 5 – Kenya: Urgency vs Relative Strength of the Seven Key Capability Areas

What action can be taken today?

RECOMMENDATIONS

Built on the global efforts to evaluate the impact of COVID-19 on the A2E sector to date this report provides additionality to the body of knowledge through a forward-looking approach. The report identifies the long-term consequences of the changes to strategy and business operations that the pandemic has forced on the sector which should be considered by enterprises and investors in the sector alike, as such, four broad recommendations have been developed:

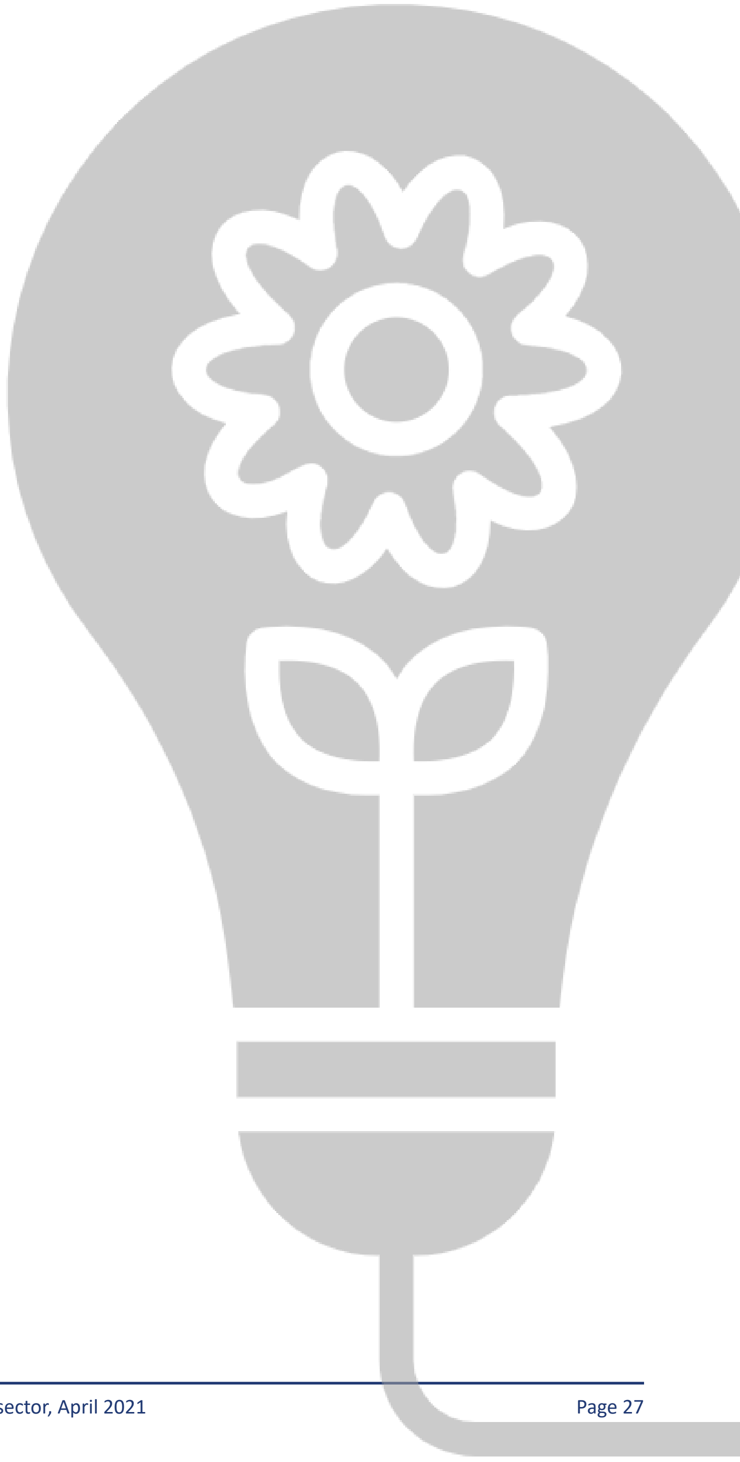
Recommendation 1. Investors and enterprises should consider the potential competitive landscape that will emerge following the pandemic period and make decisions today on where to invest scarce resources in strengthening enterprise capabilities. Investors should consider how insights from this report might shape the investment thesis for the future Access to Energy sector and enterprises should use the report as the basis for strategy development across the seven capability areas, which may form the basis for discussions with capital partners on how the enterprise is positioned for the post-COVID marketplace.

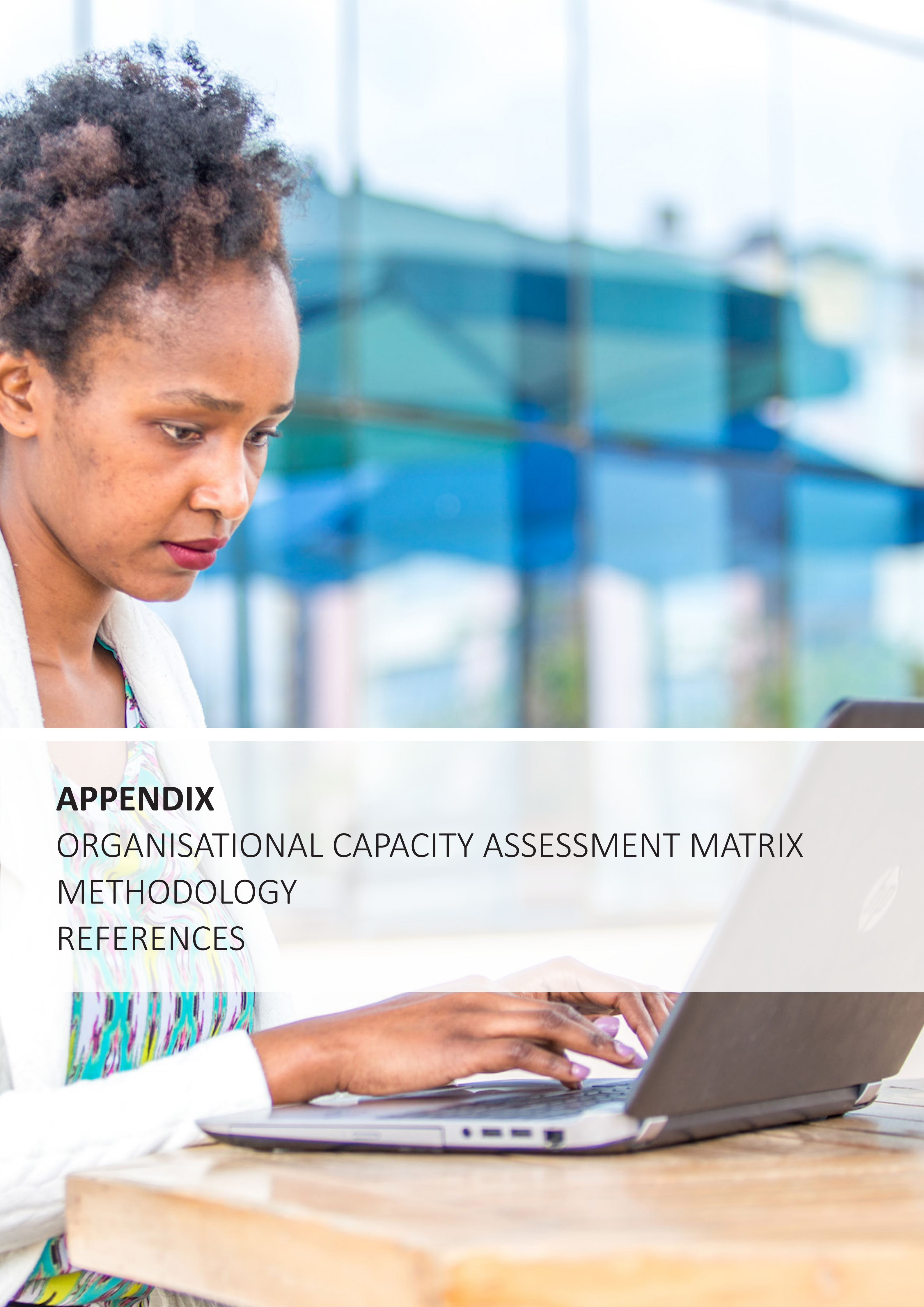
Recommendation 2. Enterprises should undertake a self-assessment through the matrix provided with this report and reassess strategies for each of the seven capability areas identified in the report. These capabilities are expected to impact how value is delivered to customers, and enterprises can compare their position today with the benchmark assessment the sector in India and Kenya. The seven capability areas are access to capital, market diversification, business model innovation, pricing and product innovation, ability to leverage external resources, low-cost sales and distribution models, and capability to attract and retain talent.

Recommendation 3. Investors should review how the seven dimensions of competitiveness are being considered by investment candidates, and whether the enterprise is building strategies for each capability area as potential sources of strategic advantage and growth in the post-COVID business environment. Investors should encourage investment candidates to complete the self-assessment benchmark, which aims to help enterprises understand the capabilities and their relative importance, enabling scarce resources to be applied effectively in responding to the crisis today, whilst preparing for tomorrow.

Recommendation 4. Investors and enterprises should consider the spectrum of enterprise responses to the COVID-19 pandemic and use the insights to consider how the three scenarios of potential industry evolution identified in the report may impact on an enterprise. The likely long-term shift towards industry consolidation in both economies of scale and in specialisation along the value chain was one key scenario identified during the work. The second scenario identified the potential for more sophisticated pricing across the sector. The third scenario identified the potential for evolution in last mile solutions that take advantage of lower cost digital channels.

In summary, this report identifies the long-term market impacts resulting from the COVID-19 responses and investments being made today. Furthermore, the report provides sector stakeholders, investors and A2E enterprises with a toolkit to understand how to plan for the competitive landscape that may emerge in the post-COVID environment. We invite the sector to engage in the findings, provide feedback and undertake a self-assessment using the toolkit provided by this report to identify new opportunities as the world begins its recovery from this pandemic.





APPENDIX

ORGANISATIONAL CAPACITY ASSESSMENT MATRIX

METHODOLOGY

REFERENCES

APPENDIX A – ORGANISATIONAL CAPACITY ASSESSMENT

Capability / Strength	FULLY DEVELOPED (5)	ABOVE AVERAGE (4)	AVERAGE (3)	EMERGING (2)	NOT DEVELOPED (1)
Access to capital Map strength value to urgency for matrix analysis: India urgency: 4.5 Kenya urgency: 3.6	The enterprise has demonstrated that it is attractive to investors and has been successful in raising multiple rounds of equity capital to date; it has strong links to impact which broadens the pool of investors; it has access to debt facilities and the enterprise may also have a corporate structure that enables access to capital from parent companies or other strategic partners.	The enterprise has demonstrated that it is attractive to investors and has been successful in raising an initial round of equity capital to date; it has strong links to impact which broadens the pool of investors; and has demonstrated capacity to take on debt.	The enterprise has an experienced management team and demonstrates maturity in business processes, displaying characteristics of investment readiness and it has some links to impact; however it has not yet raised capital.	The enterprise has an attractive business proposition; it is developing a management team and proposition that could be capable of attracting capital.	The enterprise is not investment ready and needs to develop capacity to successfully attract capital.
Market diversification Map strength value to urgency for matrix analysis: India urgency: 2.4 Kenya urgency: 5.0	The enterprise has highly diversified revenue sources across multiple customer groups, geographies, markets, products or services.	The enterprise has balanced and diversified revenue sources across multiple customer groups and products or services.	The enterprise has balanced and diversified revenue sources across at least two products or services in the same customer group.	The enterprise generates the majority of its business from a single customer group and is starting to cross sell other products or services into that market.	The enterprise generates its revenue from a single market.
Business model innovation Map strength value to urgency for matrix analysis: India urgency: 4.5 Kenya urgency: 2.1	The enterprise has demonstrated an advanced ability to repeatedly create and sustain new customer value through highly creative configuration of resources and innovation in supply chains in response to changes in cost and market pressures.	The enterprise has demonstrated repeatedly its ability to create and sustain new customer value through configuring resources and innovating in supply chains in response to changes in cost and market pressures.	The enterprise has demonstrated it can create and sustain new customer value through organising its resources and supply chains in line with cost and market pressures.	The enterprise is delivering products or services through tailoring a standard business model to fit local cost pressures.	The enterprise is delivering products or services based on a standard and well-known business model.

Pricing and product innovation Map strength value to urgency for matrix analysis: India urgency: 3.8 Kenya urgency: 4.3	The enterprise has the capacity to generate insights into each segment of demand and configure novel bundles of products and services with different pricing strategies and contract options that meet each segment of demand.	The enterprise has demonstrated it can identify different segments of demand and configure bundles of products and services with different pricing strategies and contract options that meet the demand.	The enterprise has the ability to configure bundles of products and services with different pricing strategies and contract options that meet the demand.	The enterprise is delivering a configured bundle of standard products and services to meet a specific price point.	The enterprise is delivering a standard set of products and services at the market price.
Ability to leverage external resources Map strength value to urgency for matrix analysis: India urgency: 1.2 Kenya urgency: 1.4	The enterprise has a significant leverage over resources outside of the organisational boundary through well-established partnerships that address gaps in key areas of the enterprise value chain.	The enterprise leverages some resources outside of the organisational boundary through one or more well-established partnerships that address gaps in key areas of the enterprise value chain.	The enterprise operates a well-established partnership that complements the enterprise's operation.	The enterprise is in the early stages of a partnership that complements the enterprise's operation.	The enterprise operates stand-alone with limited demonstration of ability to work with other organisations.
Low-cost sales and distribution models Map strength value to urgency for matrix analysis: India urgency: 2.4 Kenya urgency: 0.7	The enterprise has demonstrated capacity to adapt and refine highly flexible sales and distribution models that can scale to address multiple different and very large markets without significant increase in unit costs.	The enterprise has established a highly flexible sales and distribution model that can scale to address very large markets without significant increase in unit costs.	The enterprise has established a sales and distribution model that can scale to address a larger market without significant increase in unit costs.	The enterprise has started to invest in shifting fixed to variable costs to improve scalability of its sales and distribution model.	The enterprise has a sales and distribution model that is constrained by fixed costs and unable to scale efficiently.
Capacity to attract and retain talent Map strength value to urgency for matrix analysis: India urgency: 1.2 Kenya urgency: 2.9	The enterprise has a well-known brand, reputation and organisational maturity that enables it to attract and retain talent as an employer of choice among the talent in the sector.	The enterprise has a good reputation and organisational maturity that enables it to attract and retain talent, with a stable and engaged workforce relative to the sector.	The enterprise has developed an organisational maturity that enables it to attract talent whilst demonstrating a relatively low staff turnover for the sector.	The enterprise has started to invest in management capacity, leadership and institutional systems to improve talent attraction and retention.	The enterprise lacks the organisational capacity to attract and retain talent and suffers from talent shortages and high staff turnover.

APPENDIX B – METHODOLOGY

This report was prepared through a literature review supplemented by primary research using a combination of 1-1 interviews and a structured survey across 24 investors, industry bodies and A2E enterprises. The majority of these interviews were with organisations focused solely on India and Kenya. The sampling has aimed to obtain input from a range of organisations, rather than seeking a statistically representative market sample.

The seven capability areas were identified and developed through the findings of the interviews, followed up with repeated interviews with investors, industry bodies and A2E enterprises to refine and validate, and coupled with a literature review focused on the actions and impacts on firms operating in the sector.

The research team engaged investors and industry representatives in an exercise to validate the seven factors using the statements for each factor as presented in Table 1 - Seven key factors of competitiveness in the post-COVID market, and multi-choice answers ranging from *Strongly Disagree* to *Strongly Agree*. This enabled an indication of which capability areas resonated with the market, and through multiple iterations with feedback from investors and industry representatives, capability areas deemed less important were removed from the set.

Secondly, the online questionnaire facilitated a forced-ranking of the capability areas. Whilst the final set of seven capabilities received on average an 'agree' or 'strongly agree' rating, indicating that all are important in their own right, the forced ranking identified a spectrum of which factors should be higher degree of urgency for enterprises with limited time and resources to invest in capability building.

Finally, a group of investors and industry representative bodies undertook a structured assessment of A2E enterprises operating in India and Kenya across the seven capability areas. Investors were asked to identify and assess a "basket of companies" operating in the sector against the seven capabilities, using a structured scoring matrix that ranged from lowest score *'Not developed'* through to highest score *'Fully Developed'*. The individual company scores were aggregated by the research team and anonymised before the average scores for the basket were presented to Shell Foundation as an "investor view" on the sector, this view represented high performing companies that were successful in attracting external capital. Similarly, industry representative bodies were asked to take a whole-of-industry view on the general level of capacity in the sector across each of the seven factors, not singling out the performance of any individual company. These were aggregated and averaged to produce an "industry view" on the current level of capacity in the sector.

REFERENCES

(n.d.). Retrieved from Invest India: https://www.investindia.gov.in/sector/renewable-energy

Abhishek Jain, J. U. (n.d.). Measuring Energy Access in India. CEEW. Retrieved from https://www.ceew.in/sites/default/files/MeasuringEnergyAction.pdf

CEEW. (2019). Realising the Ujjwala Dream. Council of Energy, Environment and Water. Retrieved from https://www.ceew.in/publications/realising-ujjwala-dream

CEEW. (2020). Energy Safety Nets, India Case Study Policy Brief. India: Council on Energy, Environment and Water.

EnDev survey. (2020). Retrieved September 29, 2020, from EnDev: https://endev.info/images/2/2a/EnDev_Energy_Access_Industry_Barometer_Summary_FINAL.pdf

Global Association for Off- Grid Solar Energy. (2020). Retrieved September 28, 2020, from GOGLA website: https://www.gogla.org/about-us/blogs/monitoring-the-vital-signs-covid-19-and-the-off-grid-solar-industry

GOGLA. (2020). Global Off-Grid Solar Market Report Semi-Annual Sales and Impact Data. GOGLA.

Government of Kenya. (2020). Kenya Off-Grid Solar Access Project (KOSAP). Retrieved from KOSAP: https://kosap-fm.org/

How COVID-19 is reshaping the future of energy sector. (2020, July 1). The Economic Times. Retrieved from https://energy.economictimes.indiatimes.com/news/renewable/opinion-how-covid-19-is-reshaping-the-future-of-energy-sector/76545373

How India can continue to be a leader on energy access. (2018, February 12). The Economic Times. Retrieved from https://energy.economictimes.indiatimes.com/energy-speak/how-india-can-continue-to-be-a-leader-on-energy-access/2890

IDA. (2019). IDA Energy Outlook. Retrieved September 29, 2020, from IDA: https://www.iea.org/articles/kenya-energy-outlook

IEA. (n.d.). Retrieved from iea.org: https://www.iea.org/countries/india

IEA. (2020). The Covid-19 crisis is reversing progress on energy access in Africa. Paris: IEA.

IEA, I. W. (2020). Tracking SDG 7 Executive summary. The World Bank. Retrieved from https://trackingsdg7.esmap.org/data/files/download-documents/tracking_sdg_7_2020-full_report_-_web_0.pdf

IISD, CEEW. (2020). How can India's energy sector recover sustainably from COVID 19? Retrieved from https://www.iisd.org/articles/how-can-indias-energy-sector-recover-sustainably-covid-19

International Data Centre. (2020). Retrieved September 29, 2020, from IDC website: https://www.idc.com/getdoc.jsp?containerId=AP46308220

International Energy Agency. (2019, November 13). IEA. Retrieved September 28, 2020, from https://www.iea.org/: https://www.iea.org/articles/defining-energy-access-2019-methodology

International Energy Agency. (2020). The World Energy Outlook 2020. Retrieved from https://www.iea.org/reports/world-energy-outlook-2020

NRDC, CEEW, IREDA. (2018). Clean Energy for all: Framework for Catalytic Finance for underserved clean energy markets in Inida. Retrieved from https://www.nrdc.org/sites/default/files/catalytic-finance-underserved-clean-energy-markets-india-report-201810.pdf

OECD. (2020, June 12). Retrieved September 29, 2020, from OECD website: http://www.oecd.org/coronavirus/policy-responses/covid-19-and-international-trade-issues-and-actions-494da2fa/

OECD. (2020, June 12). Covid-19 and International Trade Issues and Actions. Retrieved from OECD: http://www.oecd.org/coronavirus/policy-responses/covid-19-and-international-trade-issues-and-actions-494da2fa/

(2014- 2015). Off-grid Renewable Energy in India. Retrieved from https://www.energyforum.in/tl_files/downloads/Publications/Final%20RETS%20brochure_th.pdf

Renewable energy investors to become picky post covid. (2020, June 17). The Economic Times. Retrieved from https://energy.economictimes.indiatimes.com/news/renewable/renewable-energy-investors-to-become-picky-post-covid-say-industry-experts/76416683

Sharma. (2020). The Adoption and Use of Solar Mini-Grids in Grid-Electrified Indian Villages. India: Council on Energy, Environment and Water.

The Economic Times. (2020, July 21). TERI sounds the alarm on damage to India's electricity demand from Covid. The Economic Times. Retrieved from https://energy.economictimes.indiatimes.com/news/power/teri-sounds-the-alarm-on-damage-to-indias-electricity-demand-from-covid/77092262

The road ahead for India's solar power sector. (2020, May 22). The Economic Times. Retrieved from https://energy.economictimes.indiatimes.com/news/renewable/opinion-covid-19-the-road-ahead-for-indias-solar-power-sector/75890415

The World Bank. (2018). Kenya National Electrification Strategy key highlights. The World Bank. Retrieved September 29, 2020, from http://pubdocs.worldbank.org/en/413001554284496731/Kenya-National-Electrification-Strategy-KNES-Key-Highlights-2018.pdf

The World Bank. (2020). Poverty and Distributional Impacts of COVID-19:. The World Bank. Retrieved September 29, 2020, from http://pubdocs.worldbank.org/en/980491587133615932/Poverty-and-distributional-impacts-of-COVID-19-and-policy-options.pdf

Tongia, R. (2020, May 19). Retrieved from World Economic Forum: https://www.weforum.org/agenda/2020/05/india-renewable-energy-transition-index-2020-covid-19-coronavirus-pandemic-lockdown-risk-model/

World Bank. (2020, June 8). Updated Estimates of the Impact of COVID-19 on Global Poverty. Retrieved from World Bank Data Blog: https://blogs.worldbank.org/opendata/updated-estimates-impact-covid-19-global-poverty

World Health Organisation. (2020, May 28). World Health Organisation. Retrieved September 28, 2020, from https://www.who.int/news-room/detail/28-05-2020-covid-19-intensifies-the-urgency-to-expand-sustainable-energy-solutions-worldwide