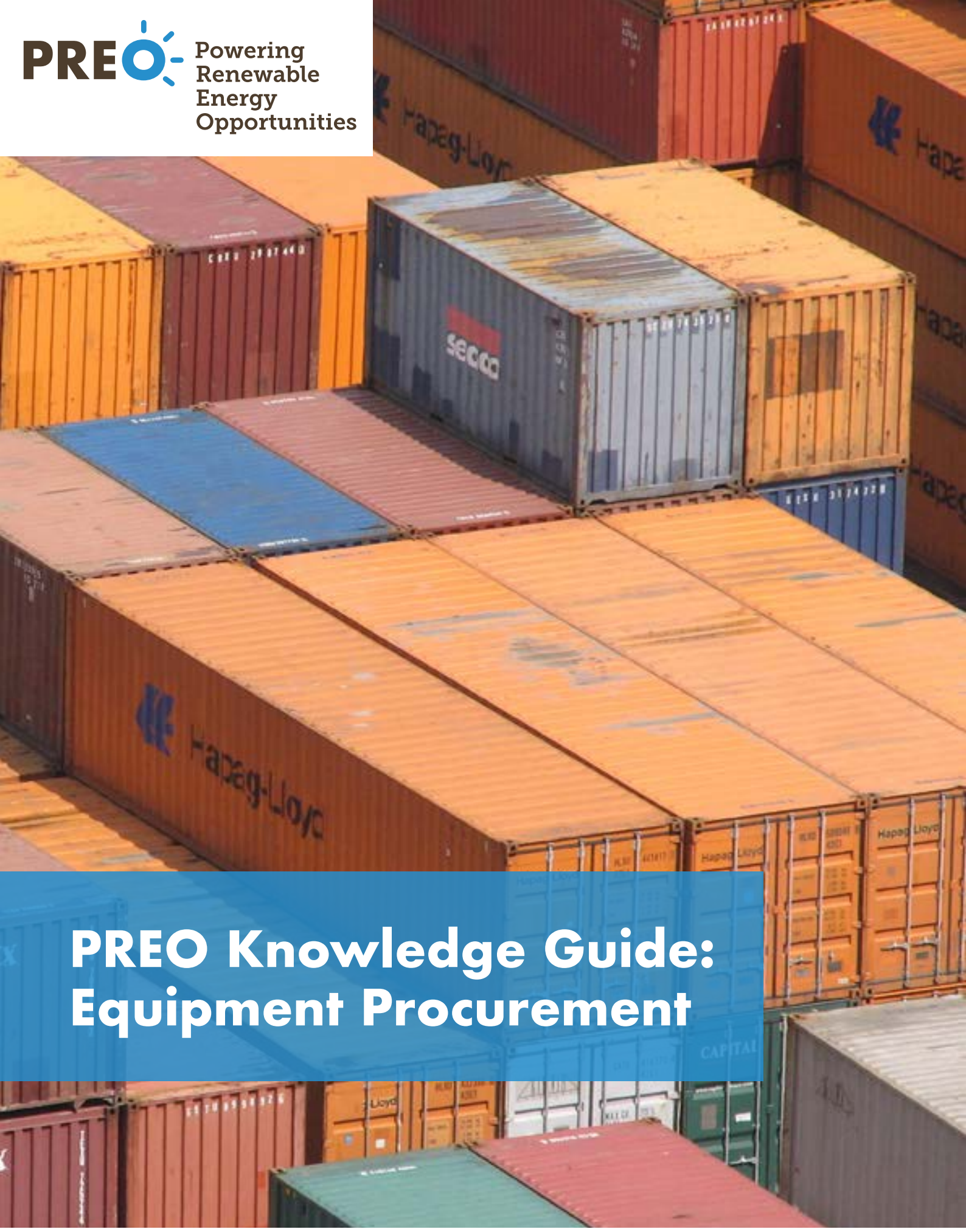
PREO Powering Renewable Energy Opportunities



PREO Knowledge Guide: Equipment Procurement

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ENERGY4IMPACT

PREO Knowledge Guide: Equipment Procurement

CONTENTS

PART 1

INTRODUCTION

EXECUTIVE SUMMARY

This knowledge guide examines the procurement management processes implemented by organisations funded under the Powering Renewable Energy Opportunities (PREO)[1] programme in Kenya, Uganda, Tanzania, Nigeria, Sierra Leone, Benin, Burkina Faso and Lesotho.

It highlights current local supply chains for clean, productive use of energy (PUE) equipment and machinery in Africa and identifies key insights, support gaps and lessons learnt about the challenges, opportunities and successes from projects that purchased such equipment and machinery.

Local supply chains are still growing and current regulations do not fully support manufacturing of clean energy equipment and machinery. Furthermore, regulations and policies greatly impact supply chain activities such as shipping, port clearance and equipment delivery from international markets. For example, regulatory requirements determine the amount of payments at ports and the costs incurred are dependent on the type and size of equipment imported.

When developing their procurement models, organisations use different strategies that enable the creation of partnerships along the supply chain to manage risks, reduce costs, increase local and international market knowledge, improve technical skills and ensure quality. Building or strengthening relationships with local players and relevant government bodies has the potential to ensure procurement activities are well-executed.

BACKGROUND TO THE PREO KNOWLEDGE GUIDES

PREO aims to support PUE as well as local value addition and employment creation in sub-Saharan Africa (SSA). The projects funded through the PREO programme receive support to generate insights into the best ways to use expanded energy access in off-grid areas to improve livelihoods, economic growth and services. This knowledge guide aims to give the wider public an insight into how the portfolio addresses certain topics and thereby provide potential best practice solutions for the off-grid energy sector in SSA.

GLOBAL SNAPSHOT

With a growing demand for energy in Africa, African governments are under pressure to increase energy supply for their populations, especially from sustainable energy sources. The urgency has led to the formation of public-private partnerships in the energy access sector to advance access to renewable energy on both small and large scales. Yet, with an inadequate manufacturing capacity and lack of technologies readily available in the local market, energy companies often procure energy equipment and related machinery from international markets with more robust manufacturing industries, such as those in India, China and Europe. Further, Africa's shipping procedures and ports do not always align with global trends and standards. Most African countries have either inadequately-developed ports or limited facilities which result in poor operations, management and processes within the ports. The infrastructure gaps, coupled with unstructured and inconsistent processes, can often exacerbate logistical, shipping, delivery and regulatory compliance challenges that companies face when importing equipment from international markets to Africa.

Additionally, the design of a company's procurement model is largely determined by the supplier market in which it operates and its overall company strategy. Given the dynamism of both local and global supplier markets, the procurement function of a company should remain flexible to accommodate changes. Necessary adaptations might revolve around supply chain structures, sourcing strategies, technological changes, end-user needs, policies and regulations, supplier limitations or innovations, and crises such as pandemics, as seen in the case of COVID-19.

"With a growing demand for energy in Africa, African governments are under pressure to increase energy supply for their populations, especially from sustainable energy sources."

1. PREO is a programme funded by the Transforming Energy Access (TEA) programme of the UK's Foreign, Commonwealth & Development Office (FCDO), and the IKEA Foundation, and implemented by The Carbon Trust and Energy 4 Impact. For more information on the wider TEA programme, please see https://tea.carbontrust.com. For more information on PREO, please see https://www.preo.org/.

This guide will examine how energy companies managed their procurement activities for projects supported under this programme with a focus on the topics listed below:

- Contracting, procurement approaches, supplier selection, inventory cycles, quality and cost of equipment;
- Availability of, and warranty terms for, equipment; shipping, local transportation and delivery of equipment, assembly or installation of equipment, customs and imports taxes or duties; and
- Local supply chains in Africa for off-grid electric (OGE) and PUE businesses.

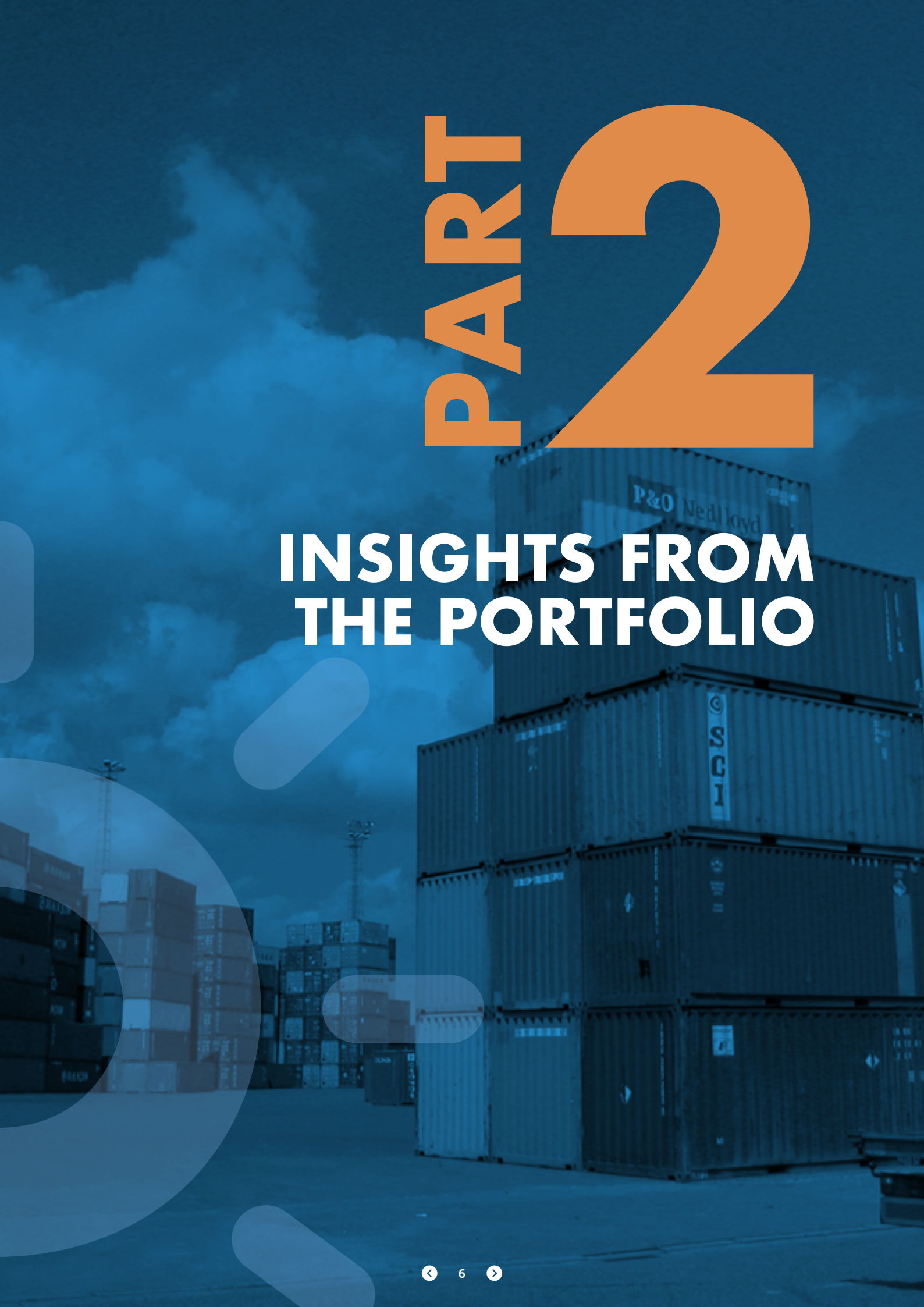
Note: The COVID-19 pandemic has greatly affected the clean energy sector, including the procurement of energy equipment and other machinery, for projects on a local and global level. To learn more about the effects and management of the crisis, this guide should be read in conjunction with the Crisis Management Knowledge Guide.

BEST PRACTICES

Previous studies from organisations such as Ernst & Young (EY)[2] and International Finance Corporation (IFC)[3] have discussed procurement best practices to help companies create more value in their procurement processes, and improve performance of their procurement functions. Technological advances in recent years have also led to digital transformations that have opened up new performance perspectives for companies' procurement functions, and improved their relationships with suppliers. For instance, there is the development of new digital solutions such as Intelligent Content Extraction (ICE) that uses Optical Character Recognition (OCR) and learning algorithms to aid its users in reading unstructured documents such as PDFs of contracts, specification drawings, bills of material, and extract data such as pricing details, payment terms, and termination clauses that would otherwise have taken days or weeks to consolidate. Other emerging software can enable real-time tracking of online or physical activity which can be used to monitor supplier behaviour and performance to possibly provide trends and predictions on supplier risks. On the other hand, the existence of low-cost computing and data storage systems is enabling companies to maintain supplier information in the cloud, as well as manage supplier performance and identify, monitor, and escalate supplier risks faster. These solutions are beginning to transform procurement performances and companies have the opportunity to incorporate them in their own processes to cut down on delays and errors while ensuring efficiency, and timely decision making.

"Technological advances in recent years have also led to digital transformations that have opened up new performance perspectives for companies' procurement functions, and improved their relationships with suppliers."

2. Five Things: Getting the basics right in procurement
3. A Guide to Getting Started with Local Procurement



PART 2

INSIGHTS FROM THE PORTFOLIO

KEY CONSIDERATIONS

Companies supported under the PREO programme procured equipment directly from suppliers through both traditional and modern methods such as request for quotations, direct procurement, electronic reverse auction and online marketplaces. Companies that opted to procure equipment through online marketplaces cited advantages such as obtaining instant feedback on the level of satisfaction others experienced when engaging potential suppliers. Equipment procured through electronic reverse auctions were influenced by the cost of equipment and machinery. In instances where the cost of equipment was too high, companies purchased pre-owned equipment through auction bids in order to fit within the budget available and to enable companies to procure all the needed equipment and components for their projects. The majority of the companies did use traditional procurement methods which saw them begin their procurement process by either hiring technical experts or making use of in-house technical team in designing the product and determining the technical specification. The internal procurement due diligence processes included supply chain analysis, supplier audits, quality assurance certification or licensing evaluation. The technical evaluation was in some cases carried out together with potential suppliers identified: suppliers would present new product information, which companies would use to update technical specifications.

The equipment and machinery purchased included solar panels, batteries, inverters on the energy generation side, as well as agro-processing machines such as grinders, solar water pumps, solar fridges and e-vehicles on the PUE equipment side from suppliers in China, India, Italy, South Africa and local suppliers in the projects' countries of operation.

"The supplier identification process took approximately 6 to 12 weeks to complete. However for some companies the process of identification, selection and evaluation is continuous and suppliers are changed where necessary."

The equipment was sourced from a combination of both new and existing suppliers and the companies prioritised an array of factors to find the most reliable and suitable suppliers. These included:

- Cost of equipment;
- Availability and lead time;
- Safety features of equipment;
- Product technical specifications (flexibility in product design);
- Reputation and experience of suppliers;
- Product quality, reliability and warranties;
- Long-term supplier suitability – cost decrease with volumes and production capacity;
- Product sustainability and lifecycle impact; and
- Supplier agility to adapt to company needs and communication.

Most companies identify suppliers and select trading terms and procurement processes based on International Commercial Terms (Incoterms®[4]). Incoterms give clarity on the responsibilities that buyers and sellers take up when carrying out transactions that cut across activities such as payment and management of shipping, insurance, documentation, customs clearance, and other logistical activities.

The supplier identification process took approximately 6 to 12 weeks to complete. However for some companies the process of identification, selection and evaluation is continuous and suppliers are changed where necessary. Companies that procured equipment from local suppliers had the opportunity to carry out due diligence by visiting the sites of customers who had previously worked with the potential suppliers identified. This minimised the costs and amount of time spent on evaluating and selecting suppliers. In other instances, the process took 6 months as the selection process was part of a feasibility study which involved inspecting the mobility of the equipment and conducting consumer product testing visits at the suppliers' local base of operations. Some companies opted to select suppliers whose energy equipment had already been assembled, tested and verified by respective standardisation offices.

4. The International Chamber of Commerce (ICC) is retailing a copy of the Incoterms®2020 at €45 (€40 e-book) which contains the latest ICC rules for use of the 11 Incoterms® trade terms. It provides importers, exporters, lawyers, transporters, insurers and students in the international arena with rules and guidance reflecting the latest developments in the trading environment.

The majority of energy companies supported under the TEA programme relied on foreign suppliers. However, there is technical expertise available on assembling and installing equipment in the countries where the projects operate either within the companies or local service providers. The below discusses the different considerations related to procurement that the companies in our portfolio made:

- **Supplier identification and selection costs:** these are mainly related to personnel, communication and travel costs especially in cases where the processes are handled internally by the procurement and supply chain teams. Long supplier identification processes can however be very time-consuming, leading to high costs and reduced resources for other prioritised areas. Some companies selected suppliers through the recommendations of their professional networks in order to gain track records for successful transactions made with potential suppliers.

- **Contracting:** The contracting phase involved defining, negotiating and agreeing the delivery schedule, payment terms (which varied as some companies had to pay the full price of equipment in advance while others placed a deposit with the supplier, mainly with local suppliers), type of warranty and enforcing terms, product specifications, duration of and costs related to inspection and testing of prototypes (for companies that procured finished products, this activity was carried out during the supplier selection process).

- **Warranty:** The standard supplier warranty depends on the type of equipment procured. For equipment shipped from China, the warranty aspect is usually complicated by shipment cost to return defective goods. Some equipment comes with workmanship warranties, performance warranties, right to product reclaim or complaint. Additionally, several products that consist of sub-components have a level of reparability that can be done with spare parts. Overall, the after-sales process and communication is key in helping companies determine which warranty is most suitable for the equipment procured. For some companies, their suppliers have a local installation partner who provides after-sales support and this includes shipping in components that need to be replaced (the agreement in the contracts determines who will incur related costs). A company that ships in solar PV systems has a comprehensive warranty provided by the supplier. This type of warranty covers nearly all components procured, but the warranty is only available within a short period and ranges between 3 and 4 years. Routine maintenance of equipment was also one of the terms included in warranty agreements, and service providers scheduled routine maintenance every quarter.

  Enforcing terms of warranties depends on the type of equipment and supplier. The terms are defined according to the warranty agreement or warranty details in the contract. However the terms can be enforced due to product failure or supplier's failure to meet expected product performance or specifications as initially agreed. The claim however needs to be done within a certain time after the arrival of the component. Other companies are able to activate their warranty upon equipment breakdown. Suppliers provide the option of shipping the equipment back for repair if the company is not able to repair it remotely through the use of local technicians. The turnaround time on a warranty depends on whether it is claimed from product arrival pre-inspection, failure from usage, or failure to meet the defined product performance or specifications. In some cases, warranty claims can be done efficiently with only remote communication, but occasionally the failed component needs to be sent back to the supplier for internal evaluation before the claim can be approved and replacement parts dispatched. For goods sourced from EU countries, companies' equipment are covered by a standard 2 year warranty from the date of delivery.

- **Inventory cycle and working capital:** Some suppliers have a specific number of pieces of energy equipment they assemble and ship each quarter, therefore orders have to be submitted and full payment made well in advance. Having availability of stand-by units of equipment in countries where the project is implemented would be ideal to limit delay in delivery especially in cases where the cause of delay is by uncontrollable factors such as the COVID-19 pandemic.

  The modes of container shipment used by suppliers – Full Container Load (FCL) vs Less than Container Load (LCL) – might slow down delivery time of equipment and can affect working capital dependent on the volumes of equipment being shipped. For instance, a company shipping a prototype from China experienced delays and incurred higher costs as the equipment was shipped using LCL rather than FCL. Other companies that work with several suppliers consolidate as many shipments as possible. The suppliers ship their products to a location where the components are consolidated and then shipped together to their destination. This method is intended to minimise cost, but tends to be more time-consuming as it is reliant on suppliers having products dispatched at similar times.

- **Lead time:** For international orders, the time between order to arrival of equipment or components takes an average of 3 months.

- **Importation:** The choice of Incoterms®, transfer of ownership of equipment, risk profile and insurance component was important, but required additional negotiations, especially when consolidating Ex Works[5] (EXW) Incoterms® with Cost, Insurance, and Freight (CIF) shipments to save on transportation costs, which vary based on the location a supplier has selected to transfer ownership of equipment purchased.

- **Language barrier:** Some companies that procured equipment solely from China have an in-house Mandarin speaker to avoid miscommunication with suppliers and manufacturers.

- **Supply Chain Management (SCM) tools:** Some companies used SCM tools to segment suppliers based on the risk of the supply market and value offered by suppliers. One company used Kraljic matrix, a tool used to implement purchasing strategies influenced by the strengths and weaknesses of an organisation and their suppliers. The Kraljic matrix provided insights into the availability of alternative products and suppliers in the market, and helped with defining companies' optimal purchasing strategy based on the factors it had prioritised in selecting suppliers, such as cost, lead time, availability and quality.

- **Outsourcing procurement:** In some cases, organisations do not have the capacity or the expertise to carry out their procurement needs. As a result, they either form partnerships with other organisations to complete the procurement, or outsource to service providers. A project working with rural health clinics in Kenya outsourced its procurement, transport and installation activities to a local technical company. Even when outsourcing, an organisation should still play an active role, ensuring that these activities are well-executed within the allocated budget and stipulated time in the contract without compromising on the quality of the equipment sourced. In one case, an organisation maintained an in-house procurement officer to oversee the process.

- **Local procurement:** Some equipment is readily available in local markets, so projects can source from local suppliers to save on shipping and delivery costs. For example, a project assembling electric motorcycles acquired most of the motorcycle components from local shops and hardware stores. Another project aiming to process fish feed and provide cold storage for fish acquired a milling machine, freezers and fish coolers from local suppliers that readily stock equipment manufactured and shipped by international brands.

- **Local assembly and installation:** One project procured equipment from China, which was sent to the UK for testing before shipment to Sierra Leone, where it was assembled at the project's own workshop. Another project operating in East Africa procured some equipment components from China but other components locally, then assembled the final product at its workshop in Kenya. Having the capacity to assemble or install the equipment on-site gives more flexibility in procurement and offers the opportunity for the project to offer user training to its customers. Furthermore, the project stands to have an even greater impact on the community by not only improving the customers' technical skills, but also creating more job opportunities for residents living in and around the areas where the projects are deployed.

PROCUREMENT APPROACHES

In today's highly competitive global market, both reactive and proactive approaches are relevant to a project's procurement activities. The reactive approach is an unplanned activity, often taken by an organisation to address an unforeseen situation (e.g. mechanical breakdowns). The proactive approach involves planning and coming up with systematic steps before signing an agreement between the parties involved and taking on project activities (e.g. scheduled maintenance). For an organisation to have an effective supplier management framework, it should aim to develop a proactive approach where possible and a reactive approach only where necessary. The framework needs to include supplier segmentation, performance management tools and a clear articulation of organisational accountability and responsibility.

Projects within the PREO programme have had to make changes in their procurement approaches to accommodate government restrictions in response to COVID-19. For example, one mini-grid developer who usually procures from international markets sourced equipment from local and regional suppliers to avoid high shipping and delivery costs, and potential delays of equipment at the port caused by COVID-19 related lockdowns. This change has

5. This is one of the 11 Incoterms where a supplier determines the shipping arrangement and the specific location where the equipment will be transferred to the buyer, and the buyer is required to pay the transportation costs to the location.

brought benefits for the project as local authorities manning the port's entrance for international shipping normally either fail to honour the policies governing the deferral of import duty and VAT payment on tax-exempt energy equipment, or have conflicting interpretations of them. This has in the past proven to be time-consuming, costly and caused project delays, however local and regional procurement has eliminated that problem. The cost of equipment from international suppliers is also in some cases highly inflated due to a lack of standardised processes when it comes to transport, loading, insurance, and storage.

KEY CONSIDERATIONS FOR PROCUREMENT APPROACHES

Do your company's contracts and supplier relationship management frameworks comprehensively manage performance and risk?	Some suppliers look for commitments from their clients and opportunities for improving relationships and shifting contracts from an adversarial model to a more collaborative gain-sharing approach.	Will your company be purchasing similar equipment from different suppliers in different locations?	Is your company leveraging all possible discounts or interest from its payment process?
The type of risks that should be assessed include financial stability of suppliers, ethical performance, quality control, technical skills and supply chain stability.	How effective is your company's procurement team at achieving savings and improving service delivery?	Will your company integrate its strategic suppliers into its long-term plans?	Has your organisation's performance contract addressed the warranty period and type of after-sales services it will receive from its suppliers?
What are your backup options if your preferred procurement option changes or does not work out, and what influence does this have on the project delivery?	What part of the supply chain can be localised and what would the impact of this be?	How can local procurement decrease cost and increase quality?	What are the advantages of demonstrating success at local procurement to win future concessions?
Is there evidence of growing cost, disruption or risk associated with a reliance on international suppliers?	Is your company procuring equipment in bulk or individually?	The integration of key suppliers into longer-term demand planning processes will yield value. Some suppliers may be willing to reduce costs in return for a long-term commitment.	Does your organisation have adequate knowledge of existing technical support for equipment and supplier identification in the market?
What are the relevant policies in the countries that your company is planning to procure from and planning to import into?			

LOCAL SUPPLY CHAINS IN AFRICA

In 2018, The World Bank published the Logistics Performance Index (LPI)[6] rankings which compares the logistics performance of 160 countries in the world using six key components; customs, infrastructure, international shipments, logistics competence, tracking and tracing, and timeliness. Only 7 African countries were in the top 80: South Africa, Côte d'Ivoire, Rwanda, Kenya, Egypt, Benin and Mauritius. Africa's participation in global trade and production is low and this can be attributed to poor institutional quality, characterised by corruption, weak rule of law, bureaucracy and poor enforcement policies both domestically and regionally.

The economic challenges highlighted by the ongoing pandemic have reinforced the need for African governments to support the growth and expansion of supply chains. It needs to stimulate production in both upstream and downstream supply chains, encompassing manufacturing/ assembly of energy equipment, construction and installation of decentralised energy systems, operations and maintenance of energy systems and appliances, as well as a range of support services (see Figure 1). Despite efforts in recent years to create an environment favourable to the renewable energy market, current regulations do not fully promote local solar production. Instead, they provide incentives for importing off-grid solar equipment. In countries where legislation aims to reduce the carbon footprint by increasing local manufacturing, there is still little to no enforcement of these policies.

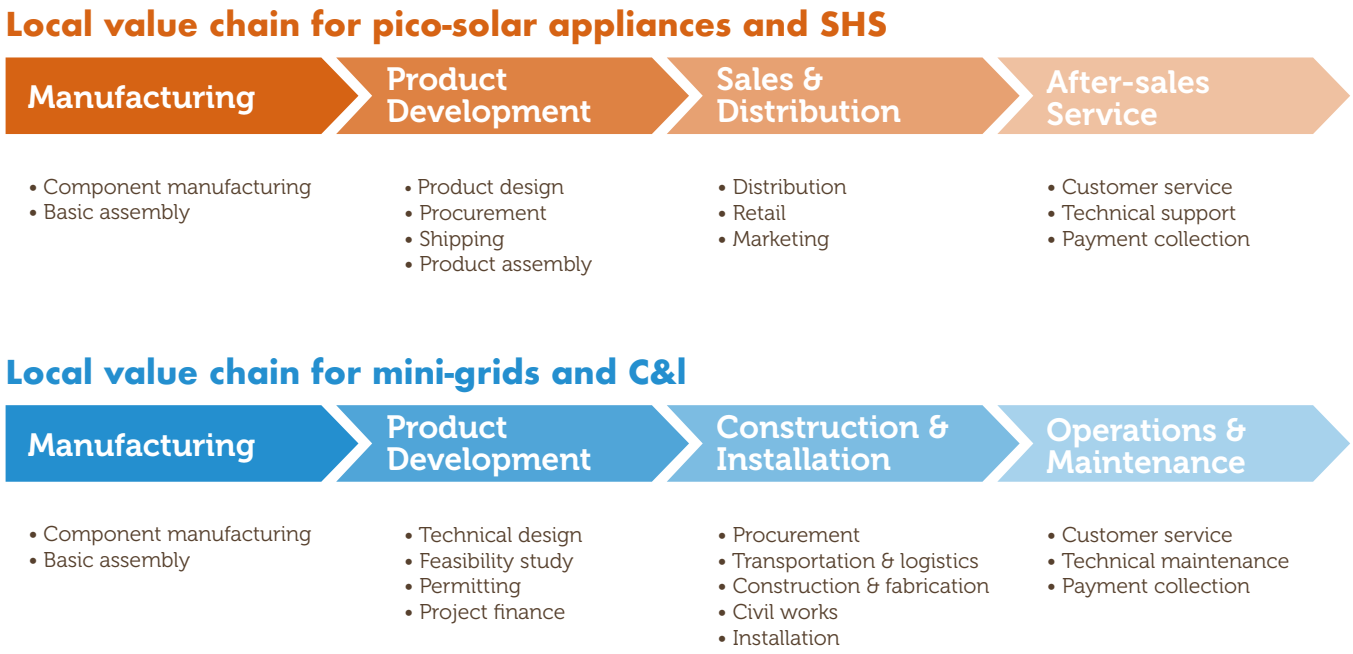


Figure 1: Clean energy local value chains by Power For All

Some regions on the continent are however beginning to see an increase in local production with companies such as Solinc in Kenya locally manufacturing solar panels and assembling home solar kits that include batteries, phone chargers and LED lights. Eighty percent of Solinc's products are sold in the Kenyan market, and the rest are sold in East Africa. Some of the projects supported in this programme have set up plants to manufacture and assemble clean technologies. These include improved cookstoves in Kenya, solar home systems in Burkina Faso, and remote monitoring systems in Uganda that aid in remotely monitoring the parameters of solar appliances such as solar water pumps.

In recent years, China has emerged as a major investor in Africa and has established economic relationships with most African countries. As a result, projects addressing increased demand for energy in Africa import machinery and other electrical equipment mainly from China. Import tax rates and customs duty fees vary widely from one country to the next. For example, with a VAT between 9-13%, China is slightly lower than Kenya with 14% VAT, except for some products that are completely exempt.

6. https://lpi.worldbank.org/international/global

PART 3

CHALLENGES AND SOLUTIONS IN PROCUREMENT

Companies seeking to put in place new or better equipment procurement strategies clearly face a myriad of challenges at every stage. Recent challenges can of course be partly traced back to the ongoing pandemic, but it is clear that issues such as poor communication or lack of partners remain perennial issues for many companies.

The final part of this guide will itemise the most common challenges in procurement and suggest a range of potential mitigations. Of course, not every company will experience the full gamut of challenges discussed below, nor is there a 'one size fits all' solution to every challenge, but it is vital that companies consider their responses to common potential challenges before they arise: to be forewarned is to be forearmed.

From sourcing to installing, each stage of equipment procurement throws up some common difficulties:

"Recent challenges can of course be partly traced back to the ongoing pandemic, but it is clear that issues such as poor communication or lack of partners remain perennial issues for many companies."

Milling machine at Equatorial Power site in Uganda

CATEGORY	CHALLENGES
Sourcing equipment	▸ Discrepancies between theoretical conditions as agreed with suppliers and actual conditions. These discrepancies included product technical specifications, lead times or supplier capacity. For example, the supplier initially assumed he has a product of certain specification available or can manufacture it, but later on changes these specifications with limited communication. Another example was that the agreed production lead time changed significantly later on due to external reasons such as the COVID-19 pandemic or the suppliers facing unexpected internal capacity limitations. ▸ It can be difficult finding suppliers, who can accommodate a company's product technical specification needs, especially in China, where often the supplier is not necessarily the manufacturer. Language barriers can lead to the distortion of information provided by suppliers to manufacturers. ▸ Identification and selection of pre-owned equipment is time-consuming and the travel restrictions during COVID-19 meant that pre-purchase inspection of goods was limited to remote communication and the use of digital tools. ▸ Suppliers selling counterfeit components. ▸ Increase in prices due to increased costs incurred by vendors to deliver products. ▸ Local suppliers have limited technical information on the equipment. ▸ Configuring different parts of machinery acquired from different suppliers, i.e. local and international suppliers, is challenging. ▸ It takes longer to find good quality equipment and most suitable brands among local suppliers. ▸ Fluctuating exchange rates for imported products. ▸ Little or no enforcement of guiding standards for local suppliers on different types of energy equipment available in the market. ▸ Change in which country to source equipment from was necessary in some cases, mostly due to challenges in producing equipment caused by COVID-19.
Shipping/ transporting equipment	▸ Poor handling of export paperwork by suppliers where the wrong export documents were issued. Even though the right documents were issued, the number on the documents did not match clearance documents and this resulted in machinery being held at the border for 5 days and subsequently led to components being stolen at the port. ▸ Some suppliers failed to honour terms of carriage, despite companies making timely payments of shipping costs as stipulated in the agreement with the supplier. Upon receipt of payment, suppliers declared that shipping costs had increased by a significant amount and the costs were passed on to the companies. ▸ Extra costs in shipping a prototype from China as smaller shipments were made using the Less Than Container Load (LCL) rather than Full Container Load (FCL) method. ▸ COVID-19 resulted in limited transport options and as such increased transportation costs, specifically for the equipment shipped from China. ▸ Backlog of sea shipments occasioned by COVID-19 lockdowns. ▸ Difficulty in securing slots for containers on freight boats. ▸ Changes in shipping routes. ▸ Delays in shipping resulting from disruptions at manufacturing plants. ▸ Increase in port charges and increase in time taken to clear equipment. ▸ Local transportation of equipment to the project site often took longer than agreed and transportation costing is often not standardised which makes planning difficult. Reasons were due to bad weather, but also poor logistical planning by the company.
Assembling/ installing equipment	▸ Some technicians could not travel to the site to assemble equipment due to COVID-19 travel restrictions. ▸ Personnel in charge of assembly and installation are not fully qualified, since local vendors usually source equipment from abroad. Sometimes it takes multiple trips abroad to repair or replace equipment after operational faults. ▸ Certain items of pre-owned equipment were delivered with mechanical or electrical issues that needed to be resolved. This includes ignition wiring on the telehandler and a hydraulic line on a mobile crane.

PROCUREMENT SUPPORT AND CAPACITY GAPS

Certain areas of the supply chain are more susceptible to disruption than others, and this may affect suppliers' ability to comply with their procurement strategies. The table below suggests mitigation measures for unforeseen events:

SUPPLY CHAIN ACTIVITY	UNFORESEEN EVENT	MITIGATION MEASURE
Shipping	Inaccurate time estimation on completion of production, dispatch and delivery of equipment.	Add buffer time to account for shipping delays that might affect project timelines.
Importation and port clearance	Change in prices of equipment after importation, due to a lack of standardisation of the amount of tax or tariffs to be paid in order to clear equipment at the port.	Invest in a third-party logistics partnership which allows to draw on their core competencies in inventory management, storage of equipment and processing importation and clearance documents.
Logistics and delivery	Lack of standardisation of delivery costs makes it difficult for future resource planning and budget allocation.	Develop retainer agreements with local suppliers who would in return be responsible for mapping out logistics and delivery costs of the equipment to very remote operational sites.

Telehandler and other equipment in One Power's manufacturing plant in Lesotho

Collaborating with organisations operating within different segments in the supply chain could help mitigate unforeseen events experienced by companies when procuring equipment from both international and local suppliers.

Companies experiencing difficulties should proactively seek support when appropriate in order to streamline their supply chain operations and processes:

- **Port clearance:** Clearing and forwarding agents provide importers and suppliers within the supply chain with services such as invoicing for international shipping, making arrangements for the shipment pickup and cargo delivery reports, arranging and coordinating customs for attaching warehousing, completing documentation work required for shipment, as well as confirming the delivery of shipment. The agents could also be consulted on matters related to packaging, route and the mode of transport, type of insurance cover needed for the shipment and processing banking requirements.

  Africa Logistics Network[7] (ALN) is one of the largest networks of freight forwarders around the world focusing on the African Market. It has about 70 freight forward company members with a presence in Sudan, South Sudan, Cameroon, Namibia, Nigeria, Ethiopia, Senegal, Kenya, DR Congo, Mauritania and Northern African countries). Members of the network could provide freight clearing and forwarding services to companies shipping from international, regional and local markets.

- **Transport, logistics and delivery of equipment:** Bolloré Logistics[8] offers transport and logistics services in various fields including the energy sector. Bolloré has strategic hubs in Aberdeen, Oslo, Rotterdam, Dubai & Djebel Ali, Calgary, Houst, Port-Harcourt, Luanda and Mombasa, all of which have warehouses, secure yards and loading equipment operating throughout the day. The hubs bring together three major areas of expertise: terminal concessions, conventional bulk-handling, and shipping agent services. Bolloré provides a range of upstream and downstream supply chain services which include: warehousing on-site and off-site, inventory management, customs and regulatory compliance and tailored packing solutions to energy companies providing remote solar powered solutions, energy storage solutions and solar farms.

- **Technical and business advisory support:** Energy 4 Impact provides technical and business support to energy companies on a programme-funded basis. These services include reviewing procurement documents such as request for quotations (RFQs) and request for proposals (RFPs), solar system sizing, system designing and reviewing demand data for mini-grid developers, PUE cataloguing for mini-grid developers, developing value proposition documents, business model validation, financial modelling, end-user equipment specification as well as reviewing technical and training documentation for end-users.

- **Industry networking solutions:** Support can also be found via digital solution providers, such as Odyssey Energy Solutions[9]. With a network that comprises of over 100 developers, investors, vendors, government institutions as well as non-profit organisations, Odyssey offers the following support to energy companies in their procurement functions:
  - **Supplier marketplace data:** showcases products and services to qualified leads and responds to RFQs with detailed technical data.
  - **Technical designs:** provides financial and technical design tools to demonstrate how solutions can be developed to improve project finances and performance.
  - **Insights into new market:** Odyssey's technology vendors have direct market access to all qualified mini-grid developers.

- Respective Ports Authorities[10] have publications and information centres on their websites that provide information on policies and procedures, tariffs, taxes, partner companies that can guide the development and execution of internal procurement plans of companies and suppliers.

7. https://www.africalogisticsnetwork.com/
8. https://www.bollore-logistics.com/en/
9. https://www.odysseyenergysolutions.com/
10. The operations of ports often concentrate discretionary power to officials whose decisions can affect procurement activities and budgets of companies. The challenges arising can be in the form of payment of bribes, payment of taxes and fees higher than normal rate, mishandling of shipment and improper storage which leads to breakage or loss of equipment. Therefore, provision of relevant information needed to streamline internal procurement of importers and supplies will not always guarantee a successful experience in procurement.

PROCUREMENT: LESSONS TO TAKE FORWARD

There are opportunities which can be explored by various stakeholders in the public or private sector to help resolve internal and external challenges faced by energy companies when managing, implementing and executing their procurement activities.

- Energy companies should use their technical expertise to upskill local personnel by providing technical training programmes. This training improves local knowledge on assembling, installing and repairing the equipment acquired from international markets.
- Energy companies should partner with key associations or groups within different segments of the supply chain, such as Africa Logistics Networks, to reduce the risk of unexpected challenges at each stage of the procurement process.
- Energy companies should incorporate collaborative shipping models in the procurement process. Collaborating with other projects procuring equipment from similar sources can save on logistics, shipping and delivery costs.
- Different stakeholders in the industry such as manufacturers, procurement professionals, consultancy firms, public authorities, logistics companies and suppliers operating in both international and local markets should develop a public knowledge repository for energy companies providing e-handbooks on procurement processes, e-directory with the relevant contact details of key industry players and public authorities.

FURTHER READING

How to COVID-proof Early Stage Clean Energy Companies https://eepafrica.org/how-to-covid-proof-companies/

Maritime Transport in Africa: Challenges, Opportunities, and an Agenda for Future Research – Why Does Cargo Spend Weeks in Sub-Saharan African Ports? Lessons from Six Countries https://unctad.org/system/files/non-official-document/dtltlbts-AhEM2018d3_WorldBank_en.pdf

Digital Procurement: From Myth to Unleashing the Full Potential https://www.oliverwyman.com/content/dam/oliver-wyman/europe/france/fr/Publications/Digital_Procurement.pdf

Procurement 4.0: Factors Influencing the Digitisation of procurement and Supply Chains https://www.researchgate.net/publication/325433631_Procurement_40_factors_influencing_the_digitisation_of_procurement_and_supply_chains

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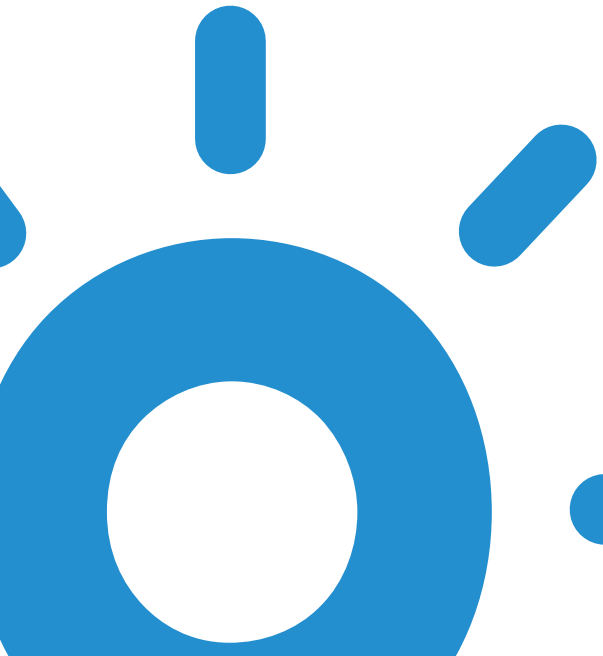

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