Energizing ECONOMIES

Energizing Economies Initiative

Implementation Guide

April 2019

RURAL ELECTRIFICATION AGENCY

ENERGY = EMPOWERMENT = EFFICIENCY

DISCLAIMER: The Nigeria Power Sector Program prepared this publication for review by the United States Agency for International Development. The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

KEY TERMINOLOGIES

Abbreviation	Definition
CAC	Corporate Affairs Commission
CM	Community Manager
CTO	Chief Technical Officer
DISCOs	Distribution companies
EEI	Energizing Economies Initiative
EIA	Environmental Impact Assessment
EPC	Engineering, Procurement and Construction
FGN	Federal Government of Nigeria
MD	Managing Director
NERC	Nigerian Electricity Regulatory Commission
NPSP	USAID Nigeria Power Sector Program
O&M	Operations and maintenance
PIU	Project Implementation Unit
PM	Project Manager
PMO	Project Management Office
REA	Rural Electrification Agency
SPV	Special purpose vehicle
TOR	Terms of reference
USAID	United States Agency for International Development

LEGEND

Across the document are sticker indicators intended to direct the reader's attention to important points. The codes for these are listed below:

Critical success factor. This highlights elements essential for successful execution.

Caution. This highlights potential mistakes which should be carefully avoided.

Change across phases. This highlights differences in roles or activities across the different phases (i.e. phase 0 to 3) of EEI execution.

1. Introduction

The development of this handbook is a joint effort undertaken by the Rural Electrification Agency (REA), the United States Agency for International Development (USAID), and Power Africa to support the implementation of the Energizing Economies Initiative (EEI).

The guide outlines the key activities, roles, and responsibilities of various stakeholders involved in successfully executing program management as well as site deployment. The document is divided into the following two sections:

- **Program setup and infrastructure:** This section outlines the structure of the Project Implementation Unit (PIU), the roles and responsibilities of the members, the cadence for project management, and tracking.
- **Site deployment:** This section provides key steps to execute the project at each site under EEI from site identification to operations, including stakeholder engagement and communications.

This manual is being submitted in both

1. Hard Copy (five sets)
2. Soft Copy (one set)

As an accompaniment to the document, some guides and templates have been developed and are referenced throughout the document. Many of these files, such as Excel tools, are not in printable format and have therefore been provided only in the Soft Copy format.

The manual is intended to provide direction to readers on the set-up of the EEI program and on how to conduct site-deployment activities, with emphasis on areas that are specific to the EEI.

This guide is to be used by the following people:

- REA staff seeking to understand the roles, responsibilities and tools of the PIU,
- Project developers seeking to understand the setup of the EEI program as well as the coordination activities involved in the electrification of sites under EEI, and
- Other key stakeholders, such as financiers, consultants, and communications partners, seeking a greater understanding of the key coordination activities involved in the program.

Please note that this manual is not intended to be an exhaustive, detailed description of all the activities required to build an off-grid station. It does not provide details on how to set up and operate a business or guidelines on how to set up a mini-grid.

Program Management Guide

This section of the document describes the following subjects:

- *Overall EEI program*
- *Role of the REA*
- *Set-up of the Programme Implementation Unit*
- *Key processes and tools*

2. Overview of the EEI

This section of the document provides an overview of the REA, the EEI and its goals, as well as the REA's role in program-coordination activities.

2.1. THE RURAL ELECTRIFICATION AGENCY (REA)

The REA is the implementing agency of the Federal Government of Nigeria (FGN) tasked with electrifying rural and unserved communities. It was set up under Section 88 of the 2005 Electric Power Sector Reform Act. The REA's Off-Grid Electrification Strategy has five key elements:

- Energizing Education Programme
- Solar Home Systems Initiative
- Solar Mini-grids Initiative
- Nigeria Energy Database
- Energizing Economies Initiative

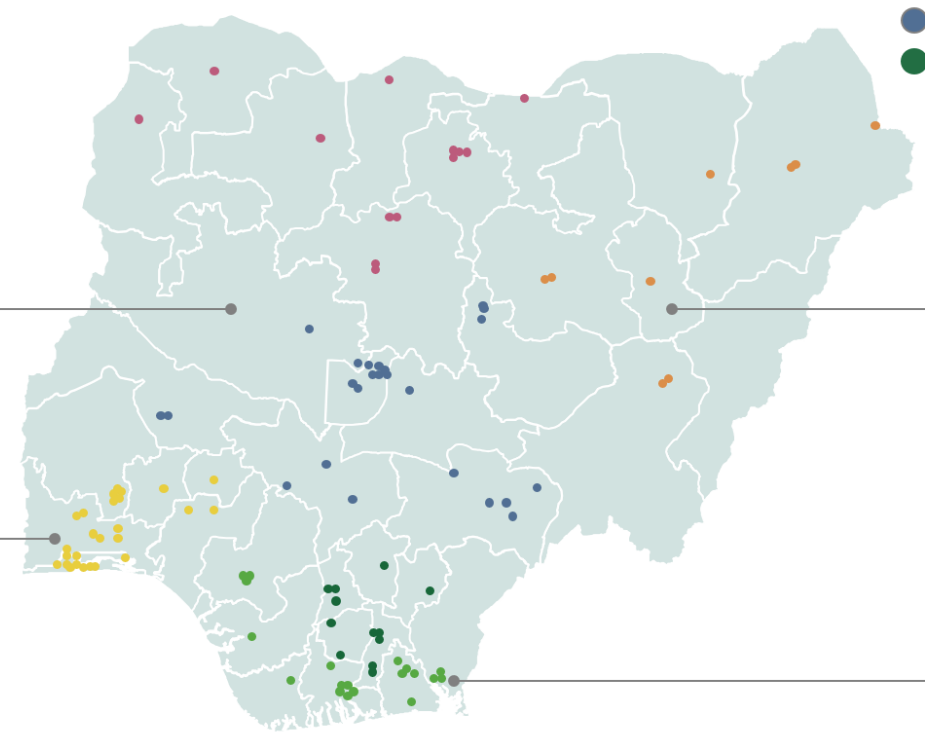
2.2. ENERGIZING ECONOMIES INITIATIVE (EEI)

The EEI was set up to enhance Nigeria's economic prosperity by providing sustainable off-grid electricity solutions to economic clusters such as markets, shopping complexes, and agricultural and industrial clusters. The REA aims to provide 200,000 connections across more than 340 economic clusters by 2022 (Exhibit 1).

EXHIBIT 1: THE EEI FOCUSES ON ECONOMIC CLUSTERS ACROSS THE COUNTRY

North West and North Central Region
- Major markets are situation in Kano (e.g., Kumi), Plateau (Jos)
- Main activities are farming and agro-processing

South West Region
- Largest market centers in Nigeria, concentrated and **fragmented in terms of trade** partners
- Major markets are situated in Lagos (e.g., Agboyi-Ketu, Alade, Balogun, Idumota, etc.) & **Ibadan (Aleshinieye,** Bodija, etc.)



North East Region
- Small and relatively concentrated
- Major markets include Maiduguri market

South South & South East Region
- Few players control trade in region
- Major markets in this region are in Delta (Warri, Igbudu), Rivers (Mile 3 & 1 markets), Akwa-Ibom (Eket), Anambra (Nnewi, Onitsha)

Mapping of economic hubs classified by region (~290 mapped / 340)

The EEI aims to increase access to energy and promote economic growth by partnering with private-sector developers to provide clean, reliable, and affordable power to economic clusters that have high-growth impact on the economy.[1] The program is expected to have several benefits, including the following:

- Providing clean and reliable power supply,
- Empowering MSMEs,
- Creating jobs,
- Electrifying major economic clusters, and
- Reducing greenhouse carbon emissions.

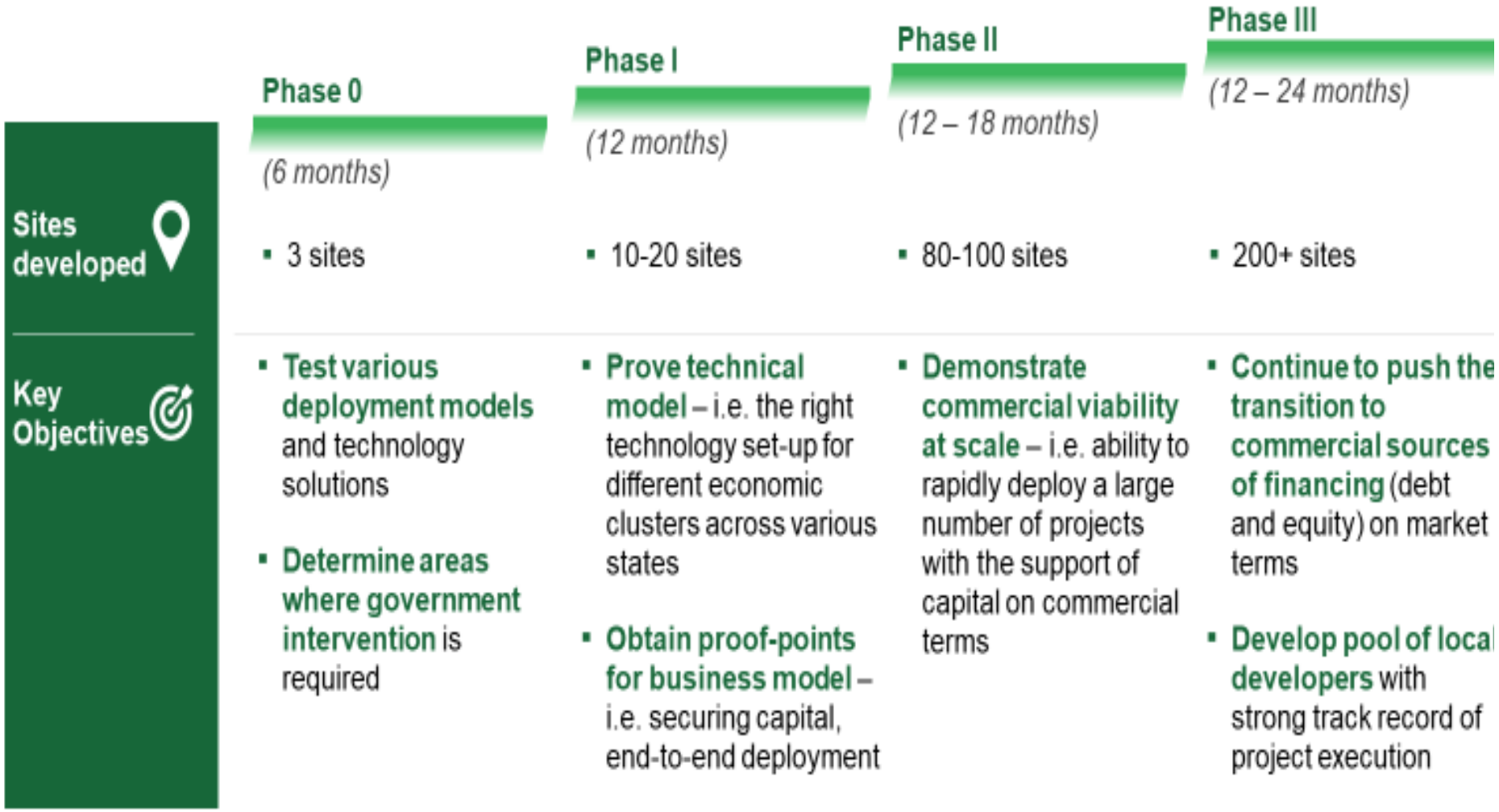
The project has four phases (Exhibit 2). These phases and their key objectives are described below:

- **Phase 0: Pilot:** Power three markets to test deployment models and determine the required interventions.
- **Phase 1: Learning:** Try out the technical model and obtain proof points for the business model; deploy the technology solution to 10–20 markets.
- **Phase 2: Deployment:** Deploy the model to about 100 markets and demonstrate commercial viability at scale over 12–18 months.
- **Phase 3: Power more than 200 markets:** Use a pool of local developers with a strong track record of project execution to power 200+ markets.

These projects are funded and operated by private developers that may require support from the FGN through the REA.

[1] P.G.1: Energizing Economies update report – July 2018 presentation by MD, REA to the State governors

EXHIBIT 2: EEI AIMS TO SCALE UP IN ECONOMIC CLUSTERS IN FOUR PHASES



2.3. THE REA'S ROLE IN THE EEI

The REA, an agency under the Federal Ministry of Power, Works, and Housing, has oversight responsibility for all EEI activities. The REA played an active role in setting up structures (for example, engaging with stakeholders and resolving bottlenecks with other government agencies) in the first set of markets. In Phases 0 and 1, this included providing core data such as energy audits, program management, and community-relation support, and stakeholder management. The REA also managed projects and approvals and facilitated financing discussions. Finally, the REA maintained, and continues to maintain, a repository of learnings from the various strategies employed in the various markets. Over time, its role will evolve, and most of these responsibilities will be led by developers.

The REA should proactively clarify its role to developers, as the transfer of some historical responsibilities (for example, energy audits) to developers in future phases will have cost, resource and time implications that need to be planned for.

The REA's Evolving Role

As the project progresses, the PIU is expected to scale down from active involvement to become a support partner. Key stakeholders will continue to be involved in the implementation, including private developers, the support team (consultants and technical partners), and other regulatory bodies. However, ultimately, the EEI will be a program led by the private sector with the government as a regulator (Exhibit 3).

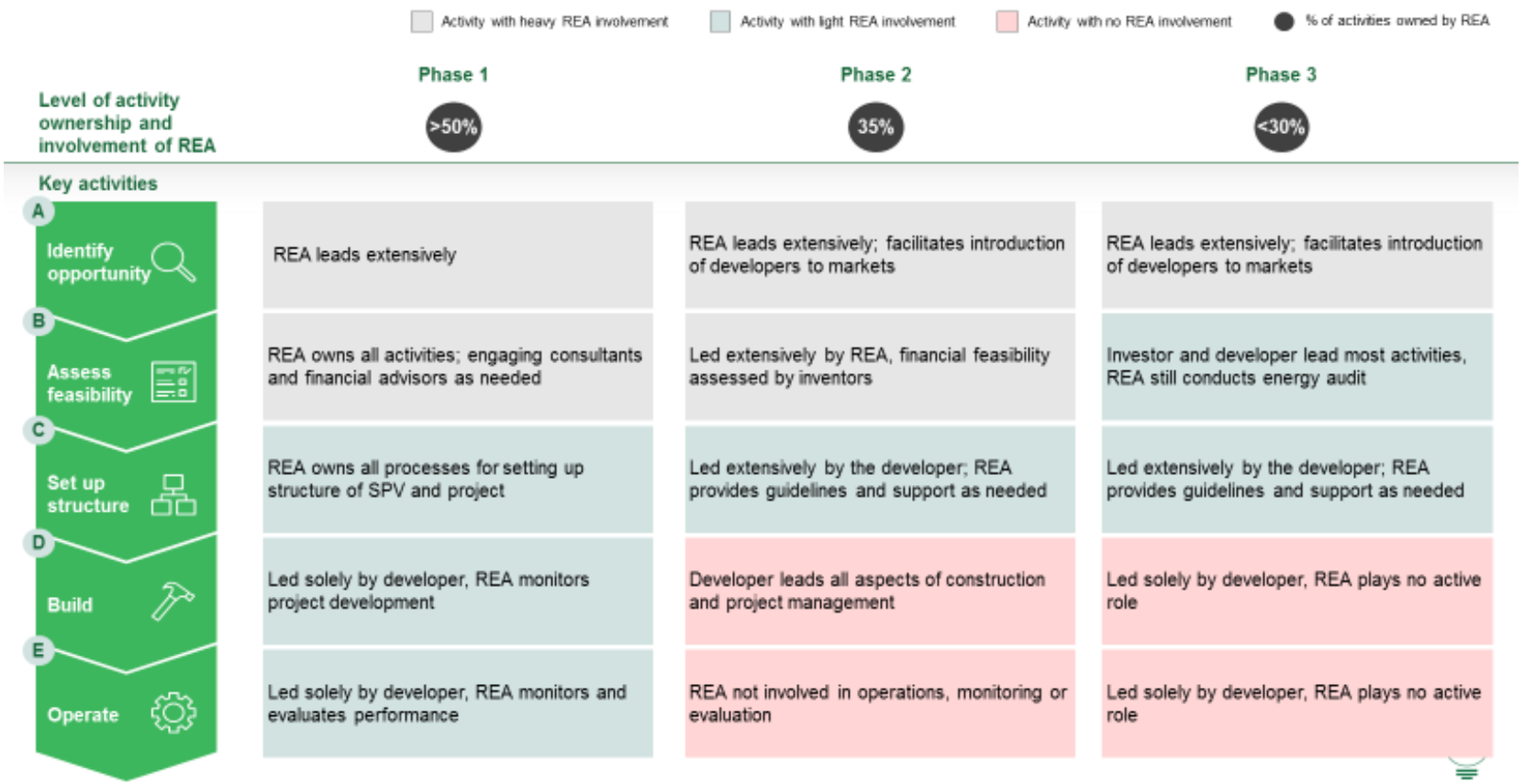
In Phase 1, the REA led the process to identify opportunities, assess site feasibility, and select sites for implementation. The developers set up the structures with the support of consultants and led the build and operate phases.

In Phase 2, the REA will lead the process to identify opportunities and assess site feasibility. It will also develop a list of 80–100 priority sites and select

developers to carry out the projects. Using existing templates and guidelines, the developers will build and operate the sites with limited involvement from the REA.

In Phase 3, the REA will be responsible only for identifying opportunities and recommending a list of markets. The developers will own the other project phase activities and run the EEI end-to-end, determining the optimal energy solution, engaging relevant stakeholders (government, traders, market associations), securing permits and approvals, determining pricing, and setting up a monitoring and control mechanism.

EXHIBIT 3: DEVELOPER ROLES AND RESPONSIBILITIES WILL EVOLVE THROUGH THE PHASES



To scale up the EEI programme, the REA will provide support in four main areas:

- **Management of projects**: Working closely with developers to ensure that projects are deployed on schedule.
- **Facilitation of key regulatory and legal approvals**: Liaising with government bodies, such as the Nigerian Electricity Regulatory Commission (NERC), the Corporate Affairs Commission (CAC), and state governments to secure key approvals, including Eligible Customer Status, Letters of No Objection, Certificate of Incorporation for the Special Purpose Vehicle (SPV), or State Collaboration Agreements.
- **Resolution of policy or regulatory bottlenecks**: Liaising with regulators to resolve policy constraints, including interference from distribution companies (DISCOs) on exclusivity discussions and tariffs (Note: In the nascent off-grid industry, providers face many grey areas in terms of operations and requirements).
- **Engagement with market associations and state governments**. Engaging with the relevant stakeholders, including state and local governments, market associations, traders, press, investors, public, and investors to ensure timely deployment.

To achieve EEI objectives, a PIU with trained staff has been established within the REA.

3. Project Implementation Unit (PIU)

This section provides the following:

- An overview of the Project Implementation Unit (PIU) and its key objectives;
- The PIU organizational set-up;
- The descriptions of key roles and responsibilities; and
- A list of key meetings and cadence that drive the coordination of activities at various levels.

3.1. OBJECTIVES OF THE PIU

The PIU is a dedicated team of REA personnel tasked to manage and oversee EEI project deployment. It is responsible for the following tasks:

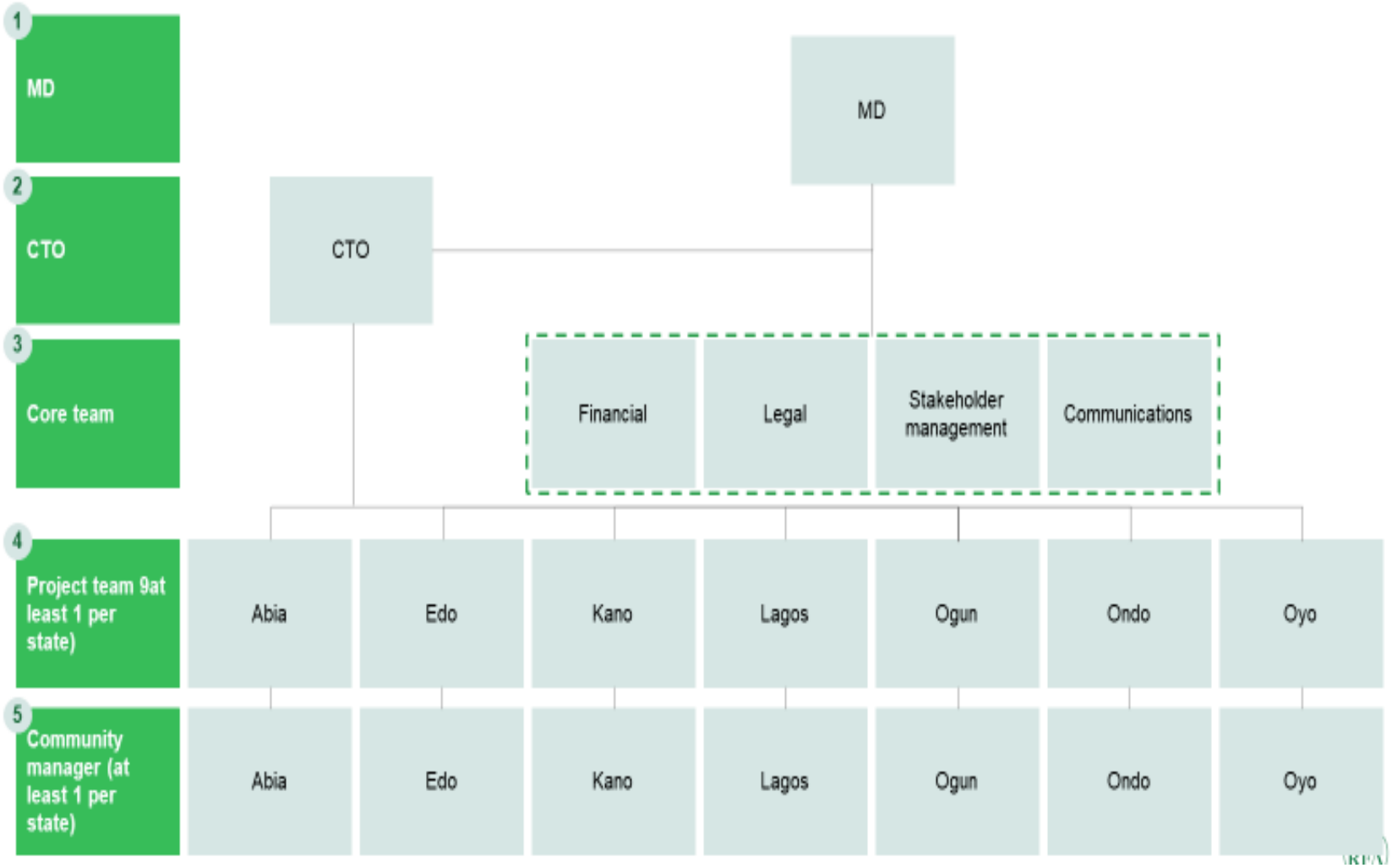
- Coordinating with relevant stakeholders such as developers, market associations, regulators, and other advisers.
- Providing guidance to developers as recommended in the Deployment Guide (see Section B).
- Updating tools and implementing performance-management processes.
- Providing progress updates and escalating issues to REA management, the Federal Ministry of Power, Works, and Housing, and the Presidency.

3.2. PIU ORGANIZATION

PIU staff oversee project execution, link project components into a single consistent approach, ensure that operational KPIs are executed on time and efficiently, mitigate risk by identifying problems and suggesting possible solutions before they occur, and ensure that the various stakeholders (developers and government) are accountable in executing on their roles.

The Organization Chart of the PIU is shown below (Exhibit 5). It has five key levels.

EXHIBIT 4: EEI ORGANIZATION, PHASE I



A summary of the key roles and responsibilities of the main members is given below:

The Managing Director (MD) provides overall strategic direction to the EEI project and is updated with deployment activities during regular check-ins with the CTO and core team. The bi-weekly meeting with the Vice President and the Minister of Power, Works, and Housing is an opportunity for the MD to share updates and request any high-level support required to aid EEI implementation.

A description of her/his key EEI roles and responsibilities follows:

Area	Description
Key EEI roles	• Provide overall strategic direction to the PIU • Liaison with senior government officials, such as the VP, state governors, and financiers, where required for reporting, escalation, debottlenecking; • Determine key external parties to partner with in initiative execution and delivery; and, • Identify, with the support of the CTO, opportunities for future scale-up and implementation development
Responsibilities	Attendance at performance meetings as described in the Project Management Cadence section and provision of guidance and support in debottlenecking issues

The Chief Technical Officer (CTO) is the overall implementation leader of the programme and coordinates the activities of all the PMs and the developers. The CTO also provides key updates to the MD on construction progress and ensures that tasks are completed on schedule.

A description of their key roles and responsibilities is as follows:

Area	Description
Key roles	Overall head of the EEI PIU, accountable for the day-to-day management, thought leadership, and reporting to the REA MD.
Responsibilities	• The successful execution of EEI initiatives; • Tracking of progress and identity bottlenecks; • Provide guidance to developers; • Attend performance meetings as described in the Project Management Cadence section; • Support project managers and deployment teams in key day-to-day decision-making.
Qualifications (level 14 in the Federal Civil Service grading system)	Senior-level management experience and deep technical expertise, including the following: • Minimum six years' track record of creating, managing and deploying country-wide electrification programmes, • Proven ability to manage multiple stakeholders, and • Project-management experience.
Reference documents	**P.G.2a**: Job roles and description_CTO

The Core Team provides technical and problem-solving support when Project Managers (PMs) or developers encounter issues. Each team member has specific expertise, such as technical, financial, legal, or communications. The team attends the weekly PM check-in, interacts with the PMs, and steps in when necessary.

Area	Description
Key roles	Provision of expertise to the PIU through four core roles: 1. *Technical expert*: Analysis of optimal energy solutions and evaluation of deployment plans; must have a degree in electrical engineering and deep knowledge of solar or off-grid electricity solutions (refer to **P.G.2b**: Job roles and description_core_technical). 2. *Financial expert*: Stress-testing of the capital-raising structure of the SPV and developer-procurement plans; must be a finance expert with prior fund-raising experience and knowledge of deal structuring in the electricity market, preferably a former investment banker (refer to **P.G.2c**: Job roles and description_core_financial). *3. Legal expert:* Support of the execution of legal agreements and provision of legal advice; must be a seasoned lawyer with over six years in practice (refer to **P.G.2d**: Job roles and description_core_legal). 4. *Communications expert:* Setting of guidelines to engage the community and relevant partners; must have extensive experience in facilitating stakeholder engagement across the private and public sectors (refer to **P.G.2e**: Job roles and description_core_comms).
Responsibilities	Provision of expert input and advice in relevant areas; attendance at performance and update meetings as specified in the Project Management Cadence section.
Qualifications (level 12-13 in the	Over and above the requirements above, experience required includes the following:

Area	Description
Federal Civil Service grading system)	• Track record of creating, managing and deploying nationwide reforms • Project-management experience • Team-management and leadership experience
Reference documents	**P.G.2d-e**: Job roles and description

The Core Team should expect to step in to coach project managers closely where additional support is required by project managers.

The Project Managers (PMs) are responsible for supervising and coordinating implementation activities together with the developers. They are assigned to specific markets and are expected to possess detailed information about project deployment. They interact directly with the developers' central project management office (PMO).

Area	Description
Key roles	Driving of day-to-day activities, including pre- and post-installation; direct interface with developers; monitoring of daily construction and installation activities. Each PM covers deployment activities at specific sites. To increase efficiency in Phase 1, a PM should oversee a maximum of three sites at one time.
Responsibilities	• Completion of activities effectively and on time • Tracking of initiatives • Updating of project management tools on a weekly basis • Management of relationships with the Community Managers • Attendance at meetings as specified in the Project management cadence section
Qualifications (level 8-11 in the Federal Civil Service grading system)	• Excellent critical-reasoning skills • Excellent communication skills • Analytical mindset
Reference documents	**P.G.2f**: Job roles and description_pm

Project managers should seek to build strong working relationships with the developers as this aids effectiveness in executing key responsibilities, such as sourcing information for tracking. Overreliance on formal channels for interaction could limit perspective of actual deployment progress.

The Community Managers (CMs) are local members of the community in which the sites are located. They are the PM's 'ears on the ground.' They are generally members of the local market community who are trusted by the market associations and are primarily responsible for managing stakeholder relationships at each site.

Area	Description
Key roles	On-site project liaison to engage with various stakeholders in order to understand their concerns and relay them to project managers or CTO as appropriate and, based on guidance received from the PIU Senior Management, work towards addressing them.
Responsibilities	• Debottlenecking of stakeholder concerns on site before or during construction • Facilitation of engagement with the local community
Qualifications (level 8-11 in the Federal Civil Service grading system)	• Respected member of the local market community • REA staff member at the nearest zonal office or a member of state or local government • Track record of successful stakeholder engagement • Critical-reasoning skills • Excellent communication skills
Reference documents	**P.G.2g**: Job roles and description_community

3.3. PROJECT MANAGEMENT CADENCE

To drive implementation, a regular meeting cadence must be established to identify next steps to be actioned, clear timelines and responsibilities, and escalate and resolve issues. Exhibits 5 and 6 describe the key meetings that have been established to drive PIU cadence as follows:

1. **Weekly project review:** The Core Team and PMs will meet weekly to do the following:

- Track implementation progress,
- Problem-solve operational challenges,
- Escalate unresolved issues, and
- Align on clear action plans for the next week.

Reference documents:

P.TE.3: Weekly project review sample agenda

P.TE.4: Weekly project review sample minutes

2. **Developer–REA PM one-on-one meeting:** The PMs and the developers' site-management personnel will meet weekly to monitor progress and identify areas where issues need to be escalated or additional support is needed.

Reference documents:

P.TE.1: Developer-REA PMs 1-on-1s sample agenda

P.TE.2: Developer-REA PMs 1-on-1s sample minutes

3. **Bi-weekly developer updates:** The REA PIU and the developer will meet every two weeks to do the following:

- Update the REA on overall construction progress and
- Discuss areas where the REA needs to provide additional support, (for example, delayed regulatory approvals).

Reference documents:

P.TE.5: Biweekly developer meeting sample agenda

P.TE.6: Biweekly developer meeting sample minutes

4. **Monthly progress review with USAID or other donors as applicable:** The REA (MD and PIU head) and USAID (and other donors if relevant) will meet monthly for the REA to do the following:

- Provide implementation updates,
- Share lessons learned (thematic), and
- Share broader updates that will impact the strategic direction of the program.

Reference documents:

P.TE.7: USAID monthly meeting sample agenda

P.TE.8: USAID monthly meeting sample minutes

EXHIBIT 5: MEETING CADENCE

Meeting name	Duration	Attendees	Key objectives	Proposed day
Weekly project meeting	▪ 2 hours	▪ REA EEI core team ▪ REA project managers	▪ Review status of key actions across sites ▪ Proactively address risks to implementation	▪ Thursday
Developer-REA PM 1-on1s	▪ 20-30 mins per PM	▪ REA project managers (1-on-1 calls with developer project managers)	▪ Follow up on status of to-dos	▪ Monday/Tuesday
Bi-weekly developer update	▪ 2 hours	▪ MD, REA ▪ Virtus ▪ REA EEI core team ▪ REA project managers ▪ NPSP support team ▪ Advisors – Pentagon, Vista	▪ Understand progress towards key milestones ▪ Identify and solve any bottlenecks to implementation ▪ Flag areas that require additional support from MD, REA	▪ Wednesday/ Thursday
Monthly overall progress review	▪ 2 hours	▪ MD, REA ▪ USAID ▪ REA EEI core team ▪ NPSP support team	▪ Review NPSP support team progress	▪ As determined

Reference documents:

P.G.3: Guide to conducting performance cadence meetings

P.TE.1: Developer-REA PMs 1-on-1s sample agenda

P.TE.2: Developer-REA PMs 1-on-1s sample minutes

P.TE.3: Weekly project review sample agenda

P.TE.4: Weekly project review sample minutes

P.TE.5: Biweekly developer meeting sample agenda

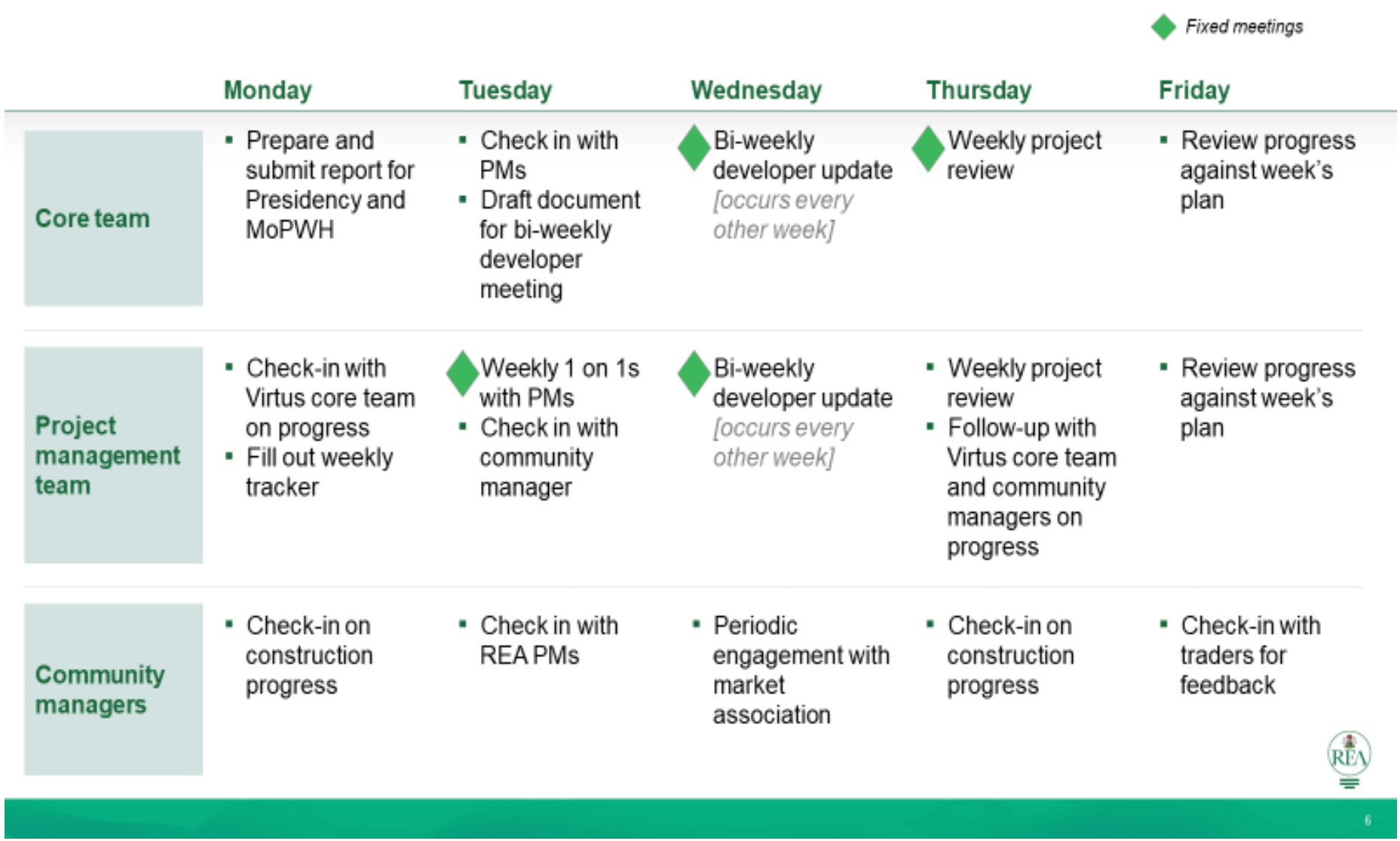
P.TE.6: Biweekly developer meeting sample minutes

P.TE.7: USAID monthly meeting sample agenda

P.TE.8: USAID monthly meeting sample minutes

In addition to attending performance management meetings (Exhibit 6), the PIU will be responsible for the preparation and submission of reports to the Presidency and the Ministry of Power, Works, and Housing.

EXHIBIT 6: SAMPLE TYPICAL WORK WEEK FOR REA EEI TEAM



Ad Hoc Meetings

Ad hoc meetings support project deployment as needed and could address items identified on the Odyssey Project Management tool as ‘off-schedule’ or ‘requiring immediate attention.’ These meetings should be called and conducted as soon as a need is identified and should have a clear objective for completion. The length of the meeting will be determined by the issues to be resolved.

A few key questions to ask to determine whether an ad hoc meeting is required:

- ***Is there an event that might delay delivery against pre-agreed timelines?***
- ***Does it require consensus to agree on a way forward?***
- ***Is the next scheduled meeting too late for a decision to be made?***

If the answer is ‘yes’ to two out of three of the above, an ad hoc meeting may be called.

Examples of such meetings:

- **CTO/developer check-ins** will address implementation delays or bottlenecks and give the CTO the opportunity to interact with senior members of the developer team. They can be conducted by phone.
- **PM/CTO check-ins** will enable PMs to escalate issues to the CTO immediately (rather than wait for the weekly PM check-ins). The CTO can take the lead by asking the PMs for updates and plans to resolve outstanding items.
- **REA PM check-in with developers** will enable the REA PMs to receive deployment updates that give them a clear view of activities.

3.4. RISKS

This section identifies some of the risks that may lead to ad hoc meetings, or further result in the need for escalation as appropriate. In general, anything that may lead to the disruption of a current or future event or schedule may be considered a risk.

Risks are all current or future events that can disrupt project outcomes. It is important to flag all potential risks and then jointly prioritize their impact on the project.

The PIUs will manage the following types of risk:

- Regulatory risks
- Stakeholder risks
- Operational risks

Regulatory risks: These include any risks that might arise from a change in regulations or the interpretation of regulations related to topics such as licensing, jurisdiction of DISCOs, and tariffs. Developers are advised to engage qualified legal advisers as a potential measure for risk mitigation.

Developers identify licensing as their most critical regulatory risk, but as of December 6, 2018, this risk is overstated. According to the NERC Regulation for Mini-Grids 2016 NER/-R-110/17, off-grid providers producing and distributing less than 1MW of power will not require a licence.

Confirm current regulations to ensure that all licences and approvals are in place. Key relevant regulations are:

- ***NERC Regulation for Mini-Grids 2016***
- ***International Electricity Distribution Network (IEDN) Regulations***
- ***Eligible Customer***

Stakeholder Risks: Stakeholders such as DISCOs, the market association, traders, and local governments could pose risks to implementation for a wide range of reasons, many of which are unpredictable.

Managing risks that could emerge from stakeholders requires the agility to respond in the appropriate manner. Planned meetings with the CMs and the Core Team are therefore essential. As an example, market- or trader-related risks can be handled by the CMs, but should be escalated to the REA CTOs via the PMs in their daily touchpoints. Other DISCO-related issues, such as a lawsuit preventing electrification, should be addressed immediately through the PIU, which will escalate them to the MD if or when required.

Mitigation of such risks will be through proactive stakeholder engagement with the involvement of the REA CM, who must be a member of the local community. In the case of DISCO resistance, legal counsel should be consulted (see **P.G.4**: Stakeholder Engagement Guide for more details on how best to manage this).

All agreements must be signed before activities start. A communication strategy must be developed to identify all stakeholders and plans to engage them. For a list of all agreements refer P.G.4 in the Stakeholder Engagement Guide.

Operational risk: These risks include technical and environmental conditions that could affect construction. They usually arise from inadequate or failed systems and procedures as a result of underestimating the scope and complexity of the project. Strategies to resolve such challenges include

conducting an extensive energy audit to determine the technical complexity of the market, engaging more staff to accelerate deployment timelines, and conducting detailed quality-control checks to minimize faulty installation. Over time, with increased pattern recognition and learning, the frequency and severity of realized operational risks should decline.

- ***Include buffers in timelines for unforeseen problems.***
- ***Insure all equipment, including loss and theft.***
- ***Provide safe storage.***

4. Project Management Tools

This section describes key tools that have been developed to support the program management of EEI projects. They are as follows:

4.1. **Odyssey project management tool:** the standard tracking and monitoring tool for the program and for individual projects.

4.2. **Stakeholder engagement guide:** a document that lays out the key stakeholders to be managed with suggestions of modes of engagements.

4.3. **Communication planning templates:** a set of templates for planning engagement activities with stakeholders.

4.4. **Townhall guide:** a guide to help determine when to have a townhall and how to plan and facilitate the running of one.

4.5. **Legal agreement tracker:** a tool for tracking the status of key legal agreements.

4.1. ODYSSEY PROJECT MANAGEMENT TOOL

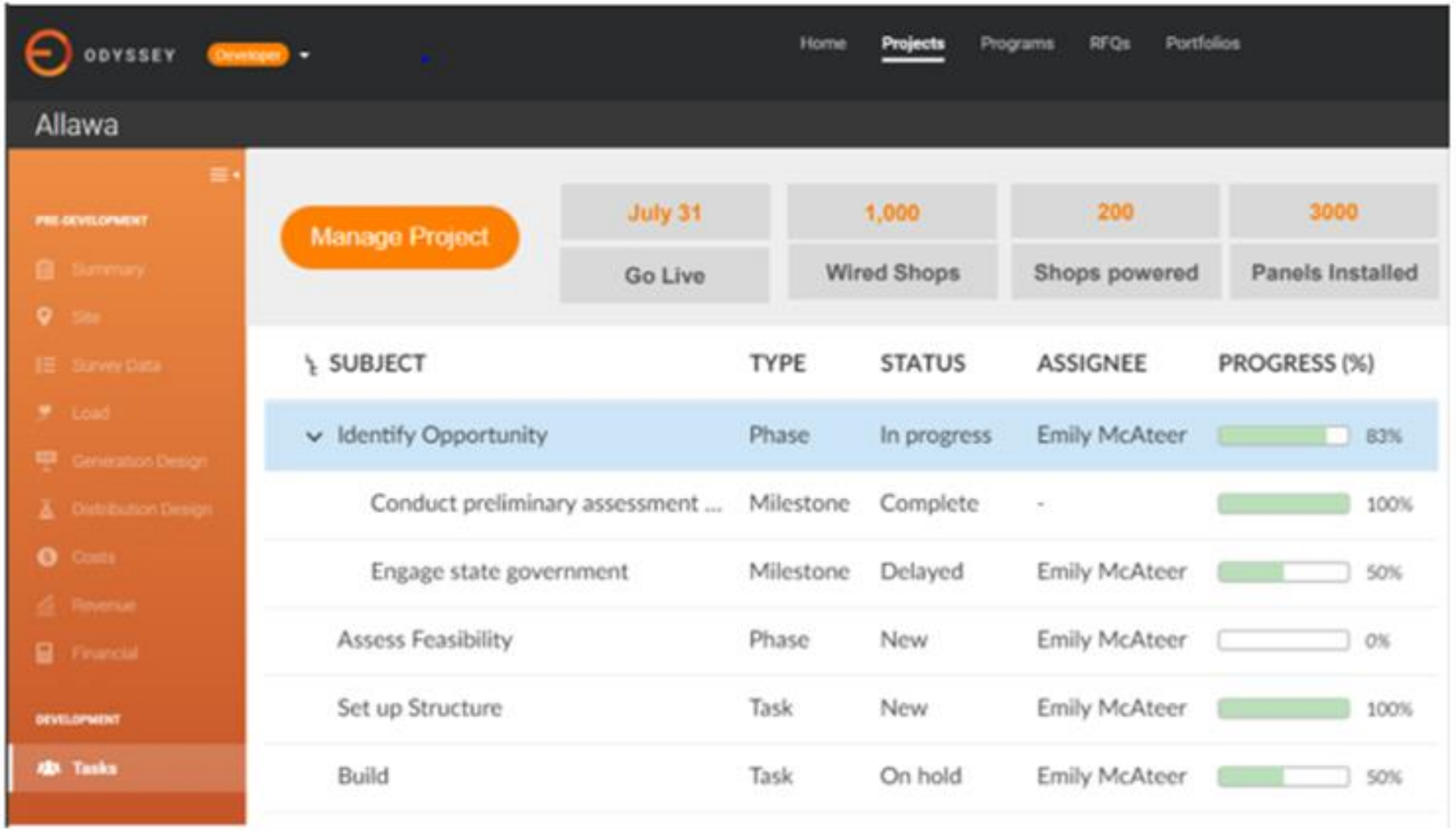
Odyssey is a purpose-built project management tool that tracks and monitors deployment activities across multiple sites (Exhibit 7).

The tools are managed by the REA PMs with input from the developers and other key parties involved in execution.

Odyssey promotes transparency, as the tool clearly lays out each project development step and provides a dashboard of relevant KPI measures over time, with levels of completion for each activity.

The platform also integrates a file-management system that acts as a repository of all project documents.

EXHIBIT 7: SNAPSHOT OF ODYSSEY PROJECT MANAGEMENT TOOL



When to use it*:* Odyssey is used daily by the REA and developer PMs to track deployment activities. The REA PMs must update the tool at least weekly.

How to use it*:* A detailed how-to guide and video walk-through has been put together by the developer of the tool to guide usage*. See Reference documents below:*

P.R.2 Odyssey guide

P.R.2. How to use Odyssey project management tool training video

4.2. STAKEHOLDER ENGAGEMENT GUIDE

The stakeholder engagement guide was put together with the support of the REA Communications Team to guide interaction with key stakeholders through a series of tactical steps and proactive engagement methods. These key stakeholders include market leaders, government personnel, members of the public, financiers, and DISCOs.

When to use it: At the beginning of any EEI project and before engaging any major stakeholder to identify relevant stakeholders.

Reference documents:

P.G.4: Stakeholder engagement guide

4.3. COMMUNICATION ACTIVITY PLANNING TEMPLATES

These templates help the PIU determine what communication activities should occur in specific markets and when. They detail the budget and split the plan across each of the major project deployment sections.

When to use it: When planning communications activities for EEI projects

How to use it: Collate the information in the templates provided and use them to guide timelines and budgets for communication activities.

Reference documents:

P.TE.10: Communications Plan Template

P.TE.11: Sample communications budget

4.4. TOWNHALL GUIDE

This end-to-end guide provides an agenda, objectives, preparation work required, and implementation notes. The developer representative should be familiar with likely questions from the audience, but the guide contains a frequently asked questions (FAQ) section.

When to use it: When preparing for market townhalls:

1. At the start of construction,
2. When the market community has questions about the EEI, and
3. To disseminate major deployment updates.

How to use it: Customize the agenda to the content. Before the townhall, identify the objective of each section and prepare; for example, engage the market chairperson, and prepare any videos. Townhall budget and logistics templates are available in the communication plan.

Reference documents:

P.G.5: Townhall guide

P.TE.9: Stakeholder engagement FAQs

4.5. LEGAL AGREEMENT TRACKER

The legal tracker (hosted on Odyssey) shows the execution status of all legal agreements to minimize the risk of project disruption due to outstanding legal documents.

When to use it: Use and update twice a week.

How to use it: Developers must understand the legal agreements required for end-to-end implementation. Twice a week, they should collate information on the execution status of the agreements and update the tracker sheet on the Odyssey Project Management tracker.

Components: Two major categories of agreement exist:

1. **Collaboration agreements** define the relationship between the SPV and the government, market association, and traders. There are three specific agreements:
    - State government collaboration agreement,
    - Market collaboration agreement, and
    - End-user collaboration agreement.
2. **Technical agreements** define the relationship between the SPV and its technical deployment partners. There are four agreements:
    - Procurement delivery agreement,
    - Operations and maintenance agreement,
    - Engineering procurement and construction agreement, and
    - Payment services agreement.

Reference documents: **P.T.1** Legal Agreement Tracker

5. Appendix

Below is a summary of the documents referenced throughout this section of the guide. The documents are structured in the same way as the e-folder for easy reference.

5.1. TEMPLATES

P.TE.1: Developer-REA PMs one-on-one sample agenda

P.TE.2: Developer-REA PMs one-on-one sample minutes

P.TE.3: Weekly project review sample agenda

P.TE.4: Weekly project review sample minutes

P.TE.5: Biweekly developer meeting sample agenda

P.TE.6: Biweekly developer meeting sample minutes

P.TE.7: USAID monthly meeting sample agenda

P.TE.8: USAID monthly meeting sample minutes

P.TE.9: Stakeholder engagement FAQs

P.TE.10: Communications Plan

P.TE.11: Sample communications budget

5.2. ADDITIONAL GUIDES AND METHODOLOGY

P.G.1: Energizing Economies update report: Presentation to the State governors

P.G.2a: Job roles and description_CTO

P.G.2b: Job roles and description_core_technical

P.G.2c: Job roles and description_core_financial

P.G.2d: Job roles and description_core_legal

P.G.2e: Job roles and description_core_comms

P.G.2f: Job roles and description_pm

P.G.2g: Job roles and description_community

P.G.3: Guide to conducting performance cadence meetings

P.G.4: Stakeholder engagement guide

P.G.5: Townhall guide

P.R.1: How-to-use Odyssey project management tool training video

P.R.2: Odyssey guide

Site Deployment Guide

This section of the document describes the following subjects:

- *Steps involved in selecting, preparing and execution of projects on site*
- *Inputs, resources required, key personnel and outputs expected for each step in the deployment process*

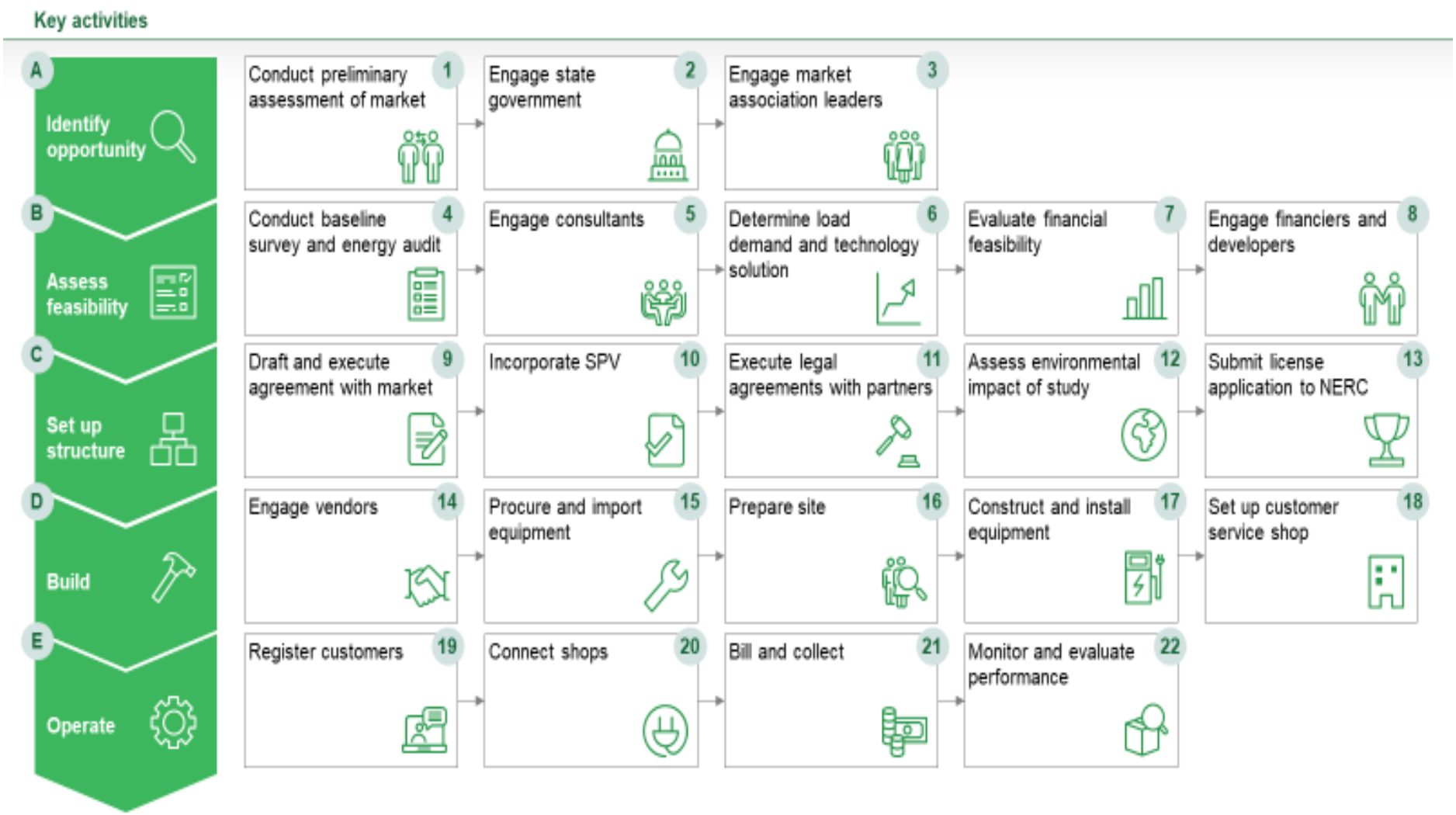
6. Deployment Activities

This section outlines all the key activities required in electrifying a site under EEI. It lays out each key step and structures the content according to inputs, processes, owner, output, and reference documents.

6.1. OVERVIEW OF THE 22-STEP PROCESS FOR THE EEI

REA has developed a holistic step-by-step approach for the project execution under EEI. The approach cuts across five key phases and is broken down into 22 steps. These steps will not be conducted in sequence, in fact, many will be conducted in parallel. Construction activities are detailed in Reference document **D.G.10**: Details of construction activities.

EXHIBIT 8: 22-STEP PROCESS FOR ELECTRIFYING EEI SITES



6.2. DEPLOYMENT GUIDELINES ACROSS PHASES

EEI projects deploy in five phases:

1. **Identify the opportunity**: Assess markets, identify potential sites, and establish market-demand profiles to select markets to which power can be provided.

2. **Assess feasibility**: Assess project financial and technical feasibility and investor appetite.

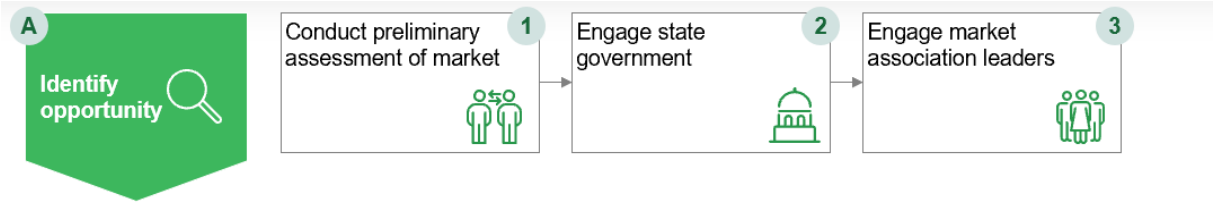
3. **Set up the structure**: Establish relevant structures ahead of construction activities on site, such as incorporating the developer's SPV and sourcing and securing project partners.

4. **Build**: Conduct technical activities required for construction, such as engaging contractors and procuring and mounting equipment.

5. **Operate**: Conduct post-construction activities, such as running operations and billing and collecting payments from customers.

PHASE A – IDENTIFY THE OPPORTUNITY

The purpose of this phase is to assess markets, identify potential opportunities, and establish market-demand profiles to select markets to which power can be provided.



Step 1. Conduct preliminary market assessment

Item	Description
Objective	Conduct a preliminary assessment of the market to understand the high-level viability of powering that location.
Owner	REA conducts preliminary site assessments and provides a list of potential markets. Developers conduct more detailed audits. ***Responsibility for preliminary assessments is likely to evolve from REA to developers as the phases progress.***
Resource requirements	• REA Zonal Officer per zone • 1–2 weeks • 20–30 minutes per market
Input	• Initial list of markets under consideration (REA core team) • List of the data to be collected • See **D.TE.1**: Template for collecting market information for preliminary assessment to collate and share the information with the REA core team, including the following: – Market structure, – Market size, – Operational complexity, – Proximity to REA infrastructure, and – Connection to the grid.
Process	REA Zonal Officers conduct desk research and reach out to community leaders, colleagues, local government staff, and other relevant contacts to understand five key data points (additional information can be collected to aid decision-making): • *Market structure*: open stalls vs enclosed shops • *Market size*: large (more than 2,000 shops), medium (1,000–2,000 shops), or small (fewer than 1,000 shops)

Item	Description
	• *Operational complexity*: A basic understanding of the decentralized solar solution provided in the markets is required to identify key operational complexities, such as: – Poor roofing structure that makes PV mounting difficult, – Roadside markets with no structure, or – Major construction that could hamper deployment activities. • *Proximity to REA infrastructure*: Location in the same state or vicinity as the market under consideration; this will serve as a proxy for available support. • *Connection to the grid*: Whether the market is connected to the grid or not. The above is collated and sent to the REA core team. Under the technical lead, the team collates the information and enters it into the prioritization tool to determine a score for each market and a basis for selecting priority markets for deployment (see **D.T.1:** Excel tool for prioritizing markets for electrification).
Output	A preliminary list of markets to be powered within the specified period.
Reference tools and documents	**D.T.1:** Excel tool for prioritizing markets for electrification.

It is important to obtain the perspectives of community leaders, colleagues, local government staff, and other relevant contacts to adequately inform the decision as to whether to proceed with a site.

Step 2. Engage state government

Item	Description
Objective 	Gain support of state governors to implement EEI across markets in their states as per the legal agreement between that government and the developer SPV.
Owner 	REA: introduces all parties—local government staff responsible for the market area, the relevant ministry or department responsible for the market, the developer's PMs on site—and acts as a point of contact to help resolve issues.
Resource requirements	• Face-to-face meeting between REA senior management (including the MD). • REA PM builds relationships with the relevant ministry or local government personnel. • Timeline (about 30 days)
Input 	• Social impact of the project, such as number of jobs to be created, carbon-emission reduction, number of small and medium enterprises affected. • Preliminary assessment of grid connection (Step 1). • Expected project duration. (see **D.G.1**: Social Impact Guide)
Process 	The REA meets state government to present the following: • EEI overview, including objectives and social impact. • Description of the markets to be powered, including grid connection and potential value add for the markets and the state. • Requests to the state government: – Appoint a point person from the relevant ministry or unit to support the project. – Sign the collaboration agreement that approves developer operations in the markets.

Item	Description
	This step need not be repeated per site as state government's engagement is most required at the onset of the first project(s) within the state.
Output	• Dedicated point person to support project activities and be responsible for signing and executing collaboration agreements. • Signed state collaboration agreement.
Reference tools and documents	**D.G.1**: Social impact of the EEI programme **D.TE.2:** Template for legal agreement between the SPV and the state government

- ***Engage state government as early as possible and build strong working relationships with state and local government officials.***
- ***One agreement per state covers all markets to be powered by the developer in that state.***
- ***Assess DISCO status in the project area to facilitate engagement with the state government.***

Step 3. Engage market associations

Item	Description
Objective	Secure market association support before starting activities.
Owner	REA: introduces all parties—market association leaders and the developer's PMs on site—and acts as a point of contact to help resolve issues.
Resource requirements	• REA PMs • 1–2 REA Communication Officers • MD REA (in case of escalation)

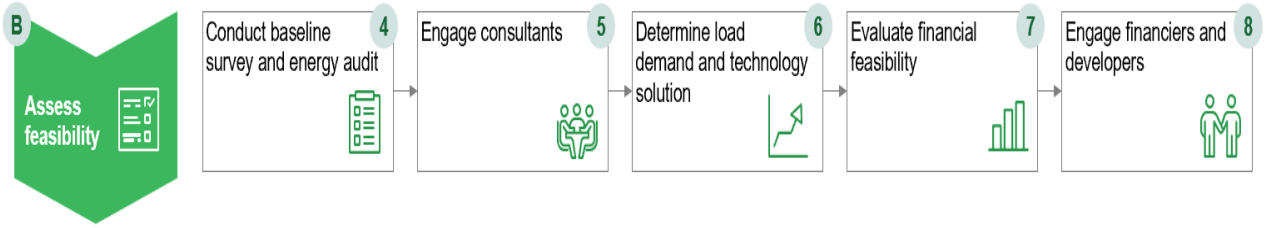
Item	Description
	• 2–3 weeks
Input 	• Benefits of the EEI programme (see **D.G.1** Social Impact Guide) to traders in the markers, including reliable and constant electricity supply, cheaper, cleaner power, and elimination of noise pollution from generators. • Guidelines for communicating with the markets (see **D.G.2** Guide for Communicating with Key Stakeholders). • Size of the market (Step 1).
Process 	Obtain introduction or recommendation from state government to do the following: • **Identify key market association leaders**, such as chairperson and secretary, and meet with them to present the EEI project and the benefits to traders (see **D.G.1:** Social Impact Guide). • **Identify community relations managers** (in joint discussions between the developer and the REA team) who have strong relationships with the market players and can influence their views. Engage these key stakeholders continuously, and communicate regularly with the traders (see **D.G.2**: Guide for Communicating with Key Stakeholders). • **Request the market associations** to do the following: – Give formal permission to conduct shop-to-shop baseline surveys and energy audits. – Appoint a point person to champion the project. – Agree to draft and sign a collaboration agreement. – Respond to ad hoc requests.  ***Regardless of EEI phase, market associations will need to be engaged at the start of any new project with a market and must be kept informed of progress as construction continues.***

Item	Description
Output	• Agreement (see **D.TE.3**: Template agreement between SPV and market association) between the SPV and the market to be drafted, finalized, and signed (Step 9). • A formal letter from the market association giving the developers permission to conduct baseline surveys and energy audits. • A point person who can help resolve bottlenecks.
Reference tools and documents	**D.G.1**: Social impact guide **D.G.2**: Guide for communicating with key stakeholders **D.TE.3**: Template agreement between SPV and market association **D.TE.4**: Sample schedule of communications activities **D.G.3**: Townhall guide **D.TE.5**: Template for townhall agenda **D.G.4**: Market townhall questions and answers

Conduct direct and indirect outreach activities to convince the traders of the benefits of EEI to their business, optimal use of solar, and proposed tariff structure and plans.

PHASE B – ASSESS FEASIBILITY

This involves the assessment of the financial and technical feasibility of sites identified in Phase 1.



Step 4. Conduct baseline survey and energy audits

Item	Description
Objective 	Establish a point of reference to design the right system and determine how to charge customers for energy by: • Collecting detailed information on each market and • Determining the energy demand for each market
Owner 	Developer (conducts detailed baseline surveys and energy audits) REA (may engage third-party energy audit firms or developers may engage them as appropriate)
Resource requirements 	Team of 50–60 people for a market with 1,000 shops, comprising the following: • 50 enumerators • 5 supervisors managing a team of about 10 enumerators • 2 senior PMs • 2–3 weeks, depending on complexity of site
Input 	• Number of shops and market structure (Step 1) to understand the resources required for the survey and audits. • Letter from the market association giving permission to conduct the survey and audits.
Process 	Conduct audits (or appoint third-party agencies to do so) that quantify key metrics, including market composition, type and quantity of appliances used, estimated use of appliances, trader energy preferences, and payment preferences as follows: • **Notify market association leaders of planned baseline survey and audits:** Inform market association and community leaders of the planned audits and baseline exercise by phone call or letter as appropriate.

Item	Description
	• **Prepare data collection apps:** REA may recommend certain apps as compatible with their platforms**.** The developer should ensure that the app can collect the following: – GPS coordinates, – Vital energy-consumption information, and – Baseline survey information from respondents. Apps enable electronic collection of information that can be exported and analysed. Any third party engaged is responsible for providing the app and the raw data to the developers. • **Recruit, train, and deploy teams to collect information from traders:** If appointed to carry out the baseline surveys and energy audits, a third party must recruit and train teams that have the following two core roles: – *PMs:* Supervisors trained to perform data-quality checks and ensure that all data are uploaded correctly on the mobile application. – *Field engineers:* Recruited and trained in the requirements, methodology, and aims of the mobile survey app, survey tools, research ethics, due diligence, and interview techniques i.e. courtesy and how to work with different groups of respondents. They should be able to interact with respondents, calculate appliance and lighting loads, and assess power infrastructure. A dry run on a cluster section is recommended to aid planning. **Analyse data**. Export data to Microsoft Excel and conduct analyses to generate insights for type of solution to be deployed. ***These surveys were conducted by REA in Phase 0 and Phase 1. However, responsibility for detailed data collection is likely to shift to developers as the initiative progresses.***
Output	• Baseline survey data in Excel • Energy audit data in Excel

Item	Description
	• Report on the key take-aways from the survey and audits
Reference tools and documents 	**D.TE.6:** Template for energy audit data **D.TE.7:** Template for baseline survey data **D.TE.8:** Condensed Market Baseline survey and Energy audit report template

Step 5. Engage consultants (where required)

Item	Description
Objective 	Engage expertise to fill skill gaps such as energy audits, technical design, financial advisory, project management, and billing system design.
Owner 	Developer
Resource requirements 	Financing to engage consultants
Input 	• 22-step process • Existing organization chart and team
Process 	• This will largely depend on the skills and capabilities of the developer. • As a key first step, determine areas where proactive intervention is required. • Next, determine the resources that will be required and the time it will take—this should be communicated to the consultant to allow a scope/concept note to be developed. • Key areas where intervention may be required include cashflow planning, construction coordination, and technical design.

Item	Description
Output	• Scope of consultant work • All relevant experts engaged and hired

Step 6. Determine load demand and technology solution

Item	Description
Objective	Determine the appropriate technical system design.
Owner	Developer
Resource requirements	• 1 Technical Head plus 1–2 technology leads per site • 1–2 weeks depending on market size • Design engines (for example, Homer, ETAP)
Input	• Results of the energy audit • Developer's technical expertise to understand the requirements of the technology system design
Process	• **Analyze standard and non-standard appliances** to determine the split between those that require minimal power (light bulbs and fans) and increased power (air conditioners, fridges, irons). Energy-audit data can be used to determine quantities and usage. • **Determine the load demand for appliances** based on appliance quantity, capacity, and usage. Appliance type can be used as a proxy to determine load (for example, an embroidery sewing machine has a higher load than a regular machine). • **Develop system design options** to determine inverter capacity and PV specification based on the irradiation in the area, then determine the types and quantities of equipment to be installed.

Item	Description
	• **Assess financing for energy-efficient non-standard appliances.** To resolve the potential technical constraint of high energy consumption, do the following: – Provide energy-efficient fans and bulbs on installation and design a financing plan (long-term instalments) to help traders switch to energy-efficient appliances (including fridges, sewing machines, and air conditioners). – Plan to replace appliances. • **Identify locations for equipment installation** and construction item storage by assessing site conditions such as the following: – Strength of roof for panel mounting – Size of hubs for installation boxes – Availability of storage spaces.  ***This will need to be done for each new site being explored, regardless of phase of EEI execution.***
Output 	A tailored market design that specifies the quantities of equipment, such as boxes and inverter capacity, needed to provide the required power, considering load factor, overall demand, and existing options.
Reference tools and documents 	Best-practice market tools; for example, Homer and ETAP.

 ***Develop a contingency plan to handle technical feasibility issues (which should be costed and built into the financial model).***

Step 7. Evaluate financial feasibility

Item	Description
Objective 	• Determine the financial feasibility of powering the economic cluster. • Determine optimal resource allocation.
Owner 	Developer
Resource requirements 	Financial advisers for 2–3 weeks (or longer, depending on site scale)
Input 	• Baseline survey and energy audit data on payment for alternative forms of power in the markets. • Project cost structure: – Capital expenses – Project development and management costs – Project maintenance costs • Investor expectations on returns.
Process 	Build a financial model to determine costs of deployment and expected returns based on expected tariffs, which must be lower than the current cost of power. Benchmark the project against comparable projects to ensure that the expected internal rate of return is comparable to, or higher than, that of similar mini-grid projects. • **Collect data on willingness to pay** from traders to determine the maximum tariffs that can be charged and understand what the traders currently pay for their alternative source of electricity, such as petrol or diesel costs to power generators, to estimate expected revenues. • **Set optimal tariffs for different tiers** to make the project profitable for the developers and provide sufficient returns for the

Item	Description
	investors (see **D.T.2**: Tariff pricing model used in EEI Phase 1 projects, and **D.G.5**: Guide for tariff pricing). • Calculate expected returns based on key cost and revenue assumptions syndicated with the developer and REA. • Perform scenario analysis to determine viability of project under different scenarios.
Output	• Developer's financial model • Expected returns calculation • Understanding of whether a site is financially feasible (the returns are favourable to investors).
Reference tools and documents	**D.T.2**: Tariff pricing model. **D.G.5:** Guide for tariff pricing

- ***Determine financial feasibility as early as possible to determine potential attractiveness to investors.***
- ***When determining tariffs, ensure that the legal team cross-checks methodology and any potential pricing limitations.***

Step 8. Engage financiers and sub-contractors

a. Engage financiers

Item	Description
Objective	Engage early with financiers to ensure timely execution.
Owner	Developers

Item	Description
Resource requirements 	• Developer's senior management (to hold discussions with financiers) . • Financial advisers (if capability gap exists). • Up to 12 months to complete the fund-sourcing process.
Input 	Overview of the EEI and benefits (see **D.G.1**: Social Impact Guide) • Developer's financial model (Step 7). • Investor toolkit on how to engage potential investors (see D.G.6: Investor toolkit). • Streamlined communications with potential investors (D.G.7: Due Diligence Facts and Questions). • Investor tracker to monitor investors, funds received, and funds expected, and communicate them to stakeholders.
Process 	• Develop a list of potential investors. • Contact investors, present the EEI and the economics of the specific projects. • Continue to engage financiers and provide information (with the support of financial advisers, if needed).
Output 	Funding term sheets and total funds received ahead of planned deployment
Reference tools and documents 	**D.G.6**: Investor toolkit **D.G.7**: Due Diligence Facts and Questions **D.TE.9**: Investor tracker

- ***Start fundraising activities several months before deployment to avoid delayed construction.***
- ***Explore multiple fund sources (debt, equity, donor funding) to increase chances of funds being received on time.***
- ***Determine cash flows required on a month-by-month basis to improve planning and optimise funds.***

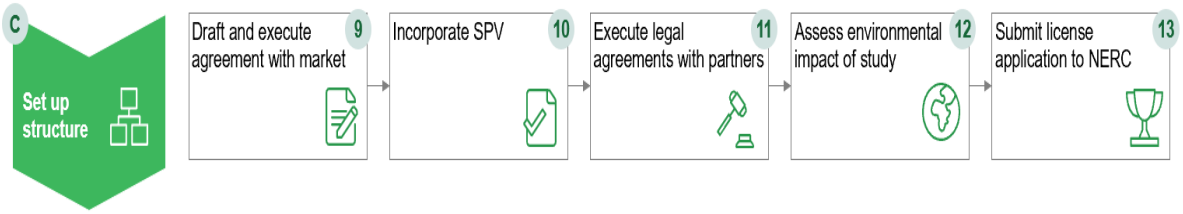
b. Engage sub-contractors

Item	Description
Objective	Secure contractors to develop the customer-service shops and perform construction activities on site.
Owner	Developers
Resource requirements	• 1 Business Development Manager to engage sub-contractors.
Input	• List of sites and expected number of connections. • Outline of key quality, technical, safety, and other requirements. • Project objectives.
Process	• Develop a list of potential sub-contractors in the market area. • Select sub-contractors to deploy activities on site. • Sign agreements with the sub-contractors and monitor their activities.
Output	• Funding-term sheets and total funds received ahead of planned deployment. • Secured contracts aligned on deliverables, timelines, and service-level agreements, etc.

Payments to sub-contractors should be scheduled and, where possible, based on conditions of expected quantity and quality of output within specified timelines.

PHASE C – SET UP THE STRUCTURE

This phase is the establishment of required structures ahead of construction activities on site, for example, incorporating the developer's SPV and sourcing and securing project partners.



Step 9. Draft and execute agreement with the market

Item	Description
Objective	• Secure formal collaboration agreement with the market. • Provide the developers with an enforceable contract in case of litigation.
Owner	Developer
Resource requirements	• Legal advisers • Several weeks, depending on the market associations.
Input	• The developer PM responsible for the market should confirm who in the market association is responsible for signing the collaboration agreement. • Completed engagement with the market association (Step 3).

Item	Description
Process 	• Finalize the draft agreement with the market association (see **D.TE.3**: Template agreement between SPV and market association). • Engage the relevant person(s) to sign the agreement. • Follow up with the association leaders to get the agreement signed.
Output 	Legal agreement with the market, signed and filed
Reference tools and documents 	**D.TE.3**: Template agreement between SPV and market association.

Step 10. Incorporate the SPV

Item	Description
Objective 	Incorporate the SPV to create a distinct legal entity, wholly owned by the developer, for each market. The SPV will execute the power-purchase agreement with the electricity consumers. The legal entity will provide security and flexibility to the developers and investor and implement different tariffs based on the market context. However, project financing and procurement may be carried out centrally to maximize economies of scale.
Owner 	Developer with the support of legal adviser(s).
Resource requirements 	Legal advisers for 2–3 weeks
Input 	• An object clause prepared and sent by the developer and the lawyers that states the purpose of the SPV and the range of activities to be carried out.

Item	Description
	• Shareholding structure.
Process	• Identify directors and a company secretary for the SPV and provide all relevant documents to the lawyers (developer). • Submit the SPV name to the CAC and create a Memorandum and Articles of Association (lawyers). • Make payments and submit all documents to the CAC. • On receipt of the company registration ID file, register for a tax identification number (lawyers).
Output	SPV to execute the power purchasing agreement with the market.

Incorporate the SPV as early as possible to ensure that there is a legal entity that can conduct key early activities, such as mobilizing contractors and securing any agreements.

Step 11. Execute legal agreements with other partners

Item	Description
Objective	Establish a technical collaboration agreement (comprising four project-specific agreements) with partners to define the roles and responsibilities of the SPV and its sub-contractors or technical partners who are jointly responsible for execution.
Owner	Developer's legal adviser
Resource requirements	• 1 legal adviser • 1 technical lead • 1 commercial lead
Process	• Draft the following four agreements:

Item	Description
	– *Procurement delivery agreement* defines terms and party liability for moving equipment from one location to another; usually requires insurance for equipment (see **D.TE.10**: Template for Procurement delivery agreement). – *Operations and maintenance agreement* define which party is responsible for maintaining the energy-solution systems such as repair frequency, panel cleaning, and box servicing (see **D.TE.11**: Template for Operations and Maintenance agreement). – *Engineering, procurement and construction agreement* (see **D.TE.12**: Template for Engineering, Procurement and Construction Agreement). – *Payment services agreement* defines roles, terms, and conditions for payment partners to collect energy payments from traders and remit these to the developer (see **D.TE.13**: Template for payment services agreement). • Syndicate all agreements with partners for review and signature.
Output 	All four technical collaboration agreements finalized and signed.
Reference tools and documents 	**D.TE.10**: Template for Procurement delivery agreement **D.TE.11**: Template for Operations and Maintenance agreement **D.TE.12**: Template for Engineering, Procurement and Construction Agreement **D.TE.13**: Template for payment services agreement

If the developer is also an EPC and O&M service provider, draft the contracts to avoid any conflict of interest.

Step 12. Assess environmental impact of the project (optional)

Item	Description
Objective 	Evaluate the environmental impact of the project on the market (the deployment focus of decentralized solar makes this optional for EEI projects).
Owner 	Developer (“proponent”) commissions the assessment through a registered consultant, for example, Environmental Accord.
Resource requirements 	Registered consultant
Process 	• Submit project proposal and terms of reference to the Federal Ministry of the Environment. • Conduct initial environmental evaluation, including site verification. • Hold scoping workshop/meeting with regulators and stakeholders. • Submit terms of reference for approval by the Federal Ministry of the Environment. • Conduct the assessment (registered consultant). • Submit draft report to the in-house review committee. • Review the draft (in-house review committee and public review comprising 21-day advert in two national dailies and radio announcement). • Approve or disapprove the draft (in-house committee). • Monitor impact mitigation (in-house review committee comments, makes recommendations, and advises mitigation). • Submit final report to the Federal Ministry of the Environment. • Approve final report (Federal Ministry of the Environment). • Conduct an environmental audit. (see **D.G.8**: Guide for conducting environmental impact assessment)

Item	Description
Output	Report outlining result of the environmental impact assessment.
Reference tools and documents	**D.G.8**: Guide for conducting environmental impact assessment

An Environmental Impact Assessment is optional but advisable for most EEI projects; the legal team may advise on what is most relevant to the specific location of the site.

Step 13. Submit licence application to the NERC (where required)

Item	Description
Objective	Ensure that the developer is operating within the confines of existing regulations.
Owner	Developer
Resource requirements	• Developer's legal adviser (to support the application process). • NERC Regulation for Mini-Grids 2016. Regulation No. NER/-R-110/17
Input[2]	Understanding of regulatory constraints on the quantity of power that can be generated and distributed; rules are more stringent when the developer wants to generate more than 1 MW of power. Two forms of mini-grid exist: isolated mini-grid and interconnected mini-grid: **Isolated mini-grid** (with capacity of 100 kW – 1 MW). The developer and the community must sign an agreement that is binding on approval

[2] Applicable in January 2019

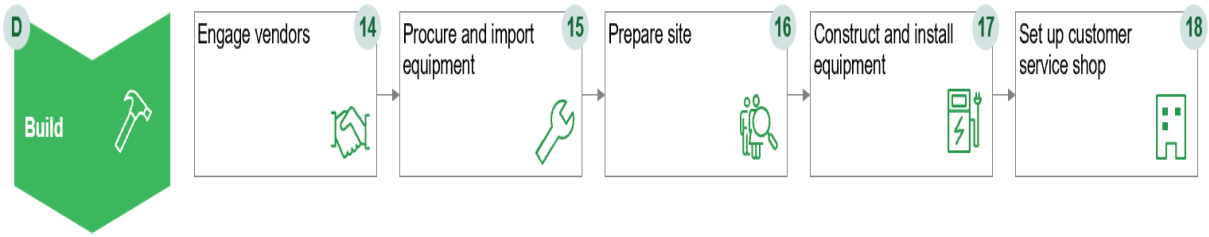
Item	Description
	by the NERC. The process to obtain a licence to construct, operate, and maintain an isolated mini-grid is as follows: • Submit application for an area to the NERC (mini-grid activities should not interfere with any DISCO expansion plans approved by the NERC). • Where the proposed area falls within the five-year expansion plan of a DISCO, obtain written consent from the DISCO to operate within that area (the area should be underserved and not previously assigned to another developer or DISCO). • Submit the agreement between the developer and the community to the NERC. • Ensure that land has been leased and all necessary permits granted to the mini-grid developer. • Calculate tariffs based on the multi-year tariff order (MYTO) methodology approved by the NERC. • Comply with the NERC's health and safety measures. The process to obtain a licence to construct, operate, and maintain an isolated mini-grid with capacity up to 100kW is as follows: • Follow the same process as for isolated mini-grids with capacity of 100 kW – 1 MW (see above), or • Complete the registration form for mini-grids below 100 kw (see mini-grid regulation Annex 2). This process is advised. **Interconnected mini-grid**. The connected community, mini-grid developer, and DISCO must sign a tripartite contract binding on all parties on approval by the NERC as follows: • Submit application for the intended area to the NERC. • Agree (all three parties) on the tariffs using the NERC's MYTO and approve them (NERC).

Item	Description
	• Ensure that the tripartite agreement conforms with Annex 11 of the Mini-grid Regulation. ***Ensure that the legal team advises on any regulatory changes.***
Process	Apply for the mini-grid permit through NERC (see requirements and application process at http://www.nercng.org/index.php/home/operators/mini-grid). ***A developer will need to do this for its entity and should seek for it to cover all EEI-related activities, regardless of state of operation.***
Output	Mini-grid permit or registration allowing the developer to provide energy.

Request a Letter of No Objection from the NERC stating the deployment request for the relevant system with the range of energy to be provided. This letter permits the developer to implement solar systems under the EEI in collaboration with the REA.

PHASE D – BUILD

This phase involves conducting key technical activities required for construction, such as engaging contractors and procuring and mounting equipment.



Step 14. Engage vendors

Item	Description
Objective 	Ensure that materials of the right quantity and quality can be purchased at the right time.
Owner 	Developer
Resource requirements 	• 1 contract administrator • 1 commercial lead
Input 	• List of all the equipment required for construction, with quantities and detailed specs (step 6). • List of potential vendors to engage locally and internationally. The REA may provide a list for energy-efficient non-standard appliances.
Process 	• Reach out to vendors to confirm availability of equipment. • Compare pricing, delivery timeline, and payment terms. • Negotiate bulk discounts and financing terms to help manage cash flows. • Discuss alternative solutions, such as local procurement or air freighting, to resolve logistics constraints.
Output 	A detailed procurement plan containing the following: • Equipment list, • Potential equipment vendors, • Item prices, • Lead times for all items for each vendor, and • Payment terms, if any.

- ***Consider alternative solutions, such as local procurement or air freighting, to resolve logistics constraints; vendor financing agreements can help manage cashflow.***
- ***Ensure flexibility in the procurement plan and engagement with vendors.***

Step 15. Procure and import equipment

Item	Description
Objective	Purchase and deliver equipment and other materials to site as needed.
Owner	Developer
Resource requirements	• 2–3 procurement/supply chain officers • Funds to purchase items
Input	Based on the deployment plan and pre-determined deadlines for procuring items, the developer needs to place orders for all equipment required to deploy the technology solutions while considering the following: • **Delivery lead time**: Engage vendors to determine equipment delivery timelines. For imported items, include the expected timeline for port clearance. • **Deployment schedule/latest order date:** Develop a deployment schedule to estimate the "go-live" date based on item order dates. This enables the developer to determine the latest date that all equipment should be ordered (see **D.G.9**: Guide for estimating deployment timelines).
Reference tools and documents	**D.G.9**: Guide for estimating deployment timelines

Item	Description

- ***Test equipment with the traders before making a final decision, as they may not be comfortable with certain appliances.***
- ***Establish import duties and evaluate air and sea freight costs.***

Step 16. Prepare the site

Item	Description
Objective	Prepare the site for contractors.
Owner	Developer
Resource requirements	• Technical head • Technical deployment leads for each site
Input	• System design detailing the number of hubs and earthing spots required (Step 4). • Quantities of equipment needed and estimated storage space required (Step 6).
Process	• **Identify and secure hub(s) and the customer-service shop:** – Identify, secure, and pay for the hubs required to house the installation boxes for the decentralised solar system in EEI Phase 1 ahead of construction. – Identify and secure the location for the customer-service shop; this may require working with the market associations.

Item	Description
	Alternatively, engage shop owners to rent or buy spaces directly. • **Secure storage/warehouse and other logistics support:** Identify and pay for a storage space in or around the market where equipment and items can be stored; secure a vehicle to move contractors and materials. • **Develop a wiring and earthing plan.** • **Assess and identify roof space to mount panels.** • **Inform key market stakeholders about planned construction:** Conduct a site visit to re-engage with market association leaders and traders and inform them formally of construction timelines; inform security personnel of planned activities.
Output 	• Hubs and customer-service locations identified and paid for; market ready for contractors to commence work. • Map of cabling and earthing plans, list of shops to be powered, and market measurements.

Identify locations for customer-service shops and hub locations and hold discussions with market associations/owners to secure them.

Step 17. Construct and install equipment

Item	Description
Objective 	Put the systems in place for construction to power shops.
Owner 	Developer

Item	Description
Resource requirements	• Contractors for construction activities: the number will depend on the run rate of engineers, the number of shops to be powered, and the construction period. • Quality control personnel
Input	• Hubs secured to house the installation boxes. • Local transportation and logistics planning, including a vehicle to move contractors and materials. • Equipment on site and available in the warehouse. • Construction drawings and installation manuals. • Wiring and earthing plan. • Checklist of quality control measures.
Process	• Prepare the site and secure all equipment. • Mobilize contractors and all relevant personnel to start construction. • Construct and install equipment. For the decentralized solar solution, this includes the following: – Wiring, – Hub set-up, – Earthing, – PV installation, and – Testing. • **Develop payment integration systems** to charge customers for power as soon as construction is complete: – Integrate with platforms such as Interswitch, Paga, Quickteller, and other third-party payment platforms. – Set up a core system to track billing information. – Recruit and train agents to collect cash from traders and handle the billing system for those who make electronic payments.

Item	Description
Output	Construction complete and power provided to the traders,

Observe quality-control measures to prevent work that is below par or reconstruction.

Step 18. Set up the customer-service shop

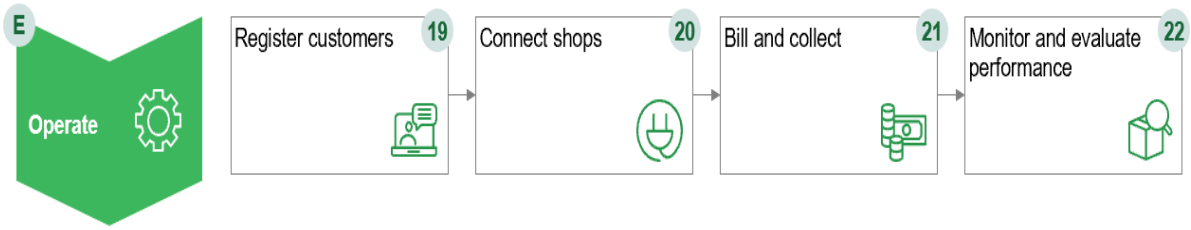
Item	Description
Objective	Set up a customer-service shop where traders can ask questions, make payments, and provide feedback on systems or services.
Owner	Developer
Resource requirements	• Technical contractors for each site • Designer to design and construct shops • 10–14 days for shop construction
Input	• Selected payment integration platform
Process	• Design, construct, and furnish the shop. • Staff the shop with one or more representatives trained in the EEI on how to attend to customers and collect tariffs.
Output	Customer-service shops are available in all markets before construction is completed.

Ensure customer-service shops have:

- ***Location easily accessible to traders,***
- ***Service desk and chairs,***
- ***Customer-service agent available during working hours,***
- ***Point-of-sale equipment and cashier available for payments,***
- ***Customer Relationship Management system available and integrated with the payment system, and***
- ***Telephone to receive customer questions and comments.***

PHASE E – OPERATE

This phase involves key post-construction activities such as running operations and billing and collecting payments from customers.



Step 19. Register customers

Item	Description
Objective	• Register customers and sign all relevant documents before power is provided. • Ensure that both customers and developers are protected legally.
Owner	Developer
Resource requirements	• Teams at each site; one person can capture data from and sign up 30–40 traders a day. • Draft contract with the market.
Input	• Construction under way to manage customer expectations.

Item	Description
	• Payment platform on which customers can be registered. • Meters installed.
Process 	• **Capture data from traders**: Obtain information from end users on usage patterns, appliances, and tariffs to be paid; add the users to the payment platform with their meter information. • **Sign customers up** after construction and testing. Have customers sign the contract for power supply at pre-determined fees and make the first payment.
Output 	All customers have signed the agreements and made the initial payment.

Step 20. Connect shops

Item	Description
Objective 	Ensure that traders receive power.
Owner 	Developer
Resource requirements 	Technical team to turn on the power.
Input 	• All construction work complete and meters installed. • All quality checks in place. • Contracts signed by the customers. • Initial payments received.
Process 	• Ensure that the input above is complete. • Turn on the power after testing.

Step 21. Bill and collect

Item	Description
Objective	Ensure that customer payments can be collected and processed.
Owner	Developer
Resource requirements	• Technical staff and engineers (to build and integrate payment systems). • Agents recruited and trained (to collect payments from traders).
Inputs	• Meter installation completed (to enable customer billing). • Tariffs determined (to enable customer charging). • Payment-integration system built and tested.
Process	• Notify customers of bill payments based on assigned tier. • Communicate payment methods. • Collect and process payments. • Continue communicating with traders to ensure that they are satisfied with the service and keep paying.
Output	Payment is collected from traders.

Step 22. Monitor and evaluate performance

Item	Description
Objective	• Track data and gather information from traders. • Share lessons learned and ensure that systems improve continually.
Owner	Developers and REA (to monitor performance)

Item	Description
Resource Requirements	Online monitoring systems
Input	• Odyssey is available, and the developer is familiar with it. • Meters to feed information directly into Odyssey.
Process	• Monitor Odyssey dashboards and use the information to advise decisions in the market. • Collect feedback from the traders on the solution provided to understand which areas need work.
Output	• System to track and monitor performance, including dashboards that can be viewed by relevant stakeholders. • Periodic reporting to stakeholders.

7. Appendix

7.1. TOOLS

D.T.1: Excel tool for prioritizing markets for electrification

D.T.2: Tariff pricing model

D.T.3: Project deployment

7.2. TEMPLATES

D.TE.1: Template for inputting market information

D.TE.2: Template for legal agreement between the SPV and the state government

D.TE.3: Template agreement between SPV and market association

D.TE.4: Sample schedule of communications activities

D.TE.5: Template for townhall agenda

D.TE.6: Template for energy audit data

D.TE.7: Template for baseline survey data

D.TE.8: Condensed Market Baseline survey and Energy audit report template

D.TE.9: Investor tracker

D.TE.10: Template for Procurement delivery agreement

D.TE.11: Template for Operations and Maintenance agreement

D.TE.12: Template for Engineering, Procurement and Construction Agreement

D.TE.13: Template for payment services agreement

7.3. ADDITIONAL GUIDES AND METHODOLOGY

D.G.1: Social impact of the EEI programme

D.G.2: Guide for communicating with key stakeholders

D.G.3: Townhall guide

D.G.4: Market townhall questions and answers

D.G.5: Guide for tariff pricing

D.G.6: Investor toolkit

D.G.7: Due Diligence Facts and Questions

D.G.8: Guide for conducting Environmental Impact Assessment

D.G.9: Guide for estimating deployment timelines

D.G.10: Details of construction activities

RURAL ELECTRIFICATION AGENCY

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