

# Community-centric model for solar mini grids

**Community members receive access to electricity as well as a share of the proceeds of the local solar mini grid, underlining the potential of community-centric business models in Nigeria**

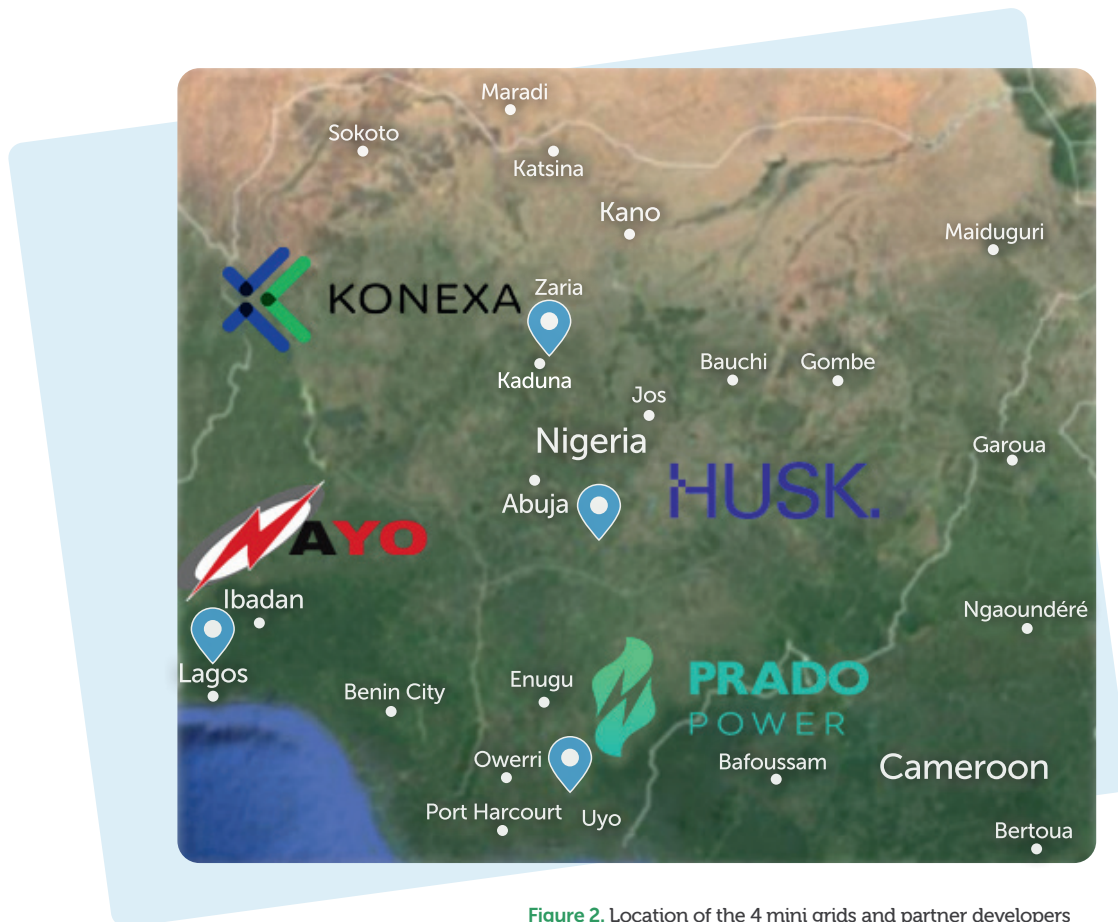
Since early 2023, the Sharing the Power project has enabled four existing mini grids in Nigeria to become more community-centric. The communities participating in the project now have access to a share of the proceeds that the mini grid yields, are supported in the development of appropriate community governance and management structures, and in some cases own a share of the system. Led by Rocky Mountain Institute, this project has set out to demonstrate the potential role that community-centric approaches can have in improving mini grid performance and in delivering greater socio-economic development impacts and community empowerment. This case study describes the lessons learnt from the project to date and delves into the experiences of Prado Power, a mini grid developer that has implemented community co-ownership principles in one of its mini grids in Akwa Ibom state, with the support of Sharing the Power.



**Figure 1.** Generation system of Prado Power’s 20 kW mini grid in the Mbiabet Ikot Esieyere community. Source: RMI, 2024a.

## General information

<b>Project name</b>	Sharing the Power and deep-dive into one of the participating communities (2023-24)
<b>Organisations</b>	Rocky Mountain Institute (RMI) and Prado Power Ltd.
<b>Location</b>	Mbiabet Ikot Esieyere community, Ini Local Government Area, Akwa Ibom state, Nigeria
<b>Focus dimension</b>	Business model design
<b>Type of action</b>	Electricity access intervention
<b>Financing sources</b>	Grant
<b>Technology</b>	Solar mini grid



**Figure 2.** Location of the 4 mini grids and partner developers within Sharing the Power. Source: RMI, 2024b.

## Introduction

In early 2023, the Rocky Mountain Institute (RMI) launched the [Sharing the Power](#) project. With support from the Dutch Postcode Lottery, the project aims to **test the impact that community-centric business models can have on the financial sustainability and development impact of mini grids**. The hypothesis is that different elements of community-centric business models, including co-ownership of the electricity source by the community, can ensure long-term performance of the system, improve the benefits to the communities, and leverage the community knowhow, resources and private capital. This in turn can help to accelerate the growth of the sector as a whole.

The project takes place in different geographical contexts across Nigeria (Figure 1). In each

beneficiary community, RMI partners with different well established mini grid developers, as follows:

- 1. Mbiabet Ikot Esieyere** in Akwa Ibom state  
- in partnership with [Prado Power](#)
- 2. Mokoloki** in Ogun state  
- in partnership with [NayoTT](#)
- 3. Chikaji Gwari & Hausa** communities in Kaduna state  
- in partnership with [Konexa](#)
- 4. Alagye** in Nasarawa state  
- in partnership with [Husk Power](#)

This case study describes the experience of Sharing the Power to date and focuses on the lessons learnt in Mbiabet Ikot Esieyere, a fishing community in Akwa Ibom state. The mini grid in this location was developed and is operated by Prado Power, a developer with a total of 10 mini grids in the state.

## Technology and operational model

All four mini grids participating in Sharing the Power are hybrid solar PV-diesel systems with varying generation capacity, between 20 and 100 kWp. In Mbiabet Ikot Esieyere, the solar PV installation has a capacity of 20kWp Solar, alongside 75KWh of battery storage and a 20kVA diesel generator. The mini grid was commissioned in January 2023, and partnered with Sharing the Power in December 2022.

Prado Power's mini grid supplies electricity to 180 households equipped with smart meters, as well as to shops, a pharmacy and a productive use hub. This hub is a shared use agricultural warehouse and processing unit developed with support from the [Energizing Agriculture](#) programme. It is operated by Farm Warehouse, a subsidiary of Prado Power, and is used for garri processing and for cold storage of fish through its two Koolboks deep freezers (see PeopleSuN case [study on Koolboks](#)).

The community is not connected to the national grid and in a first survey of demand carried out in 2021 diesel generators were the predominant source of electricity. The mini grid and hub are operated by staff from the community.

### Key figures

- 5 communities powered by 4 mini grids participated in the project (2023-2024)
- In Mbiabet Ikot Esieyere, 180 households, and approximately 500 people, receive electricity from the mini grid



**Figure 3.** A member of the Mbiabet Ikot Esieyere community, who stores his daily fish catch in the shared use cold storage units powered by the mini grid. Source: RMI, 2024a.

## Business and financing model

In order to gain insights into the potential and impacts of community-centric models, Sharing the Power supports the participating mini grid developers to reorient their business models towards a higher degree of involvement of the community, i.e., of the consumers of electricity. Sharing the Power model does not define the business model (e.g. tariffs, demand stimulation measures) of the participating mini grids. But the project supports them in integrating a number of private-community partnership mechanisms into it. These mechanisms are grouped under 5 thematic areas (Figure 4).

## FIVE key aspects to guide the design of community centric projects

1. Community ownership or co-ownership	To which degree does the community own the minigrid assets?
2. Governance Structure	How will the community be empowered in decision-making?
3. Benefit Sharing	How will revenue, profit or utility be shared with host communities?
4. Gender Equity and Social Inclusion (GESI)	How is the approach ensuring GESI?
5. Structure to Safeguard Community Investment	How will community investments be safeguarded?

**Figure 4.** Five key thematic areas that guide the choice of mechanisms implemented in each Sharing the Power participating site (RMI, 2024b).

Examples of the mechanisms considered under each of the guiding principles include (AMP/RMI, 2023):

- **Co-ownership:** for example, in the form of a Special Purpose Vehicle (SPV) or other formal arrangement where the community is able to formalise its share of the investment and partial ownership of the assets.
- **Inclusive governance:** for example, expanding the role of the Community Electricity Committee to ensure it is focused on maximising inclusion and the benefits to the community, or setting up new governance structures such as a re-investment sub-committee to administer the community's share of the mini grid's revenues.
- **Benefit-sharing:** where developers return a percentage of the mini grid proceeds to the community, which can then decide how to reinvest, or alternatively the developer funds projects for the community as part of their Corporate Social Responsibility activities.
- **Gender Equity and Social Inclusion:** different approaches (such as strengthening representation, capacity building) that can enable women and marginalised groups from the community to participate in mini grid governance
- **Safeguarding Community Investments:** includes measures to ensure the sustainability of the community-centric model, such as the development of by-laws and mandates that stipulate how transparency, accountability and other good governance practices will be applied.

The experience in Sharing the Power to date has shown that developers approach the five thematic areas and the menu of potential mechanisms in different ways, adapting them to their areas of expertise and the needs of the community (RMI, 2024b).

For example, in Mbiabet Ikot Esieyere, there is **no formal co-ownership** of the asset by the community, but there is a **benefit-sharing** arrangement as an addendum to the Community Power Committee agreement, whereby 20% of the mini grid proceeds go back to the community (with no related increase to consumer tariffs). In terms of community-centric **governance**, the Mbiabet Esieyere Community Development Initiative (of which Prado Power is a member) was established as an incorporated trustee, which is used to govern the assets and guide on reinvestment of the proceeds. The Community Development Initiative set up a bank account to safeguard the community investments. Finally, some of the **gender inclusion** mechanisms used include capacity building for women in the community and hiring women only as staff to operate the productive use hub, with the goal of encouraging their overall participation in decision-making.

Prado reports that the experience of developing these arrangements has been very positive, and that there have been no major hurdles to date. On the contrary, they perceive that the mechanisms in place will not only deliver economic impacts for the community but will also improve the revenues generated from the mini grid. The next section summarises some of the impacts observed so far.

## Social and environmental impacts

Despite the short time period over which the intervention took place, some specific impacts were quantified in a survey conducted at the end of 2023 (RMI, 2024b). Following the set-up of the benefit-sharing mechanism and other governance arrangements, Mbiabet Ikot Esieyere saw a 30% **increase in community attendance** in mini grid-related meetings, and the developers reported that the community was more willing to interact with the developers and that stronger two-way communication and trust developed. The mini grid also saw a **reduction in downtime**, and some early reports indicate that there is an **increased level of satisfaction** with the service (despite it being already relatively high). Lastly, the mini grid has stimulated the **creation of new businesses** and it was observed that households started to use higher Tier appliances such as electric kettles and freezers. The average number of fans per household also increased.



**Figure 5.** The productive use hub in Mbiabet provides cold storage for fish and garri processing machinery on a fee-for-service basis Source: RMI, 2024b.

In terms of mini grid performance, the output of the mini grid and the revenue per user remained relatively consistent over the project period. RMI and Prado estimate that these are changes that may take longer to be felt. Data on the impact on the community of reinvesting the community's share of revenues is not yet available.

## Future Outlook

Following the first phase of Sharing the Power, RMI intends to:

- Continue to monitor the impacts of community centric models in the first cohort of participating communities
- Apply the project concept in new communities in Nigeria and beyond. The [Africa Minigrids Program](#), active in 21 African countries, is adopting aspects of the Sharing the Power blueprint to enhance minigrids deployment.
- Explore the scaling potential of community-private partnerships in conjunction with community's demand pull (community-centric) , in contrast to more conventional supply push (developer- or utility-driven) dynamics, by leveraging the communities' own sources of financing, including through diaspora remittances and in-kind contributions.

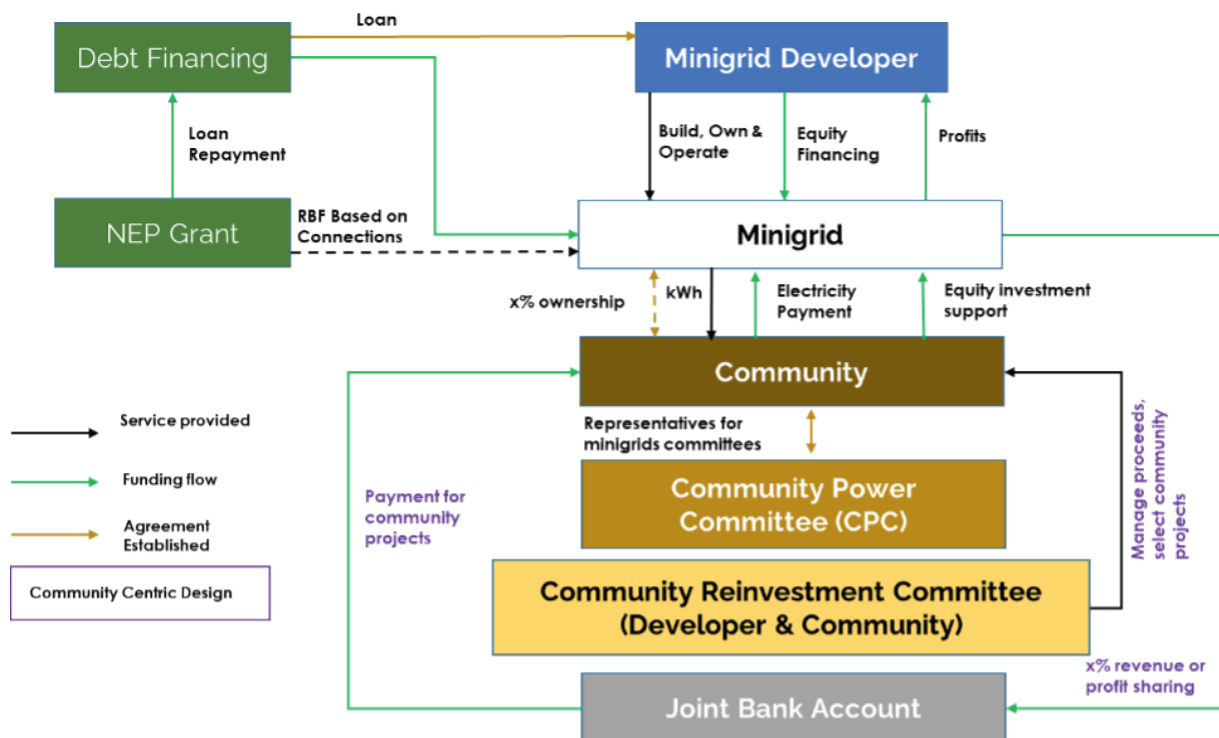


Figure 6. Schematic illustration of a community-centric business model (AMP/RMI, 2024)

## Replicability

Nigerian market represents a huge opportunity for mini-grids. The Rural Electrification Agency aims to deploy 10,000 mini-grids with a capacity of 100 kW each by 2030.

Successful mini-grid business models in Nigeria tend to be highly customer-focused, with a strong emphasis on community engagement. Some developers - such as Prado - already reinvest in the community as part of their business model. However, models do not yet explicitly incorporate community ownership. This is because there is very **low awareness** of community-centred arrangements and structures, and both developers and communities **lack experience** with them.

One central goal of Sharing the Power was to develop **a blueprint for community-centric business models** that is tailored to the current needs of the Nigerian mini grid sector and that supports developers in replicating the approach in the future. Based on the experience of Sharing the Power, RMI developed a generalised model for community-

centred models (Figure 6). It illustrates typical arrangements for a private-led model, as well as additional structures, agreements and financial flows.

In addition to the blueprint, replication of the Sharing the Power model will require building local capacity, continuing to promote the benefits of the approach and addressing misconceptions about it. One area with high potential for replication is the creation of a workforce of **trained intermediaries** who can facilitate the process and support communities and developers in setting up community-centric approaches.

Community co-owned models hold the promise of producing more financially viable and impactful mini grids in the long term. However, setting them up **takes time and effort**. Sharing the Power used grant funding to support its activities, carry out extensive research and engage intensively with a wide range of stakeholders (developers, communities, governments). Future efforts in this field will benefit from this pioneering project.

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## Lessons learnt

- The first observations after one year of activities under Sharing the Power showed signs that community-centric designs lead to stronger community-developer relationships and community satisfaction.
- In contrast to other approaches where full community ownership is sought, Sharing the Power embraced a partial community ownership approach, otherwise called community-private partnership model.
- Benefit-sharing schemes are valued the most by communities, more so than formal co-ownership of the assets.



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