
POWER FOR ALL FACT SHEET

Mini-Grids in India: Mini-Grid Finance and Business Models

POWER FOR ALL

4 years

AVERAGE PAYBACK PERIOD
FOR A SOLAR MINI-GRID

45 +

NUMBER OF MINI-GRID
COMPANIES OPERATING
IN INDIA

7.9 years

AVERAGE TIME FOR MINI-GRID
COMPANIES IN SOUTH ASIA TO
REACH POSITIVE NET INCOME¹⁸

India has seen rising investment in mini-grids, which can help accelerate India's Universal Energy Access by 2020 goals. In this fact sheet we explore the different business models being deployed in India, with their successes and challenges.

Mini-grid Ownership and Operational Models

Mini-grid ownership and operational models in India take various forms, ranging from community-based models to private mini-grids where companies are involved in different stages of the mini-grid projects.

- » Most publicly supported mini-grids are structured around community-based models, such as Village Energy Committees (VEC) or Rural Electricity Cooperatives (REC).¹
- » Community-based mini-grids have been found to be particularly effective when local communities are brought on as active stakeholders, allowing concerns to be raised freely.²
- » For private projects, there are several different business models, depending on which steps of the project the original business decides to be involved with.³
- » Build-own-operate models are the most common as they allow for control across the value chain, and since it is often difficult to find off-takers to own or operate the plant.⁴ For the same reason, build-operate-transfer is the least common model.⁵
- » As the sector's business models become proven companies with a preference for build-lease or build-sell models may have a higher chance of succeeding as technology suppliers to other owners or operators.⁶

Financial Models

Revenue collection is a commonly perceived challenge for mini-grid operators. Businesses have devoted resources and explored new ways to secure stable revenue streams.

- » A successful financial model for mini-grid operators is the Business to Business (B2B) and Business to Customer (B2C) model, where mini-grids sell to both businesses and consumers.
- » Commercial customers, such as telecom towers, ATMs, or petrol pumps, often buy power on a contract basis, allowing more stable (anchor) demand that continues even if central grid arrives.⁷
- » Most companies collect payments from customers with field collection agents.⁸ As a result, payment collection can be up to about 50% of a mini-grid company's costs.⁹
- » Some companies are experimenting with different payment collection models, such as group payment collection (where the field agent comes to a group meeting where everyone pays together), mobile

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payment systems, or pay-as-you-go systems.¹⁰

- » Some businesses also offer appliance sales as an add-on, seeking additional revenue streams that can be maximized through new electricity connections.¹¹
- » Recent IFC research finds on average, mini-grid companies can achieve net positive income in 6 to 7 years.¹²

Tariff Models for Mini-Grids

The unique roles mini-grids often play raise particular issues around finding a tariff structure that can maximize electrification while encouraging investment.

- » Grid-level tariffs are almost invariably cheaper than cost-reflective mini-grid tariffs. While these cheaper tariffs would remove any cost barriers for potential customers, they can also discourage investment into the mini-grid sector.^{13 14}
- » A compromise between these two extremes is needed to encourage mini-grids, for faster and more reliable electrification. Examples include cross-subsidies based on customer classes or setting differential tariff levels based on micro-grid size and capacity.¹⁵
- » It is also critical to consider mini-grids as a hybrid component of the grid--not necessarily a supplement to the grid or a redundant stop-gap.¹⁶ Subsidies, cross-subsidies, or other support provided to mini-grids must keep this long-term vision in mind.

Share the Message

India has a vibrant mini-grid sector with various business models and strong commercial prospects. There are, however, challenges that remain when it comes to financial models and tariff structures. Join Power for All to share the following messages:

- » Mini-grid ownership and operational models take different forms, depending which stages of project development companies choose to be involved in.
- » Businesses are coming up with new and innovative ways to ensure payment such as securing anchor customers and relying on mobile payment systems. Payment, however, remains a challenge for many mini-grid businesses.
- » Finding tariff and support structures that can encourage electrification and investment will be a key challenge for the mini-grid sector.

Sources:

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