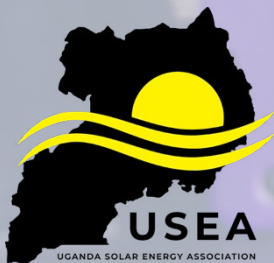


PURE Market Status Report

Supply Side

Uganda



IKEA Foundation

August 2026

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Applications, Customer Segments & Sales Performance

Abbreviations

PURE

Productive Use of Renewable Energy

USEA

Uganda Solar Energy Association

GOGLA

Global Off-grid Lighting Association

HH

Household

SHS

Solar Home System

PAYGo

Pay-As-You-Go

PV

Photovoltaic

PUE

Productive Use Energy

SWPs

Solar Water Pumps

MFI

Microfinance Institution

MSMEs

Micro Small and Medium Enterprises

C&I

Commercial & Industrial

UGX

Uganda Shilling



Background

Context and objective

Background

USEA, with the support of GOGLA and funding from the IKEA Foundation, conducted a supply-side survey for PURE in Uganda between Q4 2024 and Q3 2025

The objective of the survey was to collect information for updating the status of PURE supply side in Uganda

The survey focused on the following areas:

- Company landscape and geographic footprint
- Business models and distribution channels
- Technologies promoted and customer segments
- Sales performance
- Key success factors and challenges

The dataset provides a strong directional view of market dynamics, particularly for commercially active and growth-oriented PURE companies

42

**companies participated
in the survey**

About USEA

USEA is an association that facilitates the growth and development of renewable energy businesses in Uganda

- USEA was formed in 2016 by private sectors companies that deal in solar energy business with help from private sector foundation, Ministry of Energy and Rural Electrification Agency
- USEA has established several working groups for advancing renewable energy solutions by addressing key areas such as policy advocacy, technology innovation, market development, and capacity building.



Summary

—
Key highlights
and takeaways

Summary

PURE is evolving into a critical enabler of rural economic transformation, not just energy access

Uganda's PURE market is nascent but expanding, driven by solar irrigation, agro-processing, and cold storage applications. Financing remains the biggest bottleneck, followed by awareness and policy barriers.

While adoption in areas such as basic refrigeration, cold storage, and agro-processing remains modest, growing awareness of energy's role in reducing post-harvest losses and improving food systems signals promising expansion opportunities.

Overall, the PURE market in Uganda presents a strong foundation for scaling integrated energy-agriculture solutions. Strengthening consumer financing, enhancing awareness, and aligning policies across the energy and agriculture sectors, PURE can become a key driver of rural economic transformation and climate resilience

PURE Market Context

Characteristics of PURE Companies

PURE suppliers have operations nationally, but distribution remains uneven across the country and dominated by larger companies

- Companies are mainly located in major cities and urban areas
- Sales occur across the country
- Most surveyed companies promoting PURE are large enterprises (typical annual turnover: more than 360M Uganda Shillings)

Distribution Models and Market Reach

Distribution in Uganda is fragmented and unevenly developed. A significant proportion of companies rely on direct-to-consumer sale and last-mile agents

- While these models support customer proximity and market penetration, they also introduce high operational costs and scalability limitations.
- Larger firms are better positioned to leverage hybrid distribution models, combining distributors and last-mile agents to expand reach. In contrast, smaller firms face structural barriers to scaling distribution, particularly in remote areas.

Key PURE Technologies, Customer Segments & Payment Models

Dominant PURE Technologies

Sales trends show a dual market dynamic

- High volumes of affordable, small-scale technologies (e.g. small solar water pumps, entry-level SHS).
- Increasing uptake of higher-capacity systems (e.g. >2kW SHS) for commercial and institutional users.
- Solar water pumps, particularly smaller units (<1kW), represent the most widely adopted productive-use technology, driven by affordability and suitability for smallholder farmers.
- Meanwhile, emerging technologies such as solar cold storage, milling, and drying equipment are gaining traction but still represent a small share of total sales, highlighting significant room for market development.

Key PURE Technologies, Customer Segments & Payment Models

Financing and Payment Models

The market is heavily reliant on cash-based transactions, reflecting both limited availability of consumer financing and risk aversion among companies

- Although PAYGo and installment models are present, their use remains secondary, and loan-based financing is underutilized.
- This creates a significant barrier to adoption, particularly for higher-value productive-use technologies, which require substantial upfront investment.
- At the same time, companies themselves face working capital constraints, limiting their ability to scale operations, expand distribution, and pre-finance customers. In addition to constraints to absorb subsidies (RBFs).
- Beyond constraints in accessing and absorbing RBF support, affordability and limited customer awareness remain key barriers to uptake, reducing the extent to which financing mechanisms can translate into sustained market growth.

Challenges and opportunities

Barrier Theme	Key Constraints	Matched Opportunities / Solutions
Customer Financing & Affordability	High upfront costs, expensive loans, low access to credit	- Expand PAYGo and asset financing models - Partner with SACCOs and MFIs - Introduce targeted subsidies (e.g. RBF)
Company Financing & Working Capital	Limited capital, pre-financing burden, slow loans	- Provide blended finance and credit lines - De-risk lending through guarantees - Increase access to working capital facilities
Distribution & Last-Mile Logistics	High transport costs, poor infrastructure	- Strengthen agent/distributor networks - Support localised service hubs - Promote partnerships with CBOs and cooperatives
Market Awareness & Customer Behaviour	Low awareness, preference for cheap products	Invest in awareness campaigns and demos - Promote ROI-based messaging - Use farmer groups and peer learning models
Product Quality & After-Sales	Counterfeits, poor service, low trust	- Enforce quality standards (e.g. VeraSol) - Strengthen certification and compliance - Build technician training programmes
Policy & Regulatory Environment	Tax inconsistencies, weak enforcement	- Harmonise tax policies for PURE products - Improve clarity and enforcement of exemptions - Strengthen coordination between URA, UNBS, and energy actors
Supply Chain Constraints	Import delays, high costs	- Streamline import procedures - Encourage local assembly/manufacturing - Improve supplier partnerships



Country Context

Electrification & PURE

Electrification in Uganda

Grid electrification remains the backbone of Uganda's energy access, though off-grid solar is becoming an increasingly important part of the mix

- National electrification rose to around 60% by 2025, up from approximately 11% in 2010.
- Of this, grid and mini-grid connections account for about 47% of national access, with stand-alone solar home systems (SHS) contributing a further 13%.
- The urban-rural divide remains pronounced: urban access stood at roughly 80% in 2025 (78% grid/mini-grid, 2% SHS), compared with about 43% in rural areas (30% grid/mini-grid, 13% SHS), underscoring the continued importance of decentralised solutions for closing the rural access gap.

Uganda's Energy Compact explicitly positions **grid expansion, mini-grids and standalone solar** as complementary pathways to last-mile access. By 2030, the Compact targets **85% national electricity access**, supported by the phased deployment of approximately **2,712 mini-grids and 6 million cumulative standalone solar systems**, alongside continued grid densification.



**Electricity access
in Uganda is 60%**

remaining population without access
concentrated mainly in underserved regions

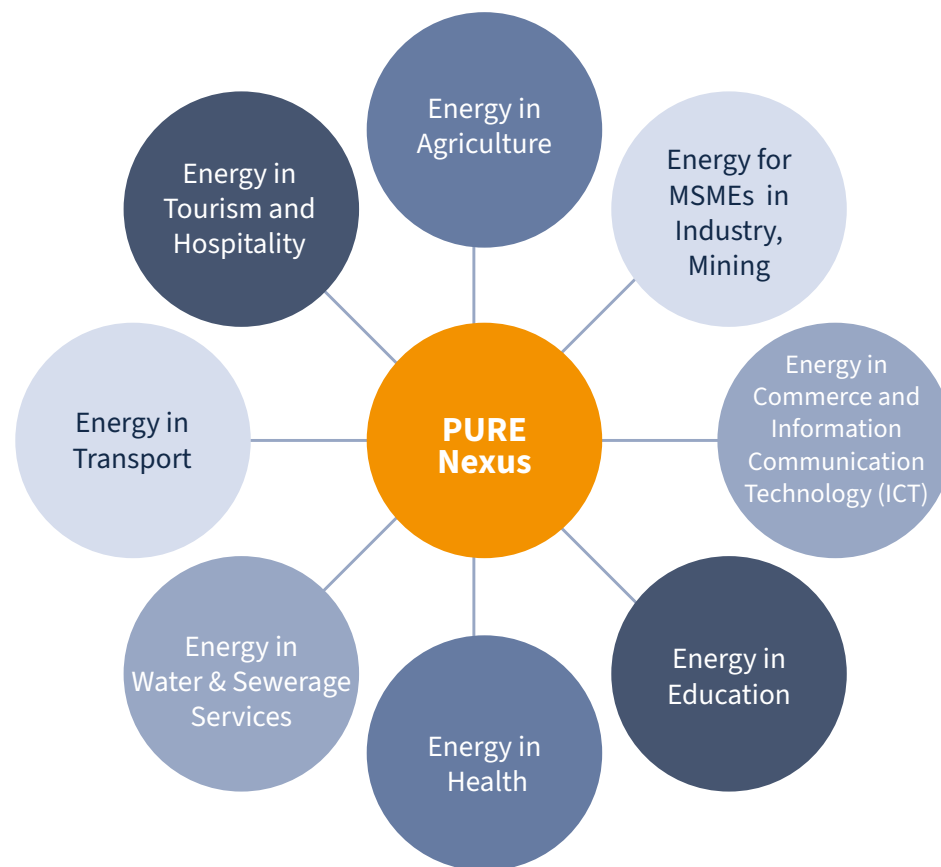
Productive use of Renewable Energy

Productive Use of Renewable Energy (PURE) refers to energy use that creates commercial value, for example in the form of increased productivity, income or employment creation, and includes improved energy efficiency or cost savings

Uganda's PURE market is growing steadily, driven by demand for agricultural and income-generating applications

Technologies are primarily used for:

- Water pumping and irrigation
- Agro-processing
- Cooling and storage

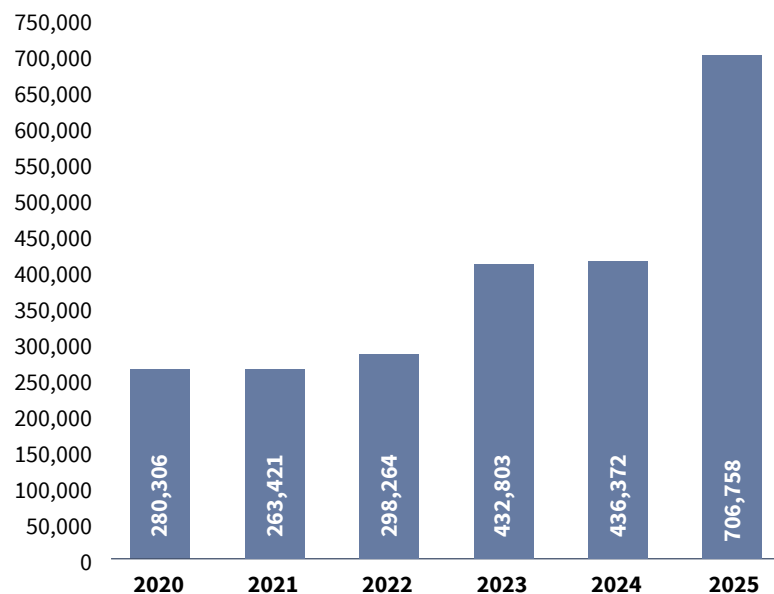


Sales Trends for Off-grid Solar Solutions

While SHS and solar lanterns are not universally classified as PURE, this report includes applications that use these technologies for productive activities such as powering businesses, lighting income-generating spaces, charging services, refrigeration, communications, and other livelihood-related uses.

Solar lantern and SHS sales averaged 403k units/ year since 2020

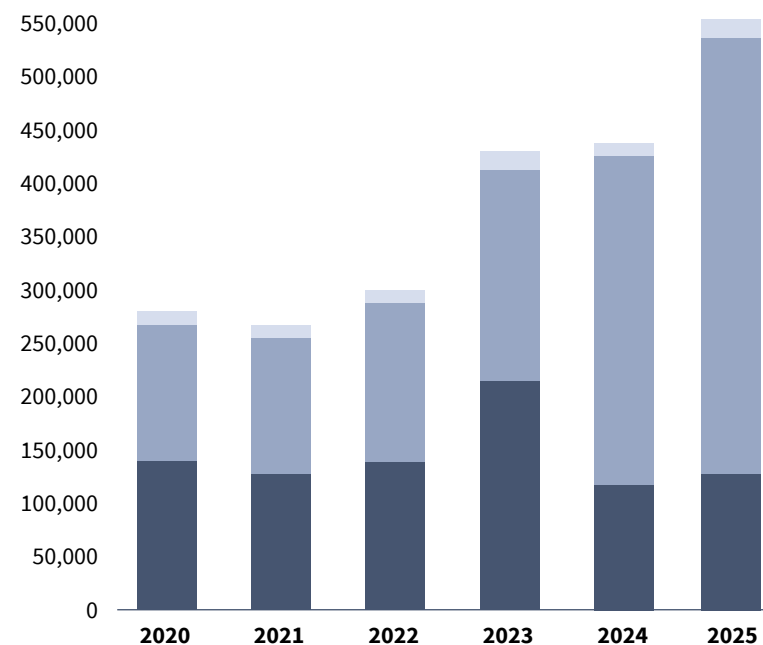
Annual sales volumes of solar energy kits in Uganda



Significant increase observed in 2025,
due to implemented RBF

Entry-level SHS driving growth in recent years

Annual sales volumes of solar energy kits in Uganda by category



■ Lantern
 ■ Small SHS (<50Wp)
 ■ Large SHS (>50Wp)

Source: GOGILA

Sales Trends for Solar Powered Appliances



TVs dominate the off-grid appliances market with an average 12,000 units sold annually in Uganda by GOGLA affiliates

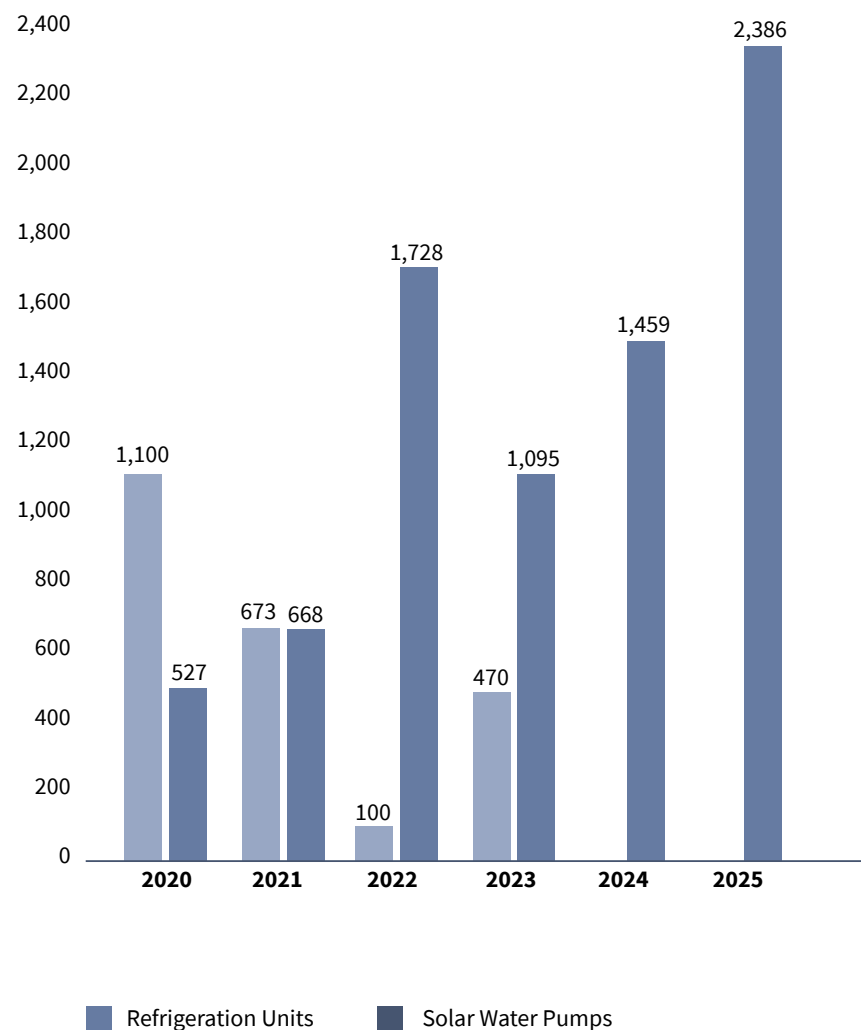


Solar Water Pumps (SWPs) market has shown growth potential in recent years and could develop further with adequate support



Solar fridges market yet to sustainably grow in Uganda

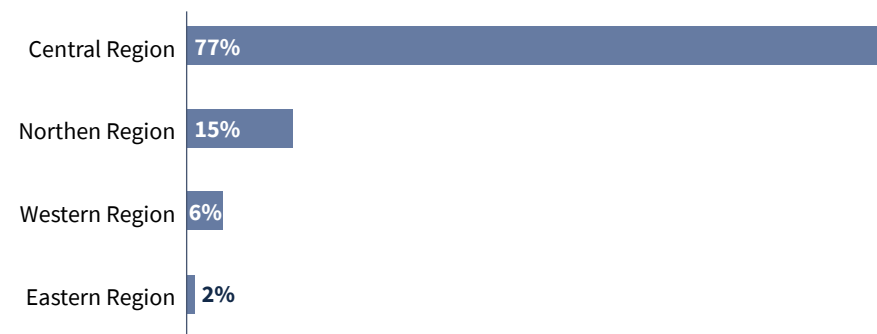
Annual sales volume of productive appliances in Uganda



Source: GOGLA

Companies Footprint

Sales Footprint of surveyed companies



Majority of the companies are located in major cities and urban towns

Sales cuts across the country despite the location of the companies

Sales and regional footprint is limited in arid & semi-arid lands (ASAL) or underserved regions

Most companies promote a range of energy solutions for different applications and customer segments

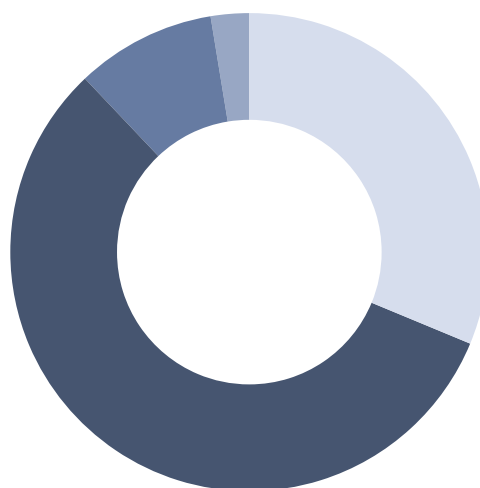
Size of PURE Companies

Company Size by Turn-over



■ Small
■ Medium
■ Large

Company Size by No. of Employees



■ 31% Less than 10
■ 10% 10-50
■ 57% 50-150
■ 2% Over 150

- Majority (55%) of surveyed companies are large with average annual turn-over more than 360M Uganda Shillings
- The presence of medium and large firms indicates increasing market structuring and readiness for investment

- PURE technologies are mainly promoted by large and medium companies, an indicator that financial muscle of the company is a key attribute to promotion of PURE technologies
- Lean organizational structures suggest cost-conscious operations and reliance on outsourced distribution

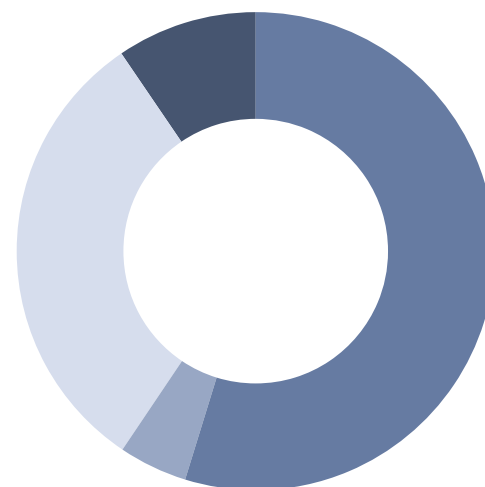


Majority (55%) of surveyed companies are large with average annual turn-over more than

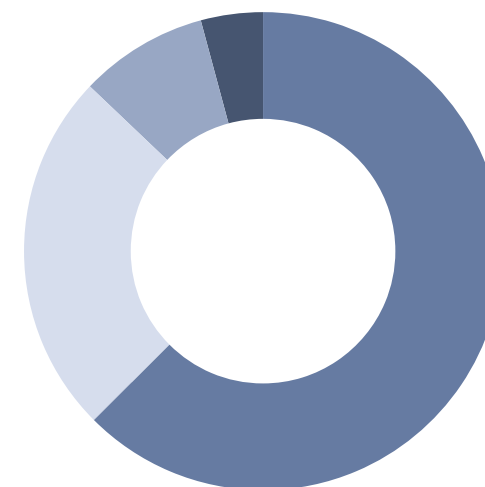
360 M
Uganda Shillings

Proportion of companies engaging distributors & last mile agents

Companies engaging Distributors/Dealers



Companies engaging Last mile Agents



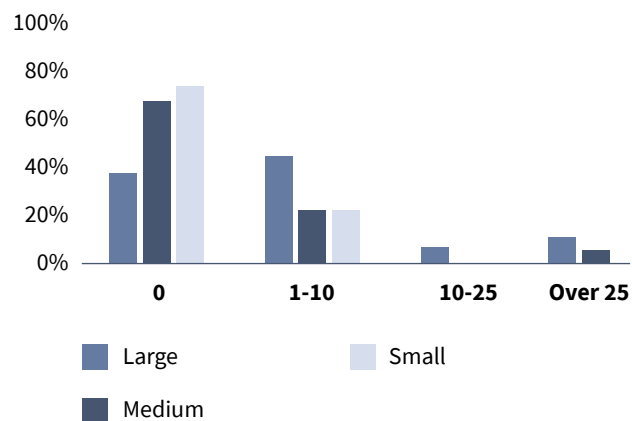
55%

of companies do not engage any distributors or dealers, indicating a preference for direct-to-consumer or through last-mile agents

- The majority (31%) of companies that engage bulk-buying distributors work with 1–10 distributors, while 14% engage with more than 10
- Most companies working with last-mile agents engage between 1–25 agents, suggesting they are predominantly small enterprises
- The market shows a fragmented distribution landscape, limiting scale efficiency. Direct-to-consumer models suggest closer customer engagement but higher operational burden

Distributors and last mile agents per company size

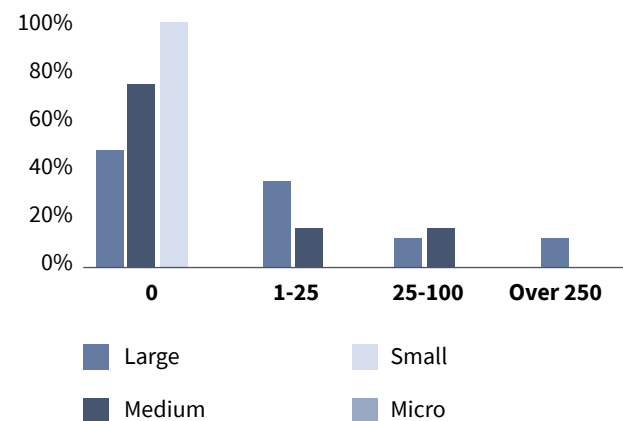
Distributors/ Dealers engaged per company size



- B2B distribution through distributors is primarily used by large companies. Medium and small companies also use distributors, but at a much smaller scale.

- While 1–10 distributor engagements are common across large, medium, and small companies, engagements exceeding 10 distributors are predominantly undertaken by large companies

Last mile agents engaged per company size



- Large companies engage both distributors and last-mile agents at scale
- Medium companies show mixed engagement
- Small companies have limited distribution reach

- Distribution scale is a key competitive advantage, particularly for higher-value technologies. Small firms face structural barriers to expansion due to limited distribution capacity.

Preference of Payment Models per company size

NB: This is based on the mostly used payment model i.e. 4 + 5 from the previous slide, and the percentages are calculated per category

Size of Company	Cash	PAYGo	Loan	Check-off	Fee for service	Payment by instalment	Rental	Others
Small	75%	25%	0%	0%	0%	75%	0%	0%
Medium	100%	67%	53%	13%	7%	67%	7%	7%
Large	100%	52%	61%	26%	22%	61%	13%	9%

- Cash Sales are universally used across all company sizes, especially dominant among micro and small enterprises.
- Limited financing options for small firms constrain market penetration among low-income users.
- Large companies are more likely to offer PAYGo and structured financing. Financial model diversity is directly linked to company capacity and liquidity.
- Fee-for-Service and Check-offs are niche, with limited adoption. Underutilization of loans points to weak integration between smaller energy providers and financial institutions.

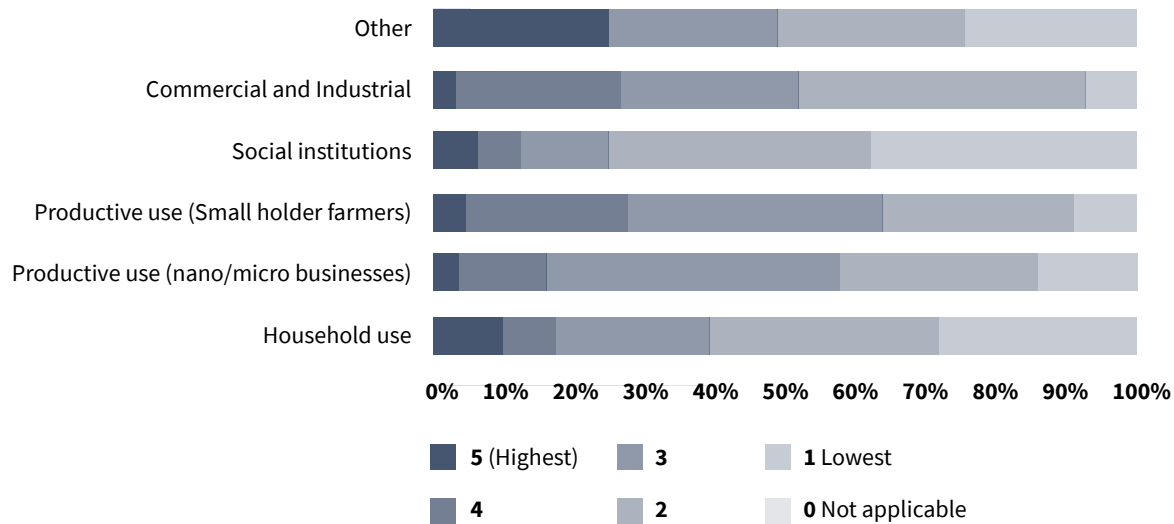


Findings

**Technologies promoted,
Applications, Customer
Segments & Sales
Performance**

Customer Segments

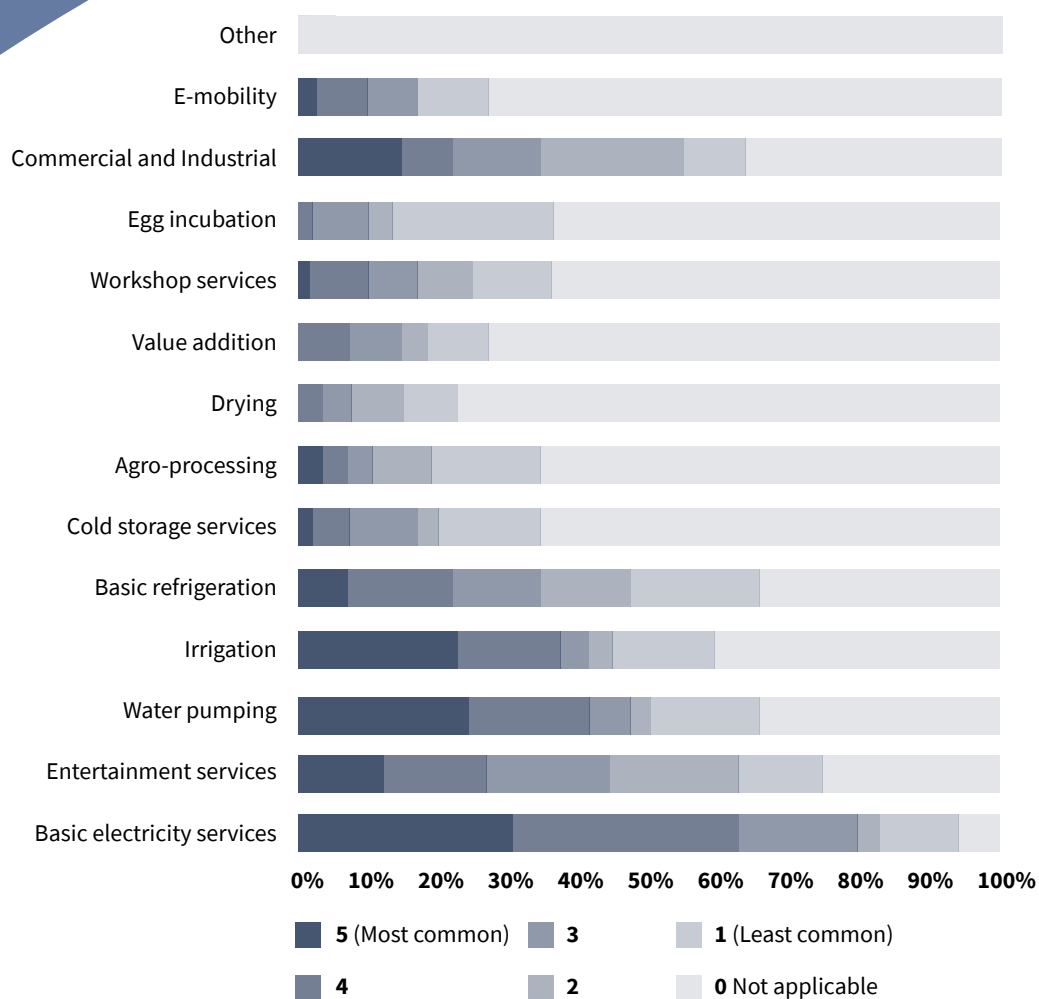
Customer type priority by preference/importance



- Companies target multiple customer segments with different prioritization levels due to preference or importance
- Lower prioritization of households suggests affordability and limited productive use cases at household level
- PURE for MSMEs and smallholder farmers is also a relatively higher priority focus for companies
- Commercial & Industrial trails HHs and PURE but a major priority, especially for larger companies

Applications for PURE technologies/appliances

Most common applications for promoted technologies



- Most companies promote multiple technologies for multiple applications with different priority or preference levels
- Basic electricity services (lighting, phone charging) and water pumping are the most prioritized applications for most companies
- Water pumping and irrigation remain the most mature PURE technologies, while other PURE solutions are either growing or emerging

Comparison of average annual units sold per selected product types

Average annual units sold over the 2021–2023 period

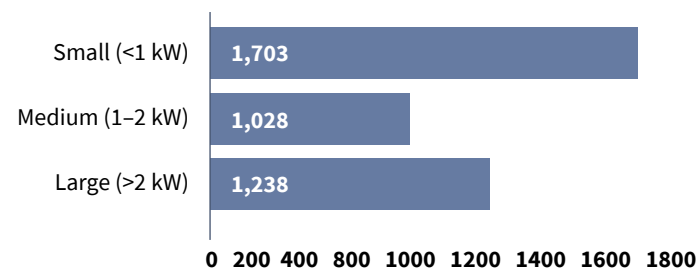
3,969

Average solar water pumps sold per year
≈89% of combined sales

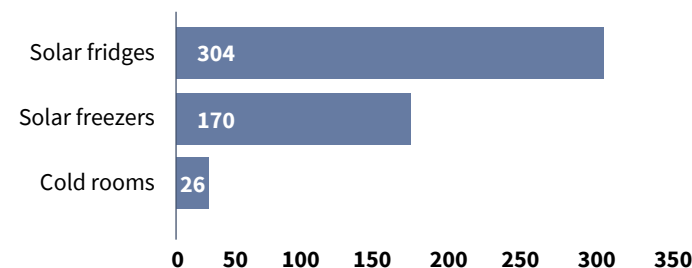
500

Average solar refrigeration units per year
≈11% of combined sales

Pump mix



Refrigeration mix



- Water pumping has achieved comparatively stronger uptake across system sizes; refrigeration is smaller and concentrated in fridges and freezers.



Key Takeaways

Technologies promoted,
Applications, Customer
Segments & Sales
Performance

Key success factors

Local last-mile sales agents

Improves customer outreach
and relationships.

Clear income- generating use cases

Durable, efficient, and context-
specific technologies are
gaining customer trust.

Innovative Business Models

Development of diversified business
models among larger players.
These must be commercially proven
business models

Effective partnerships across the ecosystem

Strategic partnerships (e.g. with financiers,
NGOs, development partners) on the rise

Government tax exemptions (VAT/Import Duty)

Reduces the initial investment of the products hence
making them more affordable

Key challenges

Affordability and technical complexity barriers	Policy inconsistency and limited targeted incentives for PURE technologies	High cost of reaching rural and remote customers and weak distribution capacities	Limited understanding of return on investment among end-users
Working capital constraints for companies	Limited coordination across value chain actors	Underdeveloped financial products tailored to PURE	High after sales service costs due to limited economies of scale
Weak linkages between companies and financial institutions	Limited capacity of SMEs (financial, technical, operational)	Limited coordination across value chain actors	Behavioural resistance and perceived risk

Key Takeaways

Government

Establish a predictable and enabling fiscal and regulatory framework that removes cost barriers and de-risks private sector investment in PURE technologies.

Deploy targeted public incentives and catalytic investments to accelerate adoption of high-impact productive-use technologies, particularly in underserved rural markets.

Development Partners

Scale blended finance and results-based financing mechanisms to systematically de-risk investments and unlock private capital across the PURE value chain.

Accelerate market activation through sustained investment in awareness, demonstration, and evidence generation for high-impact but underutilized technologies.

Strengthen enterprise and ecosystem capacity through targeted technical assistance that improves business viability, operational efficiency, and service delivery.

Investors & Financial Institutions

Design and deploy tailored, accessible financing solutions that align with the cash flows of farmers and MSMEs to unlock demand for PURE technologies.

Embed financing within supplier ecosystems through strategic partnerships that integrate credit at the point of sale and reduce customer acquisition friction.

Expand financial inclusion in rural markets by leveraging digital channels and simplified credit models to reach underserved customer segments.

Suppliers

Scale market reach through hybrid distribution models that combine last-mile proximity with structured, scalable delivery systems.

Stimulate demand through targeted awareness, customer education, and clear demonstration of the economic value and return on investment of PURE technologies.

Unlock new growth segments by diversifying into higher-value, productivity-enhancing technologies across agricultural value chains.



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