ENTER ENERGY SOMALIA (EES)

RAPID STOCK-TAKE ASSESSMENT REPORT

March 2026 | GA Business Consultant Ltd.

ACKNOWLEDGMENT

This rapid stock-take assessment was made possible through the collaboration of Mercy Corps, Baidoa Electric Company (BECO), IBS Bank, and the residents and entrepreneurs of the Barwaaqo IDP settlement. The assessment team is grateful to the women and men who participated in the business survey, focus group discussions, and key informant interviews and who shared their experiences openly. Their perspectives were central to understanding how electrification and Productive Use of Energy (PUE) support have influenced livelihoods, business performance, service quality, and future demand. The team also acknowledges the operational support provided by Mercy Corps and the technical and institutional insights shared by Baidoa Electric Company (BECO) and International Bank of Somalia (IBS), which strengthened the triangulation of findings and the practical relevance of the recommendations in this report.

Transforming Energy Access

TABLE OF CONTENTS

ACRONYMS

BECO	Baidoa Electric Company
EES	Enter Energy Somalia
FGD	Focus Group Discussion
FTE	Full-Time Equivalent
IBS	International Bank of Somalia
IDP	Internally Displaced Person
KII	Key Informant Interview
PUE	Productive Use of Energy
TEA	Transforming Energy Access

1. EXECUTIVE SUMMARY

1.1. Background

Enter Energy Somalia (EES) is a public–private partnership implemented by Mercy Corps through the Transforming Energy Access platform funded by the UK government through the British Embassy in Mogadishu, to demonstrate an inclusive and scalable model for clean electricity access and livelihood recovery in fragile and displacement-affected settings. Under Phase 1, the programme extended electricity distribution into the Barwaaqo IDP settlement and supported 149 largely women-led micro and small enterprises with energy-linked equipment, training, and financing support. Phase 2 shifts attention from infrastructure rollout to consolidation, demand stimulation, performance monitoring, and learning.

1.2. Key Assessment Findings.

104 (76%) Women-led supported businesses	132 (96%) Businesses reporting higher revenue	131 (96%) Businesses reporting expansion	131 (96%) Businesses satisfied with electricity (4–5/5)

The evidence indicates that the EES model generated strong early livelihood and enterprise outcomes. Among the 137 surveyed supported businesses, 75.9% were female-owned and 67.9% were general retail shops, while 21.9% combined retail shops with ice-related business activities. Survey results show that 96.4% reported increased monthly revenue, 94.2% reported improved profitability, and 95.6% described their business as expanded. Employment outcomes Enter Energy Somalia (EES) is a public–private partnership implemented by Mercy Corps through the Transforming Energy Access platform to demonstrate an inclusive and scalable model for clean electricity access and livelihood recovery in fragile and displacement-affected settings. Under Phase 1, the programme extended electricity distribution into the Barwaaqo IDP settlement and supported 149 largely women-led micro and small enterprises with energy-linked equipment, training, and financing support. Phase 2 shifts attention from infrastructure rollout to consolidation, demand stimulation, performance monitoring, and learning.

1.2. Key Assessment Findings.

104 (76%) Women-led supported businesses	132 (96%) Businesses reporting higher revenue	131 (96%) Businesses reporting expansion	131 (96%) Businesses satisfied with electricity (4–5/5)

The evidence indicates that the EES model generated strong early livelihood and enterprise outcomes. Among the 137 surveyed supported businesses, 75.9% were female-owned and 67.9% were general retail shops, while 21.9% combined retail shops with ice-related business activities. Survey results show that 96.4% reported increased monthly revenue, 94.2% reported improved profitability, and 95.6% described their business as expanded. Employment outcomes were also notable: before support, 83.9% of businesses had no employees beyond the owner, whereas after support 40.1% employed one worker and 55.5% employed between two and five workers. Using a conservative minimum-count approach based on reported employment categories, the number of direct jobs increased from at least 22 workers before support to at least 224 workers after support.

Electricity service performance was generally strong from the perspective of supported businesses. A total of 88.3% reported receiving 24 hours of electricity per day and 89.8% reported supply in the 18–24-hour range. Around 86.9% had not experienced voltage problems in the previous three months and 88.3% reported that their primary project supported appliance remained fully functional. At the same time, 20.4% reported one to five days of business closure in the previous month due to power issues, and 36.5% still considered electricity a material constraint to business growth, indicating that reliability has improved substantially but remains commercially significant for energy-intensive enterprises.

The financing component shows both traction and design gaps. Business survey results suggest that 44.5% of surveyed businesses reported receiving a loan, while IBS records indicate that all 149 supported businesses received equipment-based support ranging between USD 2,000 and USD 3,670 and that 18 businesses later accessed top-up loans to expand or strengthen their operations of between USD 1000 to USD1332. Demand for additional capital is exceptionally high, with 88.3% of businesses surveyed expressing interest in loan top up. However, formal financial inclusion remains uneven and self-reported loan data suggest that many respondents find it difficult to distinguish between equipment-based support, grants, and conventional loans.

Qualitative evidence from FGDs and KIIs strongly reinforced the survey results. Community members associated electricity access with improved safety, refrigeration, extended business hours, health access, evening education, and women's economic participation. BECO reported a current generation capacity of 11 MW against an estimated peak load of 3 MW, with planned solar expansion to 6 MW and 11 MWh of battery storage expected to lower tariffs by about 30%. Nevertheless, businesses and stakeholders highlighted ongoing drought, cash shortages, weak resilience planning, limited diversification beyond retail trade, and inadequate access to working capital as the main risks to deeper Phase 2 impact.

1.3. Recommendations

Phase 2 should prioritize higher-value and more energy-intensive enterprises, while preserving the programme's strong gender inclusion achievements. This requires a tiered support package that combines appliance support, flexible working capital products, tailored technical assistance, and closer post-investment follow-up. BECO's service quality improvements should be consolidated through stronger system redundancy, transformer expansion in under-served growth corridors, and customer facing transparency on outages[1] and billing[2]. At community level, the programme should respond to repeated requests for street lighting, support to electrified but non-business households, and practical training on energy use, enterprise management, and financial literacy.

1.4. Conclusion

Overall, the rapid stock-take assessment validates the core logic of EES Phase 2. Electrification and productive-use support are already associated with better business performance, stronger household welfare, and wider social benefits in Barwaaqo. The next phase should therefore focus less on proving the concept and more sharpening the model: diversify the enterprise portfolio, deepen financial inclusion, strengthen monitoring and resilience, and improve grid affordability and redundancy so that the gains observed to date can be sustained and scaled up.

2. BACKGROUND OF THE ASSESSMENT

2.1. Introduction

This report presents the findings of a rapid stock-take assessment undertaken to inform the implementation of Enter Energy Somalia (EES) Phase 2 in the Barwaaqo IDP settlement, Baidoa. The assessment was designed to generate practical evidence based on business outcomes, electricity service performance, financial inclusion, and pipeline opportunities for additional productive-use support.

[1] Outages: informing customers when there is a blackout, why it happened, which areas are affected, and when service is expected to return.

[2] Billing: making bills easier to understand by clearly showing how charges were calculated, what period they cover, and any arrears, adjustments, or penalties.

2.2. Energy Supply and Demand Situation System in Somalia

Somalia's electricity sector has historically been characterized by fragmented service provision, heavy dependence on diesel-based generation, high tariffs, and uneven access, especially in fragile and displacement-affected areas. In such settings, the main barriers are not only physical access to electricity, but also affordability, appliance access, enterprise readiness, and weak systems for service monitoring. The Barwaaqo case demonstrates why supply-side expansion and demand-side livelihood support need to move together: electricity access alone does not automatically translate into productive use unless businesses and households can afford appliances, financing, and business development support.

2.3. Enter Energy Somalia (EES) programme

EES is a public–private partnership funded through the Transforming Energy Access platform and implemented by Mercy Corps together with BECO and IBS bank. Under Phase 1, the programme extended electricity distribution into Barwaaqo and connected more than 3,091 households, 300 businesses and 7 public facilities. Of the business connected, it's supporting 149 mainly women-led enterprises with appliances, training, and financing-related support. Phase 2 is intended to consolidate these gains by strengthening BECO's performance monitoring and billing transparency, deepening PUE mentoring and market linkages, and generating evidence to guide replication and scale-up.

2.4. Objectives of the Rapid stock-take assessment

The assessment sought to: (i) evaluate the status and performance of previously supported PUE businesses; (ii) assess electricity service quality and BECO operational readiness for increased productive demand; (iii) review loan performance and financial inclusion dynamics with IBS Bank; (iv) identify and profile potential new energy-intensive businesses for possible Phase 2 support; and (v) generate evidence-based recommendations for programme adjustment and scale-up.

2.5. Purpose of the Assignment

The purpose of the assignment was to validate the implementation assumptions behind Phase 2 and identify the practical adjustments required to maximize livelihood, utility, and financing outcomes. In effect, the stock-take serves as a rapid baseline and gap analysis for Phase 2 technical assistance.

3. DESIGN AND METHODOLOGY

3.1. Assessment Setting

The assessment was conducted in the Barwaaqo IDP settlement in Baidoa, Southwest State of Somalia. The setting is characterized by displacement-related vulnerability, constrained livelihoods, exposure to drought shocks, and high demand for affordable energy services capable of supporting both household welfare and enterprise recovery.

3.2. Study design and Methodological Approach

A rapid mixed-methods design was used, combining quantitative business survey data with qualitative evidence from focus group discussions and key informant interviews. The design was utilization-focused and aimed at producing operationally relevant evidence for programme decision-making rather than a standalone academic evaluation.

3.3. Desk review and Secondary data

The desk review covered Enter Energy Somalia (EES) Concept Note and the Expansion Concept Note, IBS and BECO progress reports. These materials provided the basis for triangulating results and ensuring consistency between this report and the preliminary presentation already shared with Mercy Corps.

3.4. Sampling Procedure and Sample Size

The assessment originally intended to cover all 149 supported PUE businesses because the population was small enough to allow near-census coverage. The realized business survey carried out was conducted with 137 businesses, equivalent to 92% coverage. The primary data evidence package contained two documented FGDs: one mixed group in Barwaaqo 1 and one all-women group in Barwaaqo 2. Two KIIs were documented, one with BECO and one with IBS Bank. The screening dataset for potential new PUE businesses shared by IBS contained 30 profiled businesses.

Component	Planned / available frame	Realized / documented evidence
Supported PUE business survey	149 businesses	137 businesses surveyed (92%)
Community FGDs	5 FGDs planned in inception	2 documented FGDs (Annex 1)
Key informant interviews	BECO and IBS	2 documented KIIs (Annex 2)

Potential new PUE business screening	30–40 businesses planned	30 businesses profiled (Annex 3)

Table 1. Assessment design and realized evidence base

3.5. Data Collection Tools and Procedures

The structured business survey covered enterprise profile, energy access and appliance functionality, business performance, employment, loan outcomes, training effectiveness, market linkages, resilience, gender and inclusion, electricity service feedback, and future demand. FGDs explored perceived changes in daily life, enterprise opportunities, safety, education, and priority needs for Phase 2. The BECO KII focused on utility operations, infrastructure, billing systems, and strategic readiness; and the IBS KII examined portfolio performance, product design, risk, gender barriers, and monitoring systems. The new PUE pipeline tool profiled sector, energy intensity, revenue band, financing access, employment, expansion needs, and a composite priority score.

3.6. Data Quality Assurance Measures

Quality assurance relied on triangulation across multiple sources, cross-checking of survey outputs against the preliminary presentation and KIIs, and consistency review between demand-side, utility-side, and financing-side evidence. Because the business survey was analyzed in output tables, the analysis emphasized validation of proportions and patterns across sources and data points.

3.7. Data Analysis

Quantitative analysis focused on descriptive statistics, cross-tabulation interpretation, and conservative comparison of before-and-after employment patterns. The new PUE pipeline data enabled additional descriptive analysis of sector composition, energy intensity, finance access, and priority scoring. Qualitative evidence was thematically synthesized around livelihoods, safety, gender, utility performance, affordability, and programme adjustment needs.

Inferential regression analysis was only feasible in a limited sense because the prioritized business survey file contained aggregated tabulations rather than the raw row-level dataset required for robust multivariate modeling. For this reason, the report emphasizes cross-pattern analysis and triangulation, and interprets the potential new PUE scoring data descriptively rather than as a predictive model. However, Inferential regression analysis can still be conducted using the raw row-level dataset.

3.8. Ethical Considerations

The documented FGDs indicate that participants were informed about the purpose of the discussions and verbal consent was obtained. This report presents aggregated analysis and avoids unnecessary disclosure of personally identifiable information. Where the new PUE pipeline is summarized, the report uses anonymized business IDs in the priority appendix.

4. FINAL ASSESSMENT FINDINGS

4.1. Productive Use of Energy (PUE) businesses

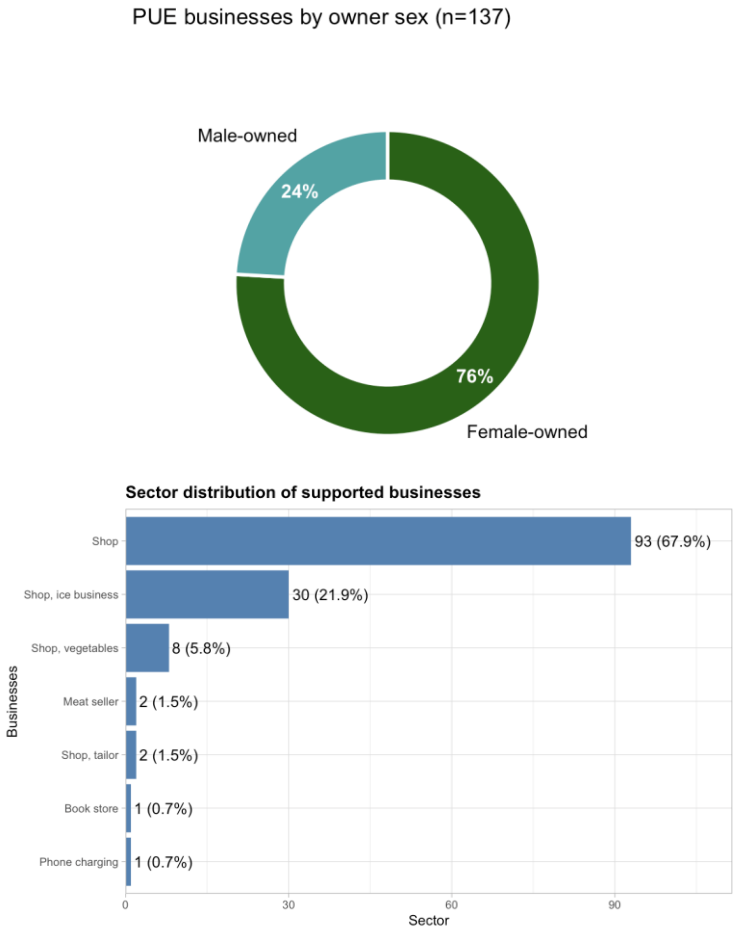

Figure 1. Ownership and sector distribution of supported PUE businesses

4.1.1. Business Identification and Profiles

The supported PUE portfolio is strongly women-centered and microenterprise-oriented. Of the 137 surveyed businesses, 104 (75.9%) were female-owned and 33 (24.1%) were male-owned. Most businesses were simple, owner-managed businesses operating as sole proprietorships. Sector concentration was high: 93 businesses (67.9%) were general shops, 30 (21.9%) combined shop and ice business functions, and only small numbers operated in vegetables, tailoring, meat, or phone charging. This concentration confirms that Phase 1 was effective at stimulating broad-based microbusiness activity, but it also signals limited diversification into higher-value and more employment-intensive value chains.

Business maturity was moderate rather than nascent. More than half of the businesses surveyed had operated for three to five years, while 21.9% had been operating for six to ten years. IBS Bank similarly reported that 86% of supported businesses were already in existence at the time of support, meaning Phase 1 largely strengthened existing businesses rather than seeding entirely new enterprises.

Spatially, most businesses remained within their original registration blocks, but movement was more common in Barwaaqo 3, where 45% of originally registered businesses were operating in other locations at the time of the survey. This suggests that some enterprises are separating lower-cost production from higher-demand market locations, using Barwaaqo for production and Baidoa town or other market areas for sales.

4.1.2. Energy access and appliance profiles

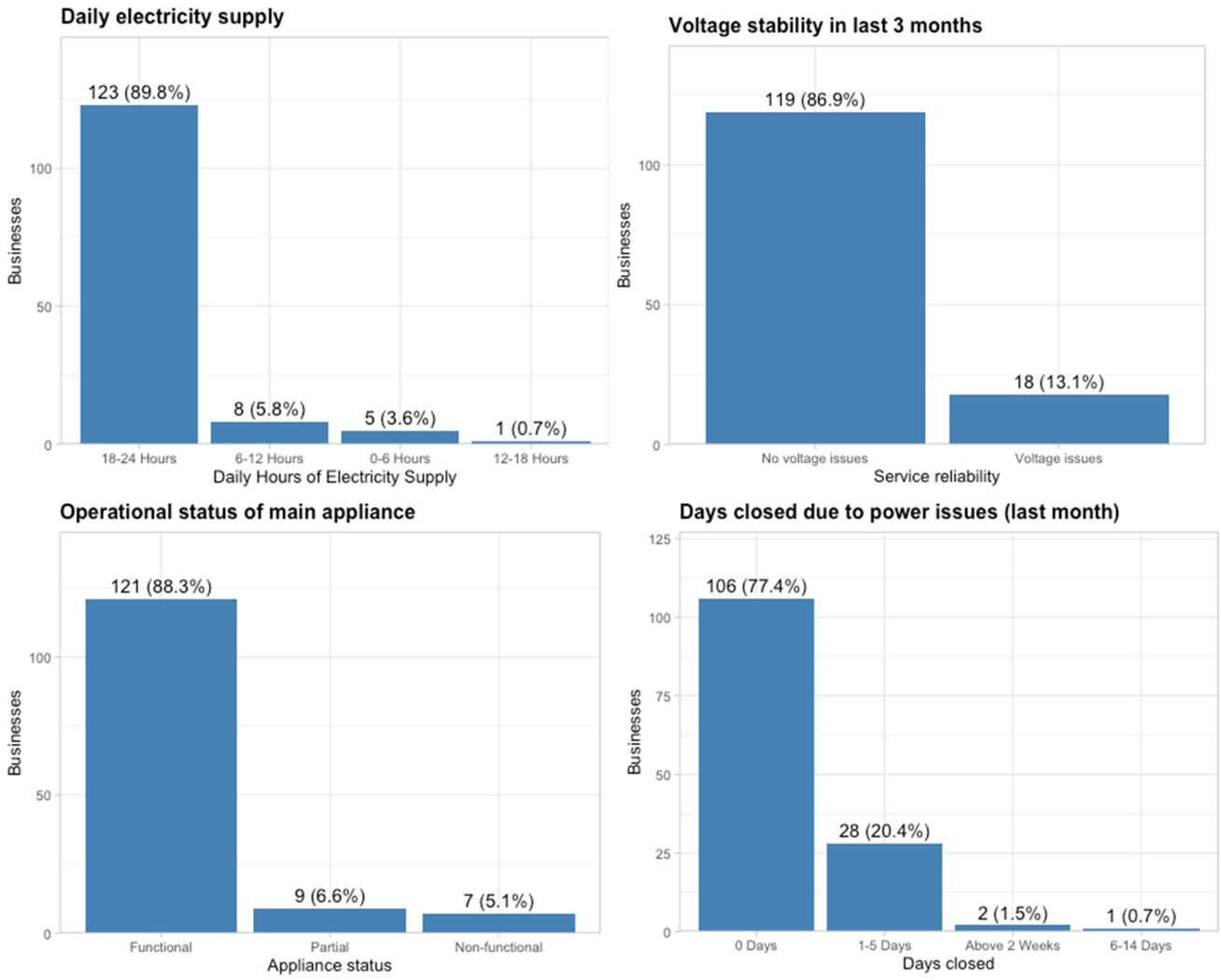

Figure 2. Energy access and service reliability

Electricity access conditions for supported businesses were generally favorable. A total of 121 businesses (88.3%) reported receiving 24 hours of electricity supply, while 123 (89.8%) fell within the broader 18–24-hour daily supply category. Around 119 (86.9%) had not experienced voltage problems in the previous three months while only 18 businesses (13.1%) reported voltage issues in the previous three months, though these were concentrated in Barwaaqo 2. This aligns with community reports that electricity is largely reliable, but that service interruptions and voltage instability still occur occasionally and matter commercially.

Appliance performance was also strong. One hundred and twenty-one (88.3%) businesses reported that their main supported appliance was fully functional, while 9 (6.6%) reported partial

functionality and 7 (5.1%) reported non-functionality. The appliance combinations observed in the dataset and preliminary presentation show that refrigerators, blenders, ice keepers, freezers, and juice-related equipment formed the core technology package, closely aligned to climate-responsive businesses such as cold drinks, ice, and food preservation.

Downtime remains commercially relevant despite the overall reliability gains. While 106 (77.3%) of businesses recorded no days closed due to power issues in the previous month, 28 (20.4%) reported one to five closure days and a small minority (2.2%) experienced more prolonged interruptions. For businesses that depend directly on refrigeration, juice machines, or ice-making equipment, even short outages translate into lost sales and product spoilage risk.

4.1.3. Business performance and productivity

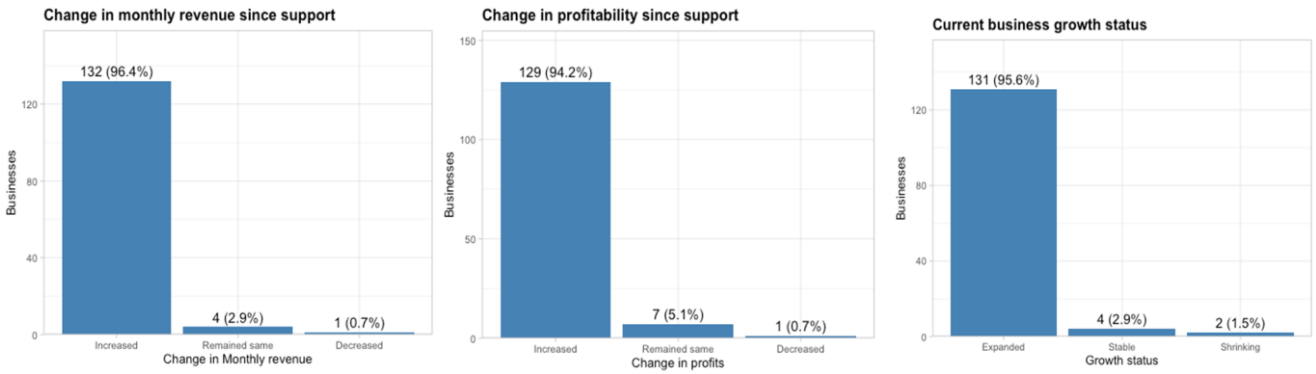

Figure 3. Business performance since support

The performance signals reported by supported businesses were overwhelmingly positive. Of the 137 businesses surveyed, 132 (96.4%) reported increased monthly revenue since support, 129 (94.2%) reported improved profitability, and 131 (95.6%) described their business as expanded. All fifty (50) businesses surveyed in Barwaaqo 1 reported increased revenue, while Barwaaqo 2 showed the largest concentration of non-improving businesses, again suggesting that local market or service conditions differ somewhat by camp. Barwaaqo 2 showed the largest concentration of non-improving businesses mainly because it experienced comparatively weaker electricity service conditions especially localized voltage issues and more power-related closure days (5%) combined with reported connection challenges and unmet business support needs.

Operating hours expanded materially after electrification. Before electrification, 98 (71.5%) of businesses reported working between 6 and 12 hours per day and 39 (28.5%) worked for 0–6 hours. At the time of the survey, 105 (76.6%) were operating for 12–18 hours per day and another 26 (19%) for 6–12 hours, showing that electrification substantially extended productive time. The community evidence provides context: women reported that evening hours are especially important because they can engage in business activities after completing daytime domestic responsibilities.

The qualitative evidence explains why productivity gains were so widespread. Participants repeatedly linked electricity to reduced time spent seeking phone charging and ice elsewhere, better food preservation, more reliable cold-product sales, and longer operating windows. They

also emphasized that electricity is particularly valuable in periods of extreme heat and during Ramadan, when demand for cold drinks and ice rises sharply.

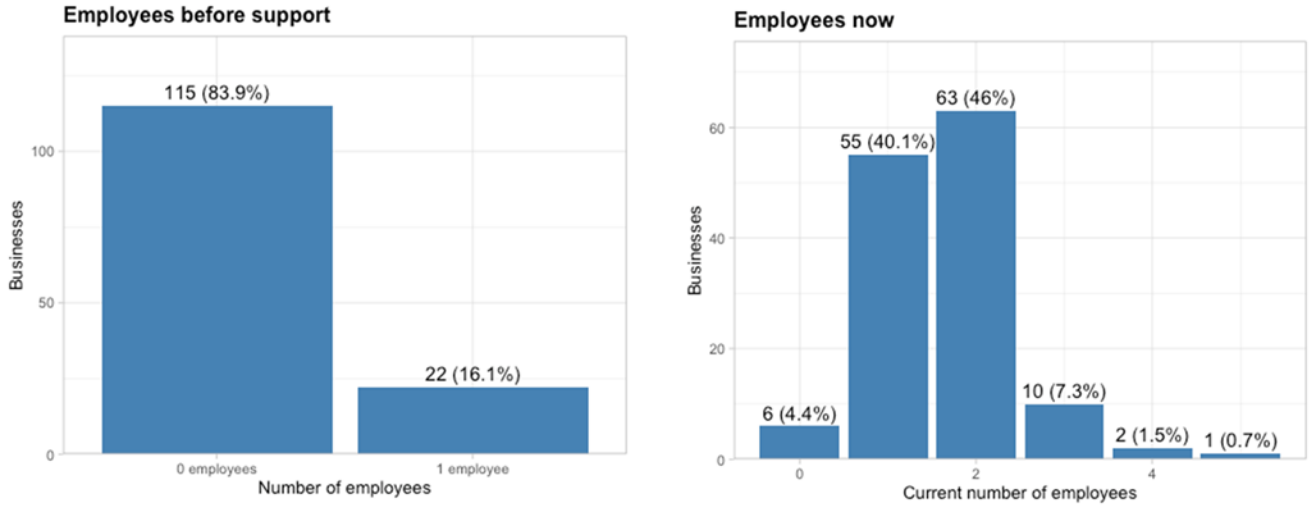

Figure 4. Employment transformation before and after support

4.1.4. Employment and job creation

Employment creation is one of the strongest observed outcomes. Before support, 115 businesses (83.9%) had no employees other than the owner and only 22 businesses (16.1%) reported one employee. After support, just 6 businesses (4.4%) still had no employees, 55 (40.1%) had one employee, and 76 (55.5%) had between two and five employees. Ice businesses showed the strongest employment effect, with 83% now employing two to five workers; vegetable shops followed at 75%, while 46% of general shops also reached the two-to-five-worker range.

Using the exact post-support employee counts reported in the survey and the pre-support categories, the total number of jobs represented by the sample increased conservatively from at least 22 before support to at least 224 after support. Although this does not capture the full complexity of labor arrangements, it confirms a large shift from owner-only survival enterprises toward businesses that create additional work opportunities. It is also worth noting that some of these roles are filled by family members. In those cases, the work does not necessarily translate into a formal paycheck. Instead, it contributes to the household income in a broader sense, where the family benefits collectively rather than an individual receiving a set salary through the business.

4.1.5. Loan and financial inclusion outcomes

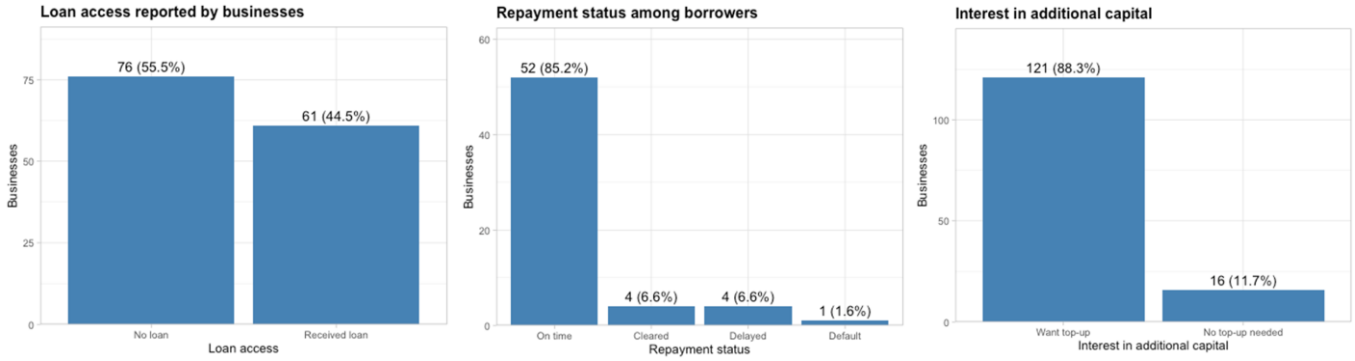

Figure 5. Finance and loan performance

Reported loan access among surveyed businesses was mixed. Sixty-one (61) businesses (44.5%) reported receiving a loan, while 76 (55.5%) said they had not. This should be interpreted carefully because IBS Bank records show that all 149 PUE businesses received appliance or equipment-based support ranging between USD 2,000 and USD 3,670 and that 18 businesses later obtained top-up loans totaling USD $21,186. Of the 61 businesses that reported receiving a loan, 57 (93.4%) received between USD 100 and USD 1,000, while only 4 (6.6%) received more than USD 1,000. Further 18(29.5%) of these businesses received their loans from IBS bank to a tune of $21,186 while the rest 43 (70.5%) business Loan Sources include a friend, family member and supplier. This is an indicator that there are real barriers to formal access to finance and until those are addressed, business owners will continue to rely on informal sources instead. When formal loans and financial services are difficult to obtain, turning to family, friends, or other informal arrangements becomes the more practical option.

Among the 61 borrowers (44.5%) reflected in the survey repayment table, 52 (85.2%) were paying on time, 4 (6.6%) had cleared their loans, 4 (6.6%) were delayed, and one (1.6%) was in default. IBS Bank's confirms broadly positive portfolio performance but notes that repayment stress did occur among a subset of top-up borrowers, leading to rescheduling rather than large-scale default. This indicates that the financing model is viable, but only when product design and client cash flow are closely aligned.

Demand for additional finance is very strong, as evidenced by 121 businesses surveyed (88.3%) which expressed interest in a loan top-up. This is consistent with both the survey records and the KII evidence, which point to working capital shortages, appetite for repeat financing, and demand for follow-on appliance packages. The financing architecture for Phase 2 should therefore move beyond one-off support toward tiered financial products that can accompany business growth.

4.1.6. Training and technical assistance effectiveness

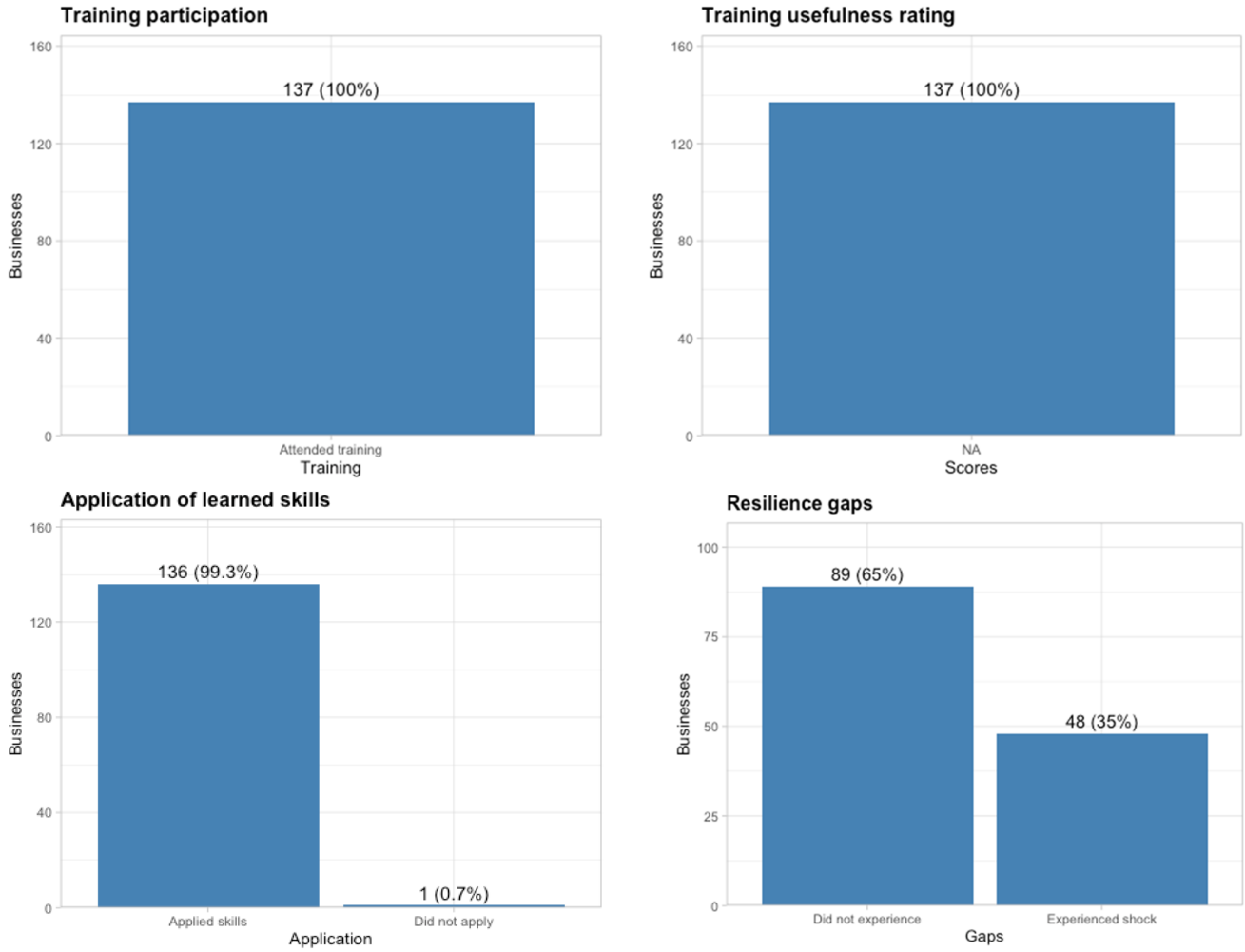

Figure 6. Training effectiveness and resilience

Training performance appears exceptionally strong in self-reported terms. All 137 (100%) surveyed business owners reported attending training. One hundred respondents (73.0%) rated the training at the highest level (very satisfied) and 36 (26.3%) rated it at the next-highest level (satisfied), meaning 99.3% scored training usefulness at 4 or 5 on a five-point scale. In addition, 136 businesses (99.3%) said they had applied what they learned in their business. Although the survey records application of training as a yes/no response, the wider evidence suggests that businesses applied what they learned by using electric appliances more effectively, extending operating hours, increasing production and sales, hiring additional workers, and reinvesting in additional equipment and working capital.

These findings indicate that the training package was relevant and practical, but they do not necessarily mean that all businesses received sufficiently advanced or differentiated support.

Both the survey data and the IBS KII suggest that Phase 2 should go beyond introductory training and shift toward more tailored coaching on bookkeeping, working capital management, appliance utilization, business planning, and market development.

4.1.7. Market linkages and value chain integration

The evidence suggests modest but important advances in market integration. The survey shows that 61 businesses (44.5%) had independently acquired additional equipment, indicating that many entrepreneurs were reinvesting and adapting their businesses beyond the original support package. Qualitative findings also show that businesses are selling to nearby villages on market days, building customer networks, and in some cases using Barwaaqo as a lower-cost production base while selling in Baidoa town.

However, value chain depth remains limited. The sector mix is still dominated by general trade and light retail, with a comparatively small number of businesses in processing or specialized energy-intensive activity. This implies that future programme value will come less from adding more of the same retail model and more from deliberately targeting higher-value chains such as cooling, food processing, oil extraction, grain milling, digital services, and other electricity-dependent services with clearer employment and productivity multipliers.

4.1.8. Business resilience and risks

Business resilience is the weakest part of the current support model. Forty-eight businesses (35.0%) reported experiencing major shock in the previous 12 months. Yet only 48 businesses (35.0%) could articulate a business continuity plan, meaning that roughly two-thirds had no clear resilience strategy. Community and portfolio evidence points to the same risk environment: drought, reduced purchasing power, migration, cash shortages, occasional outages, and capital diversion from business use to food, medical, or survival expenditures.

These findings suggest that Phase 2 should treat resilience as a business performance issue rather than an external contextual factor. Enterprises that rely on electric equipment remain vulnerable to both market and service shocks, and more energy-intensive businesses will be even more sensitive unless the programme actively integrates risk planning, savings discipline, after-sales maintenance, and outage response arrangements.

4.1.9. Gender and inclusion considerations

Gender inclusion is one of the clearest strengths of the EES model. Women accounted for 104 (75.9%) of surveyed supported businesses with 103 (99.0%) of them agreeing that electrification increased women's and youth employment, while IBS Bank records show 112 (75%) female leadership among the full 149 beneficiaries. The community evidence also indicates that women

have been among the principal beneficiaries of electrification through businesses such as ice production, ice cream sales, tailoring, and henna services.

The importance of electricity for women lies not only in access to business appliances, but in flexibility. Women emphasized that evening business opportunities fit better with daytime domestic responsibilities, making productive use of electricity more compatible with their daily realities. At the same time, the financing evidence shows that gender-equitable business outcomes do not automatically translate into gender-equitable finance access: some women were unable to take loans without husband approval, while documentation and debt aversion limited access for other vulnerable groups.

4.1.10. Electricity service feedback (billing reliability, Grid reliability and customer satisfaction)

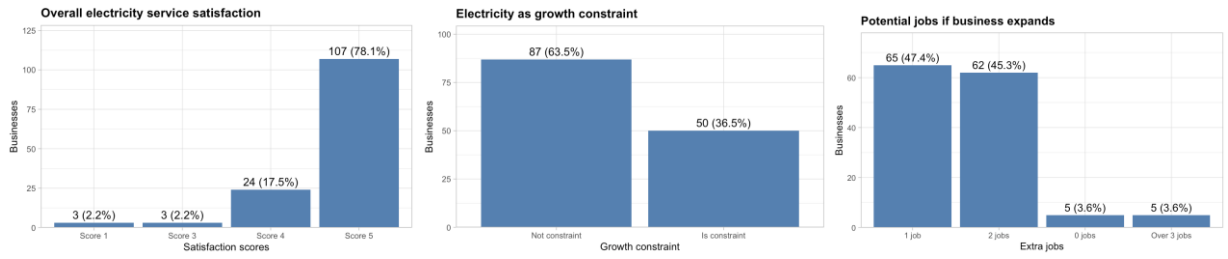

Figure 7. Customer feedback and growth potential

Customer satisfaction with electricity service was high. Overall, 107 businesses (78.1%) rated the service at the maximum score of 5 (very satisfied) and a further 24 (17.5%) rated it at 4 (satisfied). This means 131 (95.6%) of businesses gave the electricity service a positive score of very satisfactory (5) or satisfactory (4). Community participants similarly described the service as reliable, consistent, and of good quality, with minimal routine disruptions.

Even so, satisfaction should not be read as the absence of commercial issues. Fifty businesses (36.5%) still identified electricity as a major growth constraint with majority in Barwaaqo 1 and 2. BECO's KII shows why this remains plausible: while generation capacity is currently above peak demand, tariffs remain high because diesel generation still dominates, and transformer density is still thin in some expansion corridors.

4.1.11. Future growth and demand potential

Future demand potential is very strong. All 137 (100%) businesses surveyed stated that they were interested in expanding operations. When asked about the jobs they could create if they expanded, 65 businesses (47.4%) projected one additional job and 62 (45.3%) projected two

additional jobs. Only five businesses (3.6%) expected no additional employment from expansion. This means that 96.4% of respondents linked future business growth directly to additional job creation.

The survey and qualitative materials indicate that the main conditions for expansion are additional equipment, affordable finance, reliable service, and stronger technical support. In practical terms, the market is not saturated from the perspective of the current beneficiaries; rather, it is constrained by capital and resilience bottlenecks.

4.2. BECO Service Delivery (Performance)

4.2.1. Utility performance and operational capacity

Indicator	Reported status
Total generation capacity	11 MW (10 MW diesel, 1 MW solar)
Typical peak load	Approximately 3 MW
Distribution network	37 km of 11KV line; 415 km of low-voltage line
Transformers	42 across town
EES Barwaaqo network	7 km 11KV extension; 24 km LV line; 3 transformers
Customer base	Approximately 28,091 customers
Billing mix	25000 (89%) post-paid connections; 3091 (11%) pre-paid connections (spark-meters), all in Barwaago settlement. The prepaid connections include 300 businesses of which 149 were supported through grant, and 7 public facilities (1 hospital, 2 schools, 1 police station, 3 mosque). Others include Hanano 2 market and two factories
Operating hours	24/7
Planned expansion	Solar increase to 6 MW with 11 MWh battery storage (World bank Funded)

Table 3. BECO utility and infrastructure profile

BECO reported substantial current spare capacity relative to present demand, with 11 MW of installed generation against a peak load of approximately 3 MW. The company described the system as broadly reliable and supported by a mix of rotating diesel generation and a 1 MW solar

plant. It also highlighted internal systems for billing, customer care, fault response, and dashboard-enabled performance monitoring.

A major outage in January 2026 exposed a system redundancy3 weakness, however. According to BECO, the outage lasted two days and was caused by a power surge affecting the synchronization panel. Although the fault was eventually diagnosed and corrected, the incident demonstrated the commercial significance of single points of failure in a system that now supports electricity-dependent enterprises. BECO reported plans for additional substations and stronger redundancy to reduce similar risks in future.

The company also emphasized that its growing solar component is central to future affordability. BECO's current tariff structure remains high by international standards because of diesel dependence, even where reliability has improved. The World Bank-supported expansion to 6 MW of solar and 11 MWh of battery storage is therefore strategically important not only for utility cost efficiency but for PUE growth, since cheaper electricity is likely to stimulate more demand-side uptake and business viability.

4.2.2. Strategic readiness for EES phase 2 expansion

On strategic readiness, BECO appears technically positioned to support additional demand in the short term, but not without targeted investments. The current generation margin suggests that demand growth from PUE expansion is feasible. At the same time, BECO identified the need for more transformers along some newly installed main lines and cited capital constraints as a key barrier to extending service into new demand corridors. The utility also has no structured appliance or connection financing partnership of its own, suggesting that Phase 2 will continue to depend on coordinated delivery with financing actors rather than utility-led demand stimulation alone.

Overall, BECO's readiness can be characterized as promising but conditional. The utility has enough operational maturity, data systems, and supply potential to support Phase 2, yet the commercial benefits to users will be constrained unless tariff relief, redundancy upgrades, and localized network reinforcement keep pace with the programme's ambition to stimulate more productive electricity use.

[3] System redundancy means having a backup or extra component in a system so that if one part fails, the system can still continue working. In this report context, limited system redundancy means BECO may not have enough backup options, so when one part of the system fails, customers are more likely to experience outages.

4.3. IBS Bank – PUE Financing Portfolio

4.3.1. Portfolio Overview

Portfolio element	Reported status
Supported businesses	149 PUE Businesses
Total portfolio value	Approximately USD 400,500 ($379,314.00 – grant, 21,186 – top up loans)
Equipment support size	USD 2,000 to USD 3,668
Most common support size	USD 2,500 (87.2% of cases)
Female-led beneficiaries	112 (75.2%)
Top-up loans	18 businesses totaling USD 21,186
Monitoring practice	At least one monitoring visit per month per supported business

Table 4. IBS financing portfolio summary

IBS Bank's evidence suggests that the financing component successfully established an entry point for energy-linked business support, but has not yet matured into a broad-based microbusiness credit ecosystem. The initial facility was delivered mainly through appliance-based support rather than standard cash lending, which explains why many businesses may not identify it as a conventional loan. The portfolio was heavily oriented toward pre-existing businesses and toward women-led businesses.

4.3.2. Loan Product Design & Suitability

IBS reported that the product applied a 5% profit rate, a one-year grace period, and used the appliances provided as collateral. These design features helped reduce risk during the early growth phase of businesses and made the facility more accessible than standard unsecured credit. Nevertheless, the KII indicates that several features still limited suitability for all potential clients, especially where businesses had irregular cash flow, incomplete documentation (lack of government issued IDs), or low confidence in debt products.

The implication is that the Phase 1 product was well-designed for piloting but not fully optimized for scaling. This implies that Phase 1 had several strengths such as: i) it matched the needs of the initial target group, ii) it demonstrated proof of concept, and iii) it generated positive early results. On the other hand, it still had weaknesses such as: i) limited loan size or inflexible loan terms, ii) insufficient targeting criteria for expansion, iii) inadequate monitoring and follow-up systems, iv)

inadequate risk-sharing arrangements, v) limited integration between BECO, IBS, and business support, and vi) not enough provision for larger and more diverse PUE enterprises in Phase 2. The Phase 2 should therefore move toward more differentiated financial products[4] that match business type, working capital cycle, risk profile, and expansion stage.

4.3.3. Performance, Risk & Growth

Portfolio performance was broadly positive. IBS estimated that about 134 (89.9%) of supported enterprises remained active and performing well, although 11 (7.4%) businesses had closed, relocated to locations to other locations outside the safe zones where they could not be visited. The bank linked repayment stress mainly to cash flow problems rather than chronic refusal to pay, and it responded by restructuring some loans. It also emphasized that energy-dependent businesses such as ice making, salons, barber shops, and small cafés were among the strongest performers because electricity directly underpinned their production model.

However, the evidence also shows that business performance and portfolio quality remain sensitive to outages, drought, local liquidity shortages, and weak resilience practices. This means that credit performance in this context cannot be treated as separate from utility performance or wider economic conditions.

4.3.4. Gender and Inclusion

Gender inclusion was strong at the beneficiary selection level but weaker at the level of autonomous financial access. Women made up approximately three-quarters of beneficiaries, but IBS reported that some women and vulnerable groups were prevented from borrowing by documentation gaps, fear of debt, or restrictions requiring husband approval. This distinction matters for Phase 2: inclusion in enterprise support is not the same as inclusion in financial decision-making.

4.3.5. Phase 2 Expansion and Financing Architecture

IBS indicated willingness and strategic readiness to expand under Phase 2, but with important design changes. These include stronger due diligence, closer screening of business-readiness and repayment capacity, and rollout of new group-based digital financial products intended to build

[4] Different businesses have different needs. For example: i) a small kiosk may need a small, short-term, ii) an ice business may need more money for equipment and power costs, iii) a vegetable seller may need working capital that matches fast stock turnover, iv) a business that is already growing may need an expansion loan, not a starter loan etc.

savings behavior and financial discipline. This direction is well aligned with the survey finding that 121 (88.3%) of supported businesses want additional capital.

The strongest financing architecture for Phase 2 is therefore likely to be layered: equipment support for entry-level enterprises, top-up working capital for energy dependent growing businesses, and group-based or digitally enabled products for businesses that are not yet ready for standard credit. This should be matched with financial literacy and business coaching rather than a finance-only response.

4.3.6. Monitoring & Systems

IBS already undertakes monthly monitoring visits, which is a strong platform on which to build. The bank itself noted that these visits could generate more value if combined with practical business guidance rather than treated only as compliance or repayment checks. The preliminary presentation likewise flagged the need to institutionalize more structured monitoring at the frontline level. In Phase 2, monitoring should become a joint performance management tool covering business operations, loan quality, equipment functionality, and follow-up technical assistance.

4.4. Potential PUE businesses

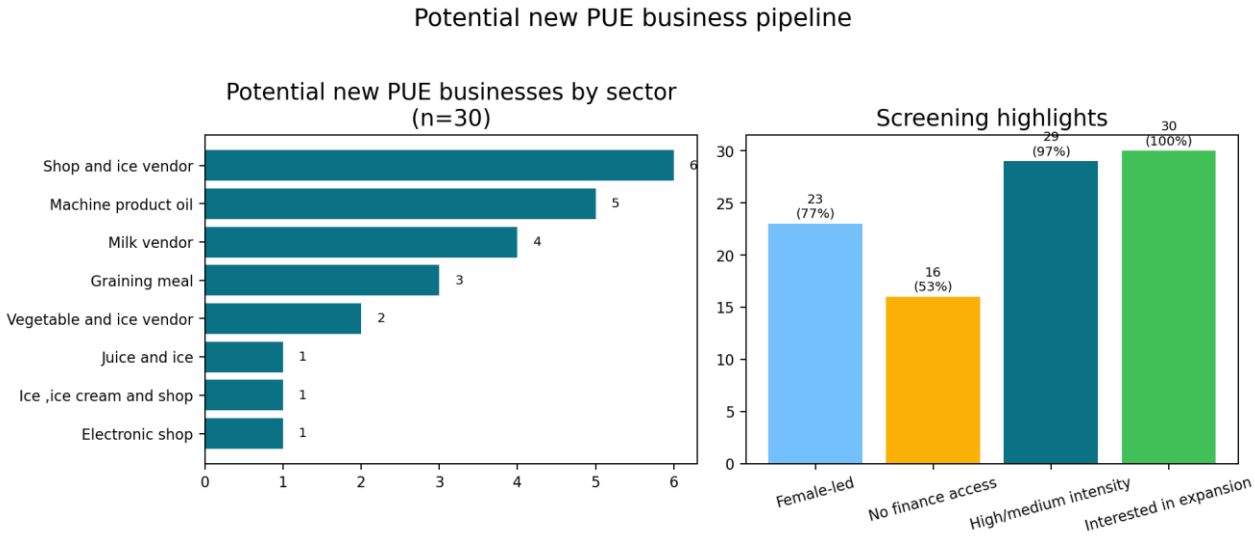

Figure 8. Potential new PUE business pipeline

The IBS provided a list of 39 potential new PUE businesses, which were then profiled and rated based on a composite weighted scoring rubric as illustrated in figure 9. The profile mirrors many of the strengths seen in the supported cohort: 23 of the 39 businesses (76.7%) were female-led; all were already electricity users on post-paid meters; 96.7% were medium- or high-energy-intensity businesses; and all expressed interest in expansion. At the same time, 53.3% reported

having no access to finance, indicating that capital constraints are already a significant barrier even among enterprises deemed promising for future support.

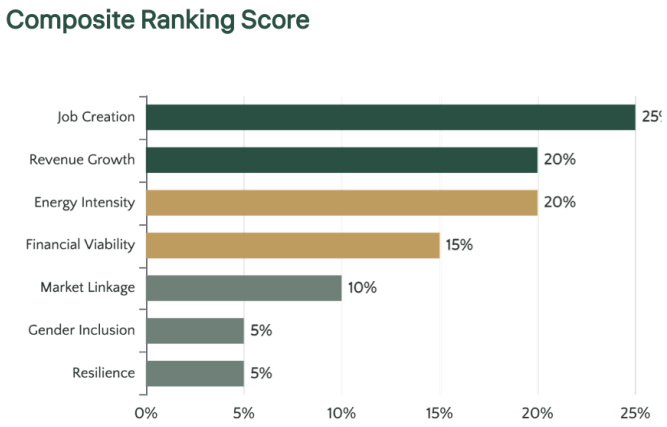

Figure 9: A composite weighted scoring rubric for selecting participating businesses.

Sectoral, the pipeline is more diverse than the existing supported portfolio and therefore offers a good opportunity for strategic rebalancing. The most common candidate sectors were shop-and-ice vendors, machine-based product oil enterprises, milk vendors, and grain milling-related businesses. These categories are more energy-intensive and in several cases more value-adding than the existing concentration in general retail trade. The average stated loan need across the 30 profiled businesses was approximately USD 2,800, while the businesses together reported 88 current full-time-equivalent jobs and an additional 46 potential jobs if expanded.

The scoring structure places the greatest weight on job creation, revenue growth, and energy intensity. This is appropriate and should be retained. The top-ranked businesses are spread across cooling, oil processing, electronics, tailoring, and dairy-related activities.

4.5. Collaboration and coordination between agencies

The evidence shows that EES already operates through an integrated partnership model in which Mercy Corps provides programme stewardship, BECO supplies electricity infrastructure and service delivery, and IBS Bank supports financing and business monitoring while the local authorities provide the enabling regulatory environment, land-use permissions and community oversight . This tripartite model is one of the programme's main strengths because it connects the supply side, the demand side, and the finance side rather than treating them as separate workstreams.

At the same time, Phase 2 will require more structured coordination and data sharing than Phase 1. BECO's service data, IBS's portfolio monitoring data, and business-level outcome data need to

be reviewed together on a routine basis to identify where outages, weak repayment, equipment problems, or market shocks are converging. On the commencement of this assessment exercise, the evaluation team paid a courtesy call to the Mayor of Baidoa. The mayor was genuinely grateful for the electrification project coming to his city. He mentioned that without this intervention, it could have taken another seven or eight years for electricity to reach areas like the Barawqo camps. He praised the project for improving the quality of life for camp residents and noted that he had personally overseen the paving of roads to those locations to both ease transportation and to create an environment where local businesses could thrive.

According to BECO's chief engineer, there is no other initiative quite like Enter Energy Somalia (ESS) in Baidoa. That said, he did share updates on BECO's own expansion plans. The World Bank is currently funding an upgrade to BECO's solar capacity (expanding from the existing 1MW to an additional 5MW) along with a battery storage system of 10MWH.

BECO is also extending its operations to a new town called Hudur, located about 130 kms north of Baidoa. At the time of this exercise, they were already installing the main power lines through the town. This is significant because Hudur currently has no professional power utility provider. Instead, the town is served by a patchwork of isolated providers running small generators and localized networks that only cover specific neighborhoods.

4.6. Main operational or governance challenges (PUE businesses, BECO, and IBS perspectives)

Across sources, the main operational and governance challenges were consistent. At business level, the largest constraints were limited working capital, drought-related reduction in customer purchasing power, market cash shortages[5], weak business continuity planning, and remaining electricity-related disruptions. At BECO level, the main constraint was high tariff pressure from diesel dependence, the need for stronger redundancy and localized transformer reinforcement

[5] Market cash shortages" means there is not enough money circulating in the market for normal buying, selling, or business transactions. In this report context it implies that: customers having less cash to spend, traders struggling to buy stock, businesses selling less than expected, loan repayment becoming harder, and suppliers delaying delivery unless paid immediately.

and capital limitations for network expansion. At IBS level, the most important constraints were uneven financial readiness among businesses, incomplete documentation (lack of government issued IDs), weak financial literacy, and socio-cultural barriers that reduce women's ability to borrow independently given that a majority of these businesses were women-led.

Taken together, these challenges show that the Phase 2 problem is no longer whether productive-use electrification can work in Barwaaqo. It can. The issue is how to move from a successful pilot model to a more resilient, more diversified, and more systematized delivery model that can withstand shocks and scale without declining quality.

5. DISCUSSION

5.1. Clean Electricity Access and Productive Use of Energy (PUE)

5.1.1. Demand-Side Livelihood Outcomes

The demand-side results indicate that access to clean electricity, when paired with appliances and enterprise support, can shift households and microenterprises from low-productivity coping strategies toward more stable income generation. The pattern of increased revenue, higher profitability, expanded hours of operation, and additional employment is too consistent across the data sources to be explained by chance alone. Even with the limitations of rapid assessment evidence, the convergence of survey, FGD, and KII supports a strong conclusion that the EES model has produced meaningful livelihood gains.

Importantly, these livelihood gains are not only economic in a narrow sense. Community narratives linked electricity to reduced transaction time[6], better food preservation, safer movement, more evening study, and greater economic participation by women. In a displacement setting, these are not marginal benefits; they are part of the pathway by which electrification contributes to social stabilization and local recovery.

5.1.2. Supply-Side Utility Performance

On the supply side, the assessment shows a positive but still incomplete transition from access expansion to service consolidation. BECO has delivered an electricity service that users mostly perceive as reliable, and current installed capacity is not the main constraint. The more strategic issue is cost and system resilience: a business-support model built around electricity-dependent

[6] Reduced transaction time" refers to the time needed to complete everyday economic activities such as: serving customers, processing payments, charging phones, preserving and selling products, and preparing goods for sale

enterprises can only sustain high-performing PUE activity if tariffs fall over time and if outages become less commercially disruptive.

5.2. Partnerships Management and Coordination

The EES experience reinforces the importance of integrated partnerships in fragile-market systems. The programme's comparative advantage lies in combining grid extension, enterprise support, and financial intermediation. However, integration needs to move from collaboration in design to routine joint performance management in implementation. In practical terms, this means shared review of business outcomes, utility service data, and portfolio performance at a frequency that allows partners to respond quickly to emerging gaps.

6. PRACTICAL IMPLICATIONS

6.1. Validation of Enter Energy Somalia Phase 2 approaches

The assessment validates the central Phase 2 proposition that strengthening productive demand and utility performance monitoring is a logical next step after infrastructure rollout. The evidence does not support a major redesign of the programme model. Instead, it supports refinement: keep the integrated energy-finance-livelihood logic, but concentrate future investments on diversification, resilience, affordability, and structured monitoring.

6.2. Main Challenges and Necessary Adjustments

The main adjustments required are operational rather than conceptual. These include rebalancing the enterprise portfolio away from excessive concentration in general retail; deepening financial inclusion through more flexible and staged products[7]; embedding stronger resilience, continuity, and savings practices; and tightening performance management across Mercy Corps, BECO, and IBS. Community feedback further shows that the programme should not treat household-level priorities such as street lighting and support to non-business electrified households as outside the PUE agenda, because these needs shape the local environment within which productive use succeeds or fails.

[7] It means financing or support packages that are flexible and are given in phases based on good performance. A business may start with a small starter loan, then qualify for a larger follow-on loan after showing good performance.

7. STUDY LIMITATIONS

This report should be read in light of several limitations. First, the business survey analysis is presented in cross-tabulations and therefore does not advanced inferential analysis. Second, only two documented FGDs were conducted because of access challenges, even though the inception design had planned for three Third, the evidence provided does not include a completed mapping of similar initiatives, so the section on wider coordination remains more forward-looking than empirical. Fourth, some financial variables in the business survey appear to reflect respondent interpretation differences between grants, equipment support, and loans; these were therefore triangulated carefully against IBS narrative evidence rather than treated as standalone portfolio data. Finally, verbatim quotations were not comprehensively transcribed in the field notes, so respondent voice in this report is represented through the exact phrases preserved in the notes rather than through a larger quote bank.

8. LESSONS LEARNED

- Electricity access delivers stronger and faster livelihood returns when it is bundled with appliances, practical training, and some form of financing or working capital support.
- Women's enterprise participation can be very high in displacement settings when business models are compatible with domestic time constraints and when electricity extends productive hours into the evening.
- Enterprise growth can outpace business resilience. Without continuity planning, savings behavior, and flexible follow-on support, early gains remain vulnerable to drought, cash shortages, and outages.
- The utility–finance–enterprise interface is the real system to be managed in Phase 2. High-performing businesses depend simultaneously on electricity quality, affordable tariffs, functioning equipment, and credit products that match cash flow realities.
- Pipeline selection matters. Moving from general retail concentration toward more energy-intensive and value-adding enterprises is likely to generate stronger employment and productivity outcomes.

9. ACTIONABLE RECOMMENDATIONS

9.1. Strengthen BECO's Performance

- Support rapid completion of the planned solar and battery expansion, as lower tariffs are central to sustaining productive-use demand.

Prioritize redundancy upgrades and localized transformer reinforcement in growth corridors, especially where outages or voltage issues are concentrated.

- Establish a simple Phase 2 outage and customer-feedback dashboard that can be reviewed jointly with Mercy Corps and IBS Bank on a routine basis.
- Pair reliability monitoring with commercial transparency so customers can distinguish between tariff pressure, outage events, and billing accuracy.

9.2. Enhance Livelihood and Utility Outcomes

- Shift the next round of support toward higher-value and more energy-intensive enterprises rather than adding predominantly general retail businesses.
- Install or extend street lighting in priority mobility corridors identified by the community to strengthen safety and evening economic activity.
- Provide targeted support to electrified households that are not yet using electricity productively, including starter equipment and practical livelihood coaching.
- Integrate resilience into enterprise support through simple continuity planning, savings promotion, equipment maintenance guidance, and rapid problem-reporting channels.

9.3. Deepen PUE Support,

- Develop tiered and flexible financing products, including top-up loans, group-based savings-linked finance, and staged products matched to business readiness.
- Combine monthly monitoring visits with advisory support on bookkeeping, record keeping, inventory management, and appliance utilization.
- Strengthen gender-responsive finance access by addressing documentation barriers, debt confidence, and social constraints affecting women's borrowing autonomy.
- Use the composite ranking tool rigorously to select businesses, with strong weighting on job creation, energy intensity, financial viability, and market linkage strength.

APPENDICES

Appendix 1. Selected indicators for supported PUE businesses

Indicator	Value	Interpretation
Women-led businesses	104 of 137 (75.9%)	Strong gender inclusion outcome
Businesses reporting increased revenue	132 of 137 (96.4%)	Very strong positive demand-side effect
Businesses reporting improved profitability	129 of 137 (94.2%)	Most enterprises translated electricity access into margin gains
Businesses reporting expansion	131 of 137 (95.6%)	Growth signal is broad rather than isolated
Businesses receiving 24-hour supply	121 of 137 (88.3%)	Reliability is high overall
Businesses with no voltage issues	119 of 137 (86.9%)	Localized instability remains but is not widespread
Main appliance fully functional	121 of 137 (88.3%)	Appliance package largely sustained
Businesses satisfied with service (score 4–5)	131 of 137 (95.6%)	Electricity service is generally well regarded
Businesses interested in loan top-up	121 of 137 (88.3%)	Growth is now finance-constrained
Businesses with business continuity plans	48 of 137 (35.0%)	Resilience remains a major weakness

Appendix 4. Composite Weighted Score for Ranking Businesses

#	Dimension	Suggested Weight
1	Job creation potential	25%
2	Revenue growth potential	20%
3	Energy intensity (upgrade impact)	20%
4	Financial viability	15%
5	Market linkage strength	10%
6	Gender inclusion	5%
7	Resilience score	5%