Humanitarian Energy Impact Performance Report









About This Report

This report was commissioned by Mercy Corps through the Transforming Humanitarian Energy Access (THEA) programme, funded by UK aid from the UK Government via the Transforming Energy Access platform.

The THEA programme aims to promote more sustainable energy delivery models in humanitarian settings to increase access to clean energy solutions for displacement-affected communities. It achieves this by leveraging a blend of research, evidencebuilding, data-driven advocacy, and the implementation of market-based energy interventions. By identifying sustainable and inclusive energy delivery models, THEA aims to facilitate their replication and scale-up, ultimately enhancing energy access in displacement settings.

This study assesses the socio-economic impact of a mini-grid installed at the Sheder Refugee Camp, operated by Humanitarian Energy Plc, an Ethiopian limited company. The study was supported by Mercy Corps' Enter Energy programme, which leverages public-private partnerships for clean energy solutions, providing an example of the alternative, sustainable energy delivery models that THEA seeks to promote.

The insights in this report are based on phone interviews with 460 mini-grid customers across three refugee settlement zones of the Sheder Refugee Camp. These interviews, conducted by 60 Decibels trained local researchers, provide a deeper understanding of how the mini-grid system has impacted the lives of those it serves.

60 Decibels employed a random sampling method to select respondents. To learn more about our methodology, head to the Appendix.

Thank you to Megan Taeuber, Dr. Almaz Tadesse and Tilen Ogola from Mercy Corps, and Desalegn Getaneh and Andrea Ranzanici from Humanitarian Energy for their support throughout the project.

Thank you to all the respondents who shared their experiences, helping to shape the future of energy access in humanitarian settings.



THEA partners:









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Key Insights

Top Takeaways

1 Humanitarian Energy is reaching underserved population who have limited alternatives.

94% of customers have no prior access to services like the mini-grid connection provides, and 9 in 10 say they cannot easily find a good alternative. This highlights the critical role Humanitarian Energy plays in filling a significant market gap in refugee camps, where access to reliable energy sources is often scarce. By focusing on providing improved energy access to populations that are both vulnerable and underserved, Humanitarian Energy addresses an urgent need in environments where energy scarcity can impede daily life, safety, and wellbeing.

³ Humanitarian Energy services are positively impacting customers' quality of life.

Most of the customers say their quality of life has improved, with 3 in 5 saying it has improved significantly.

The Humanitarian Energy mini-grid has also enhanced customers' sense of safety and security, with 91% feeling safer in their homes and businesses and 89% feeling more secure about their assets. This underscores how the mini-grid provides a deeper sense of peace of mind, improving overall well-being.

Impact is significantly higher among business users compared to household users.

Recommendations

1 Consider working with partners to support more vulnerable customers.

Despite Humanitarian Energy having a lower tariff compared to mini-grids in other countries in the region, some customers still report financial strain. There may be opportunities to work with partners to find ways to support the more vulnerable segment of the customer base who are facing financial strain accessing this energy service. Alternatively, the target customer base must be adjusted to ensure the financial viability and sustainability of the business model. This is particularly pertinent since the devaluation of the Ethiopian birr has put further financial pressure on operations. These factors necessitate a reassessment of the tariff to ensure continued sustainability.

2 Almost all customers are moving up the energy ladder to improved energy sources.

99% of customers have moved up the energy ladder, transitioning from traditional energy sources like torches (89%), generators (57%), and kerosene lamps (49%) to the mini-grid service, which is now used by 100% of customers.

99% of customers have reduced their use of previous lighting sources, with 57% no longer using them at all. This shift is largely attributed to the Humanitarian Energy mini-grid, which fully meets the lighting and energy needs of 77% of customers.

4 Humanitarian Energy has a good NPS score but there is scope to increase satisfaction by addressing payment burden.

Humanitarian Energy has an NPS of 45, on par with the 60 Decibels Energy Benchmark of 49. Customers talk of reliable power supply and affordability as the top reasons for recommending Humanitarian Energy. However, there are concerns regarding billing accuracy, affordability, and frequent outages. Affordability is a notable concern as 1 in 5 customers consider mini-grid payment a financial strain. Some customers also report delays in power restoration after payment. Addressing these concerns will help in improving customer experience and impact.

2 Understanding impact and leveraging results for marketing.

Exploring what is creating impact and satisfaction, and what isn't, may provide insight into opportunities to increase the proportion of customers whose lives are significantly improved by the energy service. Are there design, delivery, or service improvements to be made to better meet customer needs?

Humanitarian Energy's impact on quality of life, safety, and security is excellent. We recommend using these positive results, as well as the customer voices (quotations) for marketing purposes. Do you have a referral or ambassador programme to increase uptake? This is also a great way to encourage more usage.

Humanitarian Energy: Performance Snapshot

Here are Humanitarian Energy mini-grid results in Ethiopia plus performance relative to the relevant 60 Decibels Benchmarks.

Benchmark Overview

Global geographical fcous	Off-grid energy sector focus	127 companies included	51,000+ voices listened to			• TOP 40%
Indicator	Description			Humanitarian Energy	60dB Energy Benchmark	Performance Relative to 60dB Energy Benchmark
Profile						
First Access % accessing mini-grid connection for the first time			94	82		
No Access to Alternatives	% without ac	% without access to a good alternative			70	••••
Female Reach	% female customers			56	33	
Usage						
Productive Use (PUI	E) % using serv	ice for income generat	ion	19	5	
Reduced Usage of F Sources	Reduced Usage of Prior % reducing (or eliminating) usage of prior sources of Sources lighting/energy			99	-	-
Needs Met % reducing usage of prior sources because needs met (vs because of financial constraints)			because needs met (vs	77	-	-
Experience						
Customer Challenge % experiencing challenges using service		ervice	16	28	••••	
Customer Service	Customer Service Customer Effort Score, of those facing challenges, scale 1-5			3.2	3.31	
Customer Satisfaction Net Promoter Score [®] , scale -100 to 100		100	45	47		
Impact						
Quality of Life % 'very much improved' quality of life			60	57	•••00	

90

67

67

61

36

67

•0000 BOTTOM 20%

••••• BOTTOM 40%

••••• MIDDLE

Energy Spending

Personal Safety

Asset Security

Income Change (PUE)

% seeing reduced spending on energy

% "very much improved' personal safety

% 'very much improved' personal asset security

income generation

% 'very much increased' income, of % using service for

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01: Profile

This section helps you understand your customer base, and if you are reaching a previously underserved population.

We also look at the different ways customers use the mini-grid such as productive use, previous and current sources of energy, etc. The key indicators in this section are:

- **Customer Profile:** What are the demographics of the customers you are serving?
- First Access: What proportion of your customers are accessing a similar service for the first time?
- Access to Alternatives: Do your customers have access to alternatives? Is there competition in the market?

Ø Profile

A typical Humanitarian Energy customer is a 39-year-old woman, living in zone 1 area, in a household of 7.

Demographics

Gender Breakdown		Age Distribution
Female	56%	
Male	44%	T ⁶⁶
••••• TOP 20% - 60dB Benchmark		90% between 19 - 50 18
Type of customer		Household size
Refugee household user	89%	-
Refugee business user	11%	- 6.6

Sheder Refugee Camp Area



Education Level; Highest in Household





Humanitarian aid is the main source of income for most customers.

Main Source of Income

Q: What is your household's main source of income? (n = 372) Open-ended question, responses coded by 60dB



4 in 5 customers use the mini-grid services at home. Mobile phones, radios, and televisions are the top appliances owned by customers.



Ø Profile

Nearly all customers say they had no prior access to a mini-grid connection like the one from Humanitarian Energy.

First Access

Q: Before Humanitarian Energy, did you have access to a mini-grid services like Humanitarian Energy provides? % with no prior access (n = 460 | Refugee household = 409, Refugee business = 51)



••••

TOP 20% - 60dB Benchmark

The majority of the customers say that they cannot easily find a good alternative to the Humanitarian Energy mini-grid connection.

Access to Alternatives

Q: Could you easily find a good alternative to the Humanitarian Energy mini-grid services? (n = 460 | Refugee household = 409, Refugee business = 51)



Gender Trend

Male customers are more likely to report having access to an alternative energy source (16%) than female customers (6%).

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TOP 20% - 60dB Benchmark

Ø Profile

The majority of customers were using torches/flashlights for lighting before access to Humanitarian Energy services.

Energy Sources: Prior & Current

Q: What were you using for lighting and/or energy before the Humanitarian Energy mini-grid services? (n = 460) Q: What are you now using for lighting and/or energy (n = 460)



99%

moved up the energy ladder;

transitioning from traditional energy sources to more modern and efficient ones, which are less polluting.

45% of customers use multiple sources suggesting that the mini-grid services don't meet all their needs.

Almost all customers are using their prior sources less, or not at all, now.

Change in Usage

Q: Because of Humanitarian Energy mini-grid services, has your usage of [prior source] changed? Do you now: (n = 460 | Refugee household = 409, Refugee business = 51)



Needs Met

Q: Are you using prior sources less because the Humanitarian Energy mini-grid services meets all your lighting and/or energy needs and/or because you don't have the funds available to spend additional income on this? (n = 457)

77%

of those who use their prior sources less, or not at all, do so because the mini-grid meets all their needs.

23% use less because they do not have funds available to spend additional income on this.

[+]

02: Impact

We believe that the best way to understand the social impact that you are having is to simply ask customers whether their quality of life has changed as a result of access to the Humanitarian Energy mini-grid services, and if so, how.

This section shows you the degree to which you are impacting quality of life, and what outcomes, if any, customers are experiencing, in their own words. In addition, we have specific sub-sector impact indicators to dive into a bit more detail. The key indicators in this section are:

- Quality of Life Change: To what extent has the quality of life of your customers changed as a result of your services, if at all?
- Income Change: Are your customers earning more because of the mini-grid, of those using productively?
- Safety and Security: Do your customers feel safer and more secure because of the energy services?
- Change in Energy Spending: Are your customers spending more or less money on energy access since accessing the mini-grid services?

Nearly two-thirds of customers say that their quality of life has significantly improved because of the Humanitarian Energy mini-grid connection.

Change in Quality of Life

Q: Has your quality of life changed because of access to the Humanitarian Energy mini-grid services? Has it: (n = 460 | Refugee household = 409, Refugee business = 51)



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MIDDLE 60dB - Benchmark

Top three outcomes for customers who say their quality of life has improved.

"

We now have access to light 24 hours a day

and low-cost energy,

the access we used

improved lighting,

small appliances.

- Male,27

phone charging, and

the ability to power

before. This has

affordable compared to

which is more

Open-ended question, responses coded by 60dB

34%

talk about having improved lighting (32% of all respondents)



usage of appliances (29% of all respondents)

28%

report being able to charge mobile phone(s) (26% of all respondents)

1 in 5 customers use the Humanitarian Energy energy services for income-generating activities.

Productive Use

Q: Do you use the Humanitarian Energy mini-grid for income-generating activities? % of productive use (n = 460 | Refugee household = 409, Refugee business = 51)



Trend

Customers using energy for income-generating activities are also more likely to report improvements in quality of life.

••••

TOP 20% - 60dB Benchmark

Refrigeration of goods is the main-income generating activity used by Humanitarian Energy mini-grid customers.

Income-Generating Activities

Q: Can you describe how the Humanitarian Energy mini-grid service is being used to generate an income? (n = 87) Open-ended question, responses coded by 60dB



66

The mini-grid powers my mini fridge to keep ingredients fresh. The lights allow me to keep the shop open longer in the evenings, which has helped me attract more customers and increase my daily income. - Female, 41

Almost all customers who use the mini-grid for income-generating activities have seen their income increase as a result.

Change in Income Earned

[If using for income-generating activities] Q: Has the money you earn from your business changed because of the Humanitarian Energy mini-grid? (n = 87 | Refugee household = 42, Refugee business = 45)



TOP 20% - 60dB Benchmark

Nearly half of PUE customers who report an increase in income say their income increased by more than half.

Amount of Increase in Income Earned

Q: Can you give a rough estimate on how much your money earned has increased because of the Humanitarian Energy mini-grid? (n = 84 | Refugee household = 44, Refugee business = 40)





The majority of customers feel safer in their homes or businesses because of the Humanitarian Energy mini-grid connection.

Change in Safety

Q: Has how safe you feel in your [home/business] changed because of access to the mini-grid services? Has it: (n = 460 | Refugee household = 409, Refugee business = 51)



Trend

Female customers are more likely to report that their home/business safety has "very much improved" due to the Humanitarian Energy Mini-grid (71%) compared to male customers (62%).

MIDDLE 60dB - Benchmark

Nearly 9 in 10 customers feel their assets are more secure because of the Humanitarian Energy mini-grid.

Change in Security

Q: Has how secure you feel about the assets in your [home/business] changed because of access to the mini-grid services? Has it: (n = 460 | Refugee household = 409, Refugee business = 51)



Trend

Female customers are more likely to report that their assets security has "very much improved" due to the Humanitarian Energy Mini-grid (68%) compared to male customers (53%).

9 in 10 customers have seen their energy spending reduce because of access to the mini-grid services.

Energy Spending

Q: Has your average weekly spending on lighting and/or energy changed because of access to the mini-grid services? Please include any payments made for the mini-grid. Has it: (n = 460 | Refugee household = 409, Refugee business = 51)



Trend

3% of customers have seen their spending on energy go up but for a higher level of energy access.



66

We save a significant amount of money by no longer needing to buy kerosene or candles regularly, which reduces our ongoing expenses.

- Female, 36



03:Experience & Satisfaction

This section uses the popular Net Promoter Score[®] to understand the level and drivers of customer satisfaction and loyalty. Additional insights on challenges and suggestions for improvement highlight areas you can improve.

The key indicators in this section are:

- Net Promoter Score[®]: How likely are your customers to recommend your services to a friend of family member?
- Customer Challenge Rate: What proportion of customers experience challenges using your services?
- Issue Resolution Rate: What proportion of customers experiencing a challenge had the issue resolved?
- Customer Effort Score: For customers who experienced a challenge, how easy was it to get their issue handled?

Humanitarian Energy has an NPS of 45, which is on par with the 60dB Energy Benchmark of 49.

Net Promoter Score® (NPS)

Q: On a scale of 0-10, how likely is it that you would recommend the Humanitarian Energy mini-grid services to a friend, where 0 is not at all likely and 10 is extremely likely? (n = 460)



The Net Promoter Score® (NPS) is a gauge of customer satisfaction and loyalty. The NPS is the percent of customers rating 9 or 10 ('Promoters') minus the percent of customers rating 0 to 6 ('Detractors'). Those rating 7 or 8 are 'Passives'.

The score can range from -100 to 100. Humanitarian Energy in Ethiopia has a NPS of 45, which places it in the middle tier of 60 Decibels Energy Benchmark.

Segments	NPS
Refugee Household	44
Refugee Business	55
Female	57
Male	28
Zone 1	49
Zone 2	32
Zone 3	51

MIDDLE 60dB - Benchmark

Promoters and Passives value reliable and affordable power. Detractors want to see reduced cost of service and less power outages.

Follow up to NPS question: We ask respondents to explain their rating to provide insight into what they value and what creates dissatisfaction.



are Promoters

They love:

1. Reliable power supply (81% of Promoters / 45% of all respondents)

2. Affordable power (31% of Promoters / 17% of all respondents)

3. Improved productivity (22% of Promoters / 12% of all respondents)



are Passives

They like:

1. Reliable power supply (59% of Passives / 19% of all respondents)

2. Affordable power (39% of Passives / 13% of all respondents)

They want to see:

3. Better way of tracking remaining balance (4% of Passives / 1% of all respondents)



They want to see:

1. Reduced cost of service (33% of Detractors / 4% of all respondents)

2. Fewer power outages (31% of Detractors / 4% of all respondents)

3. Prompt technical support (21% of Detractors / 2% of all respondents)

23%

outages

mention power

(4% of all respondents)

📾 Experience

16% of customers have experienced a challenge using the mini-grid services.

Customer Challenge Rate

Q: Have you experienced any challenges using the Humanitarian Energy mini-grid services? (n = 460)



Most Common Challenges

Q: Please explain these challenges. (n = 73). Open-ended, coded by 60 Decibels.

37%

talk about delayed power restoration after payment (6% of all respondents)

19%

mention inability to view balance

(3% of all respondents)

Many of the challenges are related to communication issues with the smart meters, which result in delayed power restoration after topping-up and customers sometimes not being able to view their balance. These issues originate on the supplier's side and are beyond the control of Humanitarian Energy PLC. The power outages that customer experience are caused by the meters which have a current control which limits customers' consumption. When customers use multiple appliances simultaneously, particularly inefficient electric stoves, their connection gets switched off.

TOP 20% - 60dB Benchmark

For 75% of customers who experienced challenges, their issue has not been resolved. The customer service rating is fair.

Issue Resolution

Q: [If challenges] Has your challenge using the Humanitarian Energy mini-grid services been resolved? (n = 73).

75%

say their challenge is unresolved.

12% of customers interviewed have an unresolved issue.

•••• MIDDLE 60dB - Benchmark

Issue Resolution Speed

Q: [If challenges] Was the challenge resolved quickly? (n = 18).

56%

say their challenge was not resolved quickly.

60 __ decibels

Customer Effort Score (CES)

Q: To what extent do you agree or disagree with this statement? Overall, Humanitarian Energy made it easy for me to handle my issue. Do you: (n = 73)



Customer Effort Score



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MIDDLE 60dB - Benchmark

1 in 5 customers find the payments for their energy services to be a burden. 4% are over-indebted.

Payment Burden

Q: Thinking about your mini-grid services payments, are they a heavy burden, somewhat of a burden, or not a problem? (n = 460 | Refugee household = 409, Refugee business = 51)



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TOP 40% - 60dB Benchmark



66

The prices are too high for families with a large number of members. It would be better to consider discounts for large families and those who are economically disadvantaged.

- Female, 39

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04: Gender Experience Score

The Gender Experience Score provides insight into the experiences of male and female customers in their interaction with Humanitarian Energy. The key indicators in this section are:

- First Access
- Ease of Use
- Issue Resolution
- Customer Effort Score
- Net Promoter Score

😁 Segmentation

Humanitarian Energy's female and male customers have similar experiences.

0.05 Gender Experience Score

Gender Segmentation Analysis



Overall, the experiences of male and female customers are similar.

However, there are some notable differences. The Net Promoter Score for female customers is higher than for men (57 vs 28). Women, often primary managers of household energy, might perceive greater value in the mini-grid's impact on daily life (e.g., lighting, safety, cooking), driving stronger advocacy.

Additionally, the Customer Effort Score (CES) is significantly higher for female customers (3.5 vs 2.9), suggesting that women find it easier to have their issues handled compared to men, which could indicate a smoother resolution process for female customers.

Female customers are more likely to rate their satisfaction overall and with customer service higher than men.

Key

First Access

Ease of Use

Issue Resolution

% of customers accessing service for the first time

% of customers not experiencing challenges

% of customers who have experienced challenges



Customer Effort Score scale 1-5, normalised to 0% - 100%

Net Promoter Score (NPS) scale -100 to 100, normalised to 0% - 100%

who have had them resolved

Results

Q

Male average n = 201

•••• Female average n = 259

Notes

- The range is -1 to 1.
- A score of 0 suggests male and female customers experience Humanitarian Energy's services, similarly, overall.
- A negative score suggests more positive experiences for men, relative to women, overall.
- A positive score suggests more positive experiences for women, relative to men, overall.



Appendix

Methodology

About the 60 Decibels Methodology

In February and March 2025, 60 Decibels trained researchers conducted 460 phone interviews with Humanitarian Energy mini-grid customers. The customers were randomly selected from a random sample of Humanitarian Energy's shared customer database.

Out of 460 completed interviews, 409 were refugee households and 51 were refugee businesses. While we intended to include hub businesses in sample, we were unable to reach them due to limited number of contacts (9).

Here is the breakdown of how we collected this data:

Country	Ethiopia
Customer Population	1,080
Interviews Completed	460
Response Rate	81%
Languages	Somali
Average Survey Length	16 minutes
Confidence Level	90%
Margin of Error	3%

Calculations and Definitions

For those who like to geek out, here's a summary of some of the calculations we used in this report.

Calculation Metric Net Promoter Score® The Net Promoter Score (NPS) is a common gauge of customer satisfaction and loyalty. It is measured by asking customers to rate their likelihood to recommend a product/service to a friend of family member on a scale of 0 to 10, where 0 is least likely and 10 is most likely. The NPS is the % of customers rating 9 or 10 out of 10 ('Promoters') minus the % of customers rating 0 to 6 out of 10 ('Detractors'). Those rating 7 or 8 are considered 'Passives'. Promoters: These customers are enthusiastic and likely to act as brand ambassadors. Passives: They are satisfied but not enthusiastic, and they are neither likely to actively promote the brand nor spread negative word-of-mouth. Detractors: These customers are dissatisfied and would be unlikely to recommend a company or product to others. They may even actively discourage potential customers. How easy do you make it for your customers to resolve their issues? This measure Customer Effort Score captures the aftersales care and customer service. Customers who have experienced a challenge are asked to what extent they agree with the statement: Do you agree or disagree with statement: Overall, Humanitarian Energy made it easy for me to handle my issue : disagree (1), somewhat disagree (2), neither agree or disagree (3), somewhat agree (4), agree (5). The CES is the average score between 1 and 5. It is an important driver of uptake, adoption, and referrals, as well as of impact.

Ideas for How to Use these Results

Here are ideas for ways to engage your team and use these results to fuel discussion and inform decisions.

Review Your Results	Review your results and qualitative customer responses. There's a lot of interesting feedback in there!
Engage Your Team	Send the report to your team and invite feedback, questions, and ideas. Sometimes the best ideas come from unexpected places!
	Set up a team meeting & discuss what's most important, celebrate the positives, and identify next steps.
Spread The Word	Reach a wider audience on social media & show you're invested in your customers.
Close The Loop	We recommend posting on social media/website/blasting an SMS saying a 'thank you to everyone who took part in the recent survey with our research partner 60 Decibels, your feedback is valued, and as a result, we'll be working on [XYZ]'
	After reading this report, don't forget to let us know what you thought: <u>here</u> !
Take Action!	Collate ideas from team into an action plan including responsibilities.
	Keep us updated, we'd love to know what changes you make based on these insights.
	Set up the next Lean Data project. We recommend checking in again in 6 to 12 months.

About 60 Decibels

<u>60 Decibels</u> is the world's leading customer insights company for social impact. We bring speed and repeatability to social measurement, making it easy to listen directly to the people who matter most. Our network of 1,600+ researchers in 95+ countries gives you global reach. Couple this with standardized questions across thousands of projects and you get the largest data set of social performance benchmarks worldwide — with a focus on Financial Inclusion, Off-Grid Energy, and Agriculture value chains. These data help investors, funders, Fortune 500 companies, and NGOs understand their impact performance relative to their peers. Get in touch to find out more about our award-winning approach to impact measurement.

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Thank You For Working With Us!

Let's do it again sometime.

We'd love to hear your feedback on working with 60dB; take 5 minutes to fill out our feedback survey <u>here</u>!

Stay In Touch

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