

Socioeconomic Impact Research

Phase 3 Workplan 1a – October 2018

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SEIR Overview

In October 2016, the Socioeconomic Impact Research (SEIR) project was initiated to fill significant data gaps relating to the impact of solar home systems and the pay-as-you-go (PAYG) business model, critical for advocacy and investment decision-making to increase energy access. GOGLA and Altai Consulting worked with seven leading PAYG solar companies – BBOX, d.light, Fenix, M-KOPA, Mobisol, Off Grid Electric and SolarWorks – to gather 2300+ baseline and follow up customer interviews. Amongst other data points, the research has uncovered new insights on income generation. For example, that:

- In almost 60% of households, a member is undertaking more economic activity now they have an off-grid solar system,
- 36% of customers report this has led to an increase in income of \$35 per month on average, and
- Many customers have been able to start a new job or business

This focus on income generation and economic activity has also uncovered new insights on ‘task-shifting’ and the use of off-grid solar by MSMEs, whilst additional questions on energy usage and social benefits revealed key findings on the ‘energy staircase’ and significant improvements in quality of life.

This data was released in the Powering Opportunity report in July 2018. The launch and media engagement were timed to coincide with the UN High Level SDG forum and in advance of an EAC Roadshow – where results were presented to policy-makers, investors, MFIs, DFIs and off-grid companies in Kenya, Uganda and Rwanda. The data has also been shared through on and off-line targeted engagement to drive greater awareness of, and interest in, off-grid solar. In addition, the data points have been integrated into GOGLA’s Impact Metrics and semi-annual Sales and Impact reporting so that the findings can be used continuously in advocacy efforts and by partners, to support program planning, improve strategic decision-making and drive new investment.

Feedback on the research and report from these advocacy and communication efforts has been overwhelmingly positive, and many stakeholders have advised that the findings and Powering Opportunity report will help to drive supportive policy, programmes and investments. This highlights the huge importance and impact of the research, while a comprehensive review of outstanding data and advocacy needs has also revealed further opportunities to build on these research and data activities. Phase 3 of the SEIR research will therefore explore the insights revealed within the original SEIR research, fill further data gaps and lead to the creation of new reports and materials to increase knowledge and understanding of the off-grid solar sector.

Details for the following Phase 3 Workstream is shared in this document.

- Workstream 1a – Build on Current Data Collection

1a: Build on Current Data Collection

Following a convening meeting for GOGLA members, associates and others at the AGM, discussions within the GOGLA Impact Working Group and feedback gathered from the EAC roadshow – from policy-makers, sector support organisations and investors – this workstream has been created to further explore areas of key interest revealed in the Powering Opportunity Report and answer new questions on economic activity. This work will drive advocacy, engagement and outreach and will be complemented with a comprehensive communications programme linked to specific calls to action.

1. Objectives

This research will build on the wealth of data uncovered in the Socioeconomic Impact Research (SEIR) project and dig into key areas relating to the increased economic activity reported by nearly 60% of off-grid solar users. By surveying the same users 12-15 months after their first interview, it will also make the most of the current research infrastructure to explore how impact changes over time.

As well as a focus on economic activity, the research will make the most of the engagement with off-grid customers and participating companies to build a more nuanced picture of SEIR findings to better understand attribution and causality and to gain a deeper understanding of the dynamics that drive key impacts. Therefore, as well as a phone-based survey, the research will include a limited number of qualitative face-to-face interviews with customers and company staff.

Key objectives are to:

- Expand knowledge revealed in Phase 2, particularly on the findings around time-shifting, job creation and direct use of products to generate new revenue
- Enhance insights through more detailed qualitative interviews
- Better understand the economic and demographic segmentation of customers
- Explore change in impact over time

2. Anticipated Outputs and Outcomes

At the end of the project, the research should produce the following outputs:

- A more detailed picture of impacts unlocked by solar home systems, including on enterprise, job creation and the relationship between time use and economic activity
- Better understanding of attribution and causality e.g. the % of new jobs that can directly be attributed to off-grid solar and understanding of the reasons off-grid solar led to this impact

- Aggregated data at different system sizes, by types of economic activity and by income-level/gender etc (sample size/data permitting)
- Additional “know your customer” (KYC) data & analysis
- Qualitative data and case studies that provide deeper insights on the impact of off-grid solar e.g. help explain causality and the effect of household dynamics / influential factors
- Data sets and content that underpin an online dashboard of shareable data visualizations
- Data points analysed and shared to support the GOGLA Impact Metrics
- High impact report, power point presentation and data for communications materials that can be used for targeted advocacy with key stakeholders

This research will help drive the following outcomes:

Robust socioeconomic impact data sets, that fill current gaps in knowledge

- Better understanding of PAYG solar is achieved due to increased knowledge on a variety of socio-economic indicators not yet fully explored e.g. time use and economic activity, with a deeper understanding of causality and attribution
- Better understanding of socio-economic impact by product size, income-levels, location and gender etc is achieved
- Better knowledge about the way(s) time effects impact is achieved
- Better knowledge is gained about the way(s) that household dynamics or influential factors increase or decrease certain impacts (as applicable)
- Credible, independently verified and analysed data is used by multiple stakeholders

Powerful data for knowledge sharing

- Robust data is used in targeted communications and advocacy around the breadth of off-grid solar impacts
- Data is integrated into GOGLA’s harmonized metrics and central data base for continued use by multiple sector stakeholders and to enable sector-estimates and scenario analysis
- Company-own insights into customer values, priorities and energy uses to allow participating companies to increase internal knowledge

3. Background & Overview

The first SEIR data collection took place between September 2017-March 2018 and researchers were able to gather over 2300 full interviews. Seven leading Pay-As-You-Go (PAYG) companies participated in the research, the first time such a large number of companies have joined forces to gather customer insights and impact knowledge.

The research found that nearly 60% of off-grid solar customers undertook more economic activity within just three months of purchasing a solar home system; whether gaining a new job, using their system

directly within a business, or being able to work for longer. Yet these incredible insights also opened an array of new questions. For example:

- What are the new jobs that are being created? How do they relate to a full-time-equivalent (FTE) role? Who in the household is gaining new employment (men/women/youth)?
- After a year, do household members still have new jobs created by the system (long-term job opportunity or only short-term benefit)?
- What type of additional work is being undertaken with the expanded working day?
- What is the impact of off-grid solar on new versus existing enterprises, and how can it be maximised?
- How does this impact change over time and across economic activity types?
- Which other factors drive uptake of jobs in households using off-grid solar. How much of the impact can be attributed to owning a system?

A significant opportunity exists to build on these foundations and utilise the research infrastructure created by the first SEIR to explore these questions, which are of keen interest to policy-makers, sector support organisations and off-grid companies looking to enhance their service to customers.

3.1 Data Collection

Building on the Current Data: Baseline and follow up data (before use of off-grid solar and three months after purchase) has already been collected from over 2300 customer. These provide the foundation for a second follow up data collection which will enhance the SEIR findings. The main follow-up data collection will be phone-based (as the first follow up data collection) and based on existing tools and resources. An external third party will re-engage customers 15 months after their initial purchase with a new survey to explore key questions (see Section 5.1), using surveying software and building on the current database.

A second qualitative survey(s) will support face-to-face data collection to augment the phone surveys. Qualitative data will be collected using surveying tools and will be included into the central database.

3.2 Development of the Question-Set

An overview of key question areas is noted in Section 5.1. These will make the basis of a questionnaire which will be immediately drafted upon the project start. As in the SEIR, participating companies will be engaged with the question-set to ensure that questions will be understood by customers living in different contexts and geographic regions.

While the question-set will be translated by the third-party research partner, it will be reviewed by local company staff to ensure it will be understood by customers of different regional dialects.

Where possible, research questions will be aligned with other external surveys e.g. Acumen, GSMA and World Bank surveys, to create harmonization so that overall, larger data sets can be compiled or validated for certain data points.

3.3 Willingness of Companies to Participate

A strong relationship has been built with the seven companies that participated in the first SEIR research and all have expressed an interest in participating in follow on activities.

The Memorandum of Understanding and Data Sharing Agreements signed by all participants would be extended to allow for continued collaboration.

3.4 Sample size

Overall the sample size is likely to remain strong on certain indicators. However, a cautionary note is shared that while the PAYG business model allows for further follow up with the initial cohort of customers, some attrition may occur.

Assuming a similar attrition rate to that seen between the baseline and the follow up research in the original SEIR, the final sample size is likely to be around 1500 (although attrition rate could be lower given that these customers have proven happy to take part in a second survey already).

1500 interviews will provide a low margin of error in results for the full data-set but error margins will be higher when cutting the data by system size. For example, in the first SEIR findings, 44% of customers reported that their system unlocked more time to work outside the home. While 44% of 1500 is 660 if we are to explore this time use by three separate system sizes, each set would only provide a sample size of 220. Should the 660 all do very different things with their time e.g. 45% spend longer working in agriculture; 20% at their place of business and 35% in short-term contract work, again data for each split would be less robust than the full data set.

However, returning to this cohort presents a unique opportunity to explore impact over time, uncover detailed understanding of different economic activities unlocked by off-grid solar and gain knowledge that can be immediately integrated into research in other geographies. As such, while sample sizes may be smaller, it will nevertheless reveal a significant array of insights.

4. Methodology

4.1 Survey Implementation

As a baseline and follow up interaction have already taken place, the research will only involve one further 20-25 minute survey. Survey implementation is aimed between January – March 2019.

4.2 Customer Compensation

Some companies provided their customers with a day of free light compensation for their time after they participated in the first SEIR (capped at 1 day to avoid any bias and shared following data collection). To maintain consistency, those companies would again provide the same level of compensation. Please note, no differences were noted between the results from customers of companies that did/did not provide the compensation, providing reassurance that this day of free light did not have a bearing on the findings.

5. Research Questions

5.1 Proposed question areas

We seek to answer questions such as those outlined below using a 20 - 25 minute survey.

Economic activity and income

- What is the current economic status of the household (income segmentation)
- How many, and what are, the new jobs that are being created by a household? How does the time spent in these jobs relate to a full-time-equivalent (FTE) role?
- Has this new job(s) led to an increase in income? If so, how much?
- Has this new job(s) enhanced the life of the customer in any other way? (differences between men/women/youth)?
- Who has been able to get a new job (male/female/youth)?
- After a year, do household members still have new jobs created by the system (long-term job opportunity or only short-term benefit)?
- What type of additional work is being undertaken with the expanded working day? And how much extra time is being unlocked?
- Has this additional work led to an increase in income? If so, how much? (per person)
- Who has been able to spend more time at work (male/female/youth)?
- Has this extra work time enhanced the life of the household in any other way? (differences between men/women/youth)?

- How has the new job of a household member, or more time for work, had an impact on agricultural households?
- Which other factors drive uptake of jobs/working hours/economic activity in households using off-grid solar. How much of the impact can be attributed to owning a system?
- Do impacts differ between urban, rural and peri-urban locations
- What is the impact of off-grid solar on new versus existing enterprises, and how can it be maximised?
- What is the impact of off-grid solar on MSMEs
- Has this led to an increase in income? If so how much? If so, how?
- How has access to appliances impacted economic activity and income generation?
- How does this impact change over time, and across economic activity types?
- What is the impact of technology size/type, location, gender, age or income-level on these effects? (as possible)

5.2 Piloting the Question-Set

As well as review of the question-set by all participating companies to check that the terminology used will be understood by customers the survey will be piloted and reviewed by the Research Partner in one or two countries at the out-set of the research.

5.3 Translating the Question-Set

Following piloting, the survey questions will be translated by the research partner into all major language groups spoken by customers. Data from the previous SEIR research will highlight where sub-groups of customers will require a survey in local dialect. As in the initial SEIR research, companies should assist with translation into very specific regional language.

5.4 Pre-set Answers to Questions

Getting robust, and consistent data is critical for ensuring the quality of the entire Research Project and will enable the research to explore change over time. As this research will rely on a number of different researchers undertaking interviews the questions set will be created with drop-down, pre-set answer selections (using specific surveying tools) wherever possible. This will help research staff to illicit accurate and specific answers from customers and will allow any anomalies in data collection to be immediately highlighted and any issues addressed.

6. Scope

6.1 Geographic

The geographic scope of the research will be the same as the final scope of the initial SEIR data collection: Kenya, Mozambique, Rwanda, Uganda and Tanzania.

6.2 Demographic

Data on the gender, age and location of customers (e.g. rural, peri-urban, urban) has already been gathered and will be used to undertake cross analyses of results.

6.3 System Sizes

Data was collected on three separate system sizes in the initial SEIR research: 3 – 10.999 Wp, 11 – 20.999 Wp and 50+ Wp. These categories will also be used in the follow up research. However, as noted in Section 3.6, sample sizes may vary and could limit data shared by system size.

7. Company Participation

All companies that participated in the first round of the SEIR have expressed interest in participating:

1. Mobisol
2. BBOXX
3. Solar Works!
4. M-Kopa
5. d.light
6. Fenix International
7. Zola Electric

8. Key Stakeholders

This research will be conducted as a collaborative effort by the following key groups. Please note, other stakeholders, including other research organizations and donor bodies working within the sector will be kept engaged with the Project.

- Lead Research Partner

- GOGLA
- PAYG Companies

9. Secure Data Sharing and Company / Customer Privacy

9.1 Customer Privacy

The security and privacy of company data is of utmost importance to sustainable research efforts. This research design is built around secure data practices which have been successfully implemented in the first SEIR and in which the third-party only sees the customer telephone number and uses it for the purposes of this research only. All customers that participated in the original SEIR were asked by companies during the baseline whether they were happy to take part. This has been confirmed by their engagement in the first follow up.

9.2 Company Privacy

NDA's and Data Sharing Agreements have already been agreed by participating companies and a '3 data point rule' implemented for all results e.g. three companies or more must provide data on any one point for it to be shared publicly. No issues with this approach have been raised and it follows GOGLA's standard, strict approach to data protection and privacy.

More details can be provided upon request.

10. Analyzing and Visualizing Results

10.1 Data Analysis

Before data collection begins, the Research Partner will draft out analysis and visualization dashboards that translate anticipated responses into the questions and answers posed by this research. This planning and development will serve as a final check that surveys contain all necessary questions without superfluous content, and will help to streamline initial testing of results as actual responses come in.

Following data collection through baseline and follow-up interactions, the Research Partner will analyze responses and aggregate across participating companies, PAYG solar system sizes, geographies, demographics and in respect of the different research question areas. The aggregated results of this analysis will be shared through a web-based, interactive report (with data security measures in place as

described in Section 9). Analysis will also be undertaken to provide companies with findings relating to their own impact and KYC data.

10.2 Specific Gender & Disability Analysis

As noted in Section 5.1, where possible, the research will assess the impact of off-grid solar on women to contribute to gender focused learning. While analysis by gender did not reveal extensive insights in the initial SEIR, a few more targeted questions will be added which aim to uncover:

- Changes in time available as a result of off-grid solar– disaggregated by gender
- Ability to undertake a new job – disaggregated by gender
- Use of off-grid solar in a business or enterprise – disaggregated by gender

Gender-related impacts will also be further explored in the qualitative face-to-face interviews where efforts will be made to speak to female users of off-grid solar. A target will be set for at least 60% of respondents of qualitative interviews to be women.

10.3 Web-based Interactive Report

To enable findings to be widely shared, SEIR data has been added to a data platform on the GOGLA website, where key evidence can be explored through a series of cross analyses e.g. businesses by location (urban, peri-urban, rural) or income generation by system size (4 – 10 Wp, 11 – 20 Wp and 50+ Wp).

Data from this follow up research will also be added to this data platform for easy access by users.

10.4 Production of a Lead Report & PPT

The results of the globally aggregated analysis, and any segmented data that meets the ‘3 data point rule’ will also be compiled into a visually compelling Insights Report and power point presentation slides. Quantitative findings and will be augmented by qualitative stories and insights gathered and relevant contextual data. This report will be made available in PDF form via the GOGLA website.

Specific, gender-related insights will also be compiled and shared. These will aim to a) profile gender-related impact and b) highlight learnings that can be applied by organizations or programs to maximize benefits to women and/or minimize any negative impacts.

When additional geographic data expansion research has been undertaken (Workstream 1b) all findings will be compiled, alongside those from the original report into a final Lead Report containing all data and analysis.

10.5 Production of Company-Owned Reports

Analysis will also be provided in report form at company-level for all participating companies. These reports will be the proprietary information of the participating company and will not be shared with the wider public.

10.6 Peer Review

To establish credibility and gain additional input from expert researchers, GOGLA will explore options for integrating peer-review into the SEIR project and assess feasibility alongside publishing dates and key advocacy activities.

11. Research Sustainability & Outputs

Beyond the immediate gains for knowledge and advocacy, the research will contribute to more sustainable research efforts in the future, and create outputs which include:

- Harmonized data collection question-sets, tools and processes to be used by multiple PAYG solar companies, which will enable future research efforts (survey questions will be added to the SEIR data resources for access on the GOGLA website)
- Recommendations for new, or additional, research that builds on the created research infrastructure
- Data will be incorporated into GOGLA Impact Metrics to enhance and extend bi-annual sector data collection
- Learnings shared with sector partners e.g. SEforALL for inclusion in Energy Access Dividend Research and the multi-tier framework
- Foundations built for further knowledge gathering, and sector engagement

12. Timeline

Activity / Month	2019												
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Planning & Preparation	X	X											
Follow up data collection			X	X	X								
Strategic Planning for Launch			X	X	X								
Analysis & Iteration				X	X	X	X						
Content & Design							X	X	X	X			
Report Launch and Media Outreach										X	X		
Oureach to Key Stakeholders										X	X	X	X

