Modern Energy Cooking Services Challenge Fund - Electric Cooking Outreach (MECS - ECO)

Grant Specification Document

PLEASE ENSURE YOU READ:

- **BACKGROUND RESEARCH – A REVIEW OF CURRENT THINKING**
- **GUIDANCE DOCUMENT**
- **FREQUENTLY ASKED QUESTIONS**

The Modern Energy Cooking Services (MECS) challenge fund provides research funding to stimulate innovations in modern energy cooking technology and systems. In addition, MECS supports the advancement of innovative cooking energy products, processes, and services in low-income countries that are appropriate and acceptable to users.

The Electric Cooking Outreach (ECO) competition is the third in the series of challenge fund competitions (following the Low-Energy Inclusive Appliances (LEIA) and Technology Research for International Development (TRIID) competitions) run by the MECS which seeks to rapidly accelerate the transition from biomass to clean cooking on a global scale.

The MECS ECO competition will be launched on 11th December 2019 and seeks to fund projects which will support the distribution, monitoring and sustainable development of efficient electric cooking appliances. Our research to date suggests that **electric pressure cookers (EPCs) are the 'front running candidate' for this outreach, with rice and slow cookers a close second**, but we will consider any electric energy efficient cooking appliance if a suitable and persuasive case is made for it.

There will be two themes under this challenge fund call;

- **Theme One will focus on the wider use and monitoring of efficient electric cooking appliances.**
- **Theme Two will look to undertake markets assessments of the availability and supply chain of efficient electric cooking appliances, their required standards, government regulation, import tariffs and other factors that may affect the supply chain.**

Successful applicants will be awarded funding to enable the undertaking of a research project which addresses one of these two themes facilitating **the greater uptake of efficient electric cooking appliances.**

This new competition enables the MECS programme, funded by the Department for International Development and delivered by Loughborough University, to fund innovative research that enables a better understanding of how efficient electric cooking appliances are used by different groups of people in different locations.

Global LEAP

The focus of the MECS ECO competition on extending the outreach of electric cooking is particularly timely, as it coincides with the launch in January 2020 of the Global LEAP Awards. MECS is supporting this first-ever competition for appropriately designed, highly energy efficient electric pressure cookers suitable for use in off- and weak-grid settings. Winners and Finalists of the 2020 Global LEAP Awards Electric Pressure Cooker competition will be eligible for up to $200,000 in innovation prizes as well as results-based financing to support bulk procurement. Find out more at: https://globalleapawards.org/electric-pressure-cookers

A key output of the Global LEAP process is a buyers' guide, highlighting the most energy-efficient, user-friendly, durable and safe EPCs available on the market today. Given that contracts for this challenge fund will be issued at around the same time as the buyers' guide is published, applicants for the challenge fund will be well advised to make use of the findings of Global LEAP. For example, applicants to theme one will be able to refine and determine the appliance make that will be purchased at the time of contracting.

1. Theme One - Community-Scale pilot study to accelerate the uptake of efficient electric cooking appliances.

Research Question – Does the use of efficient electric cooking appliances (in most cases an EPC, and/or rice cooker) fit the cultural processes of cooking for a given market? Is it acceptable to users for their given typical weekly menu and can it fit with electricity delivery in the market space you have chosen?

Clarifications :-

Efficient electric cooking appliances – we are expecting the majority of applicants to propose using EPCs and/or rice cookers. We are open to other efficient electric cooking appliances, but we strongly recommend referring to the research described in section 3.2-3.4 of the Background Research – A Review of Current Thinking Document. Proposals for other appliances will require a persuasive case to be made and need to fit the cultural processes of cooking.

Electric Pressure Cooker and/or Rice cooker – we are expecting the use of **commercially available cooking appliances**. The EPC has become popular in developed economies and currently has estimated annual sales to be worth $578 million (USD). Rice cooker sales are not known, although 4.7 million were sold in the USA alone in 2018. We are not expecting design or modification of these devices, rather the **focus is on whether existing devices can fit with user needs.**

"fit the cultural processes of cooking" – cooking is a deeply cultural activity. Both society and individuals have long and deeply held beliefs about how the food should be cooked and how it should taste. Many have a belief that food cooked with electricity just doesn't taste the same. As urbanisation takes hold, traditional practices evolve and populations change their beliefs and modify the way they cook. We are expecting all applicants to monitor the community users' impressions and responses to the new devices.

"for a given market" - we expect the application to be focused on a market. This may be a market defined by geographical reach, or it may be a market defined by the outreach mechanism - i.e. a community defined by a particular feature (e.g. a savings club, self-help group, disability)

"is it acceptable to users for their given typical weekly menu" – as well as research to capture community user opinions about the acceptability of the devices for their typical weekly menu, we wish to see whether the weekly menu changes or adapts in the light of the technology. Do people change the way they cook and what they cook to fit with the appliances?

"can it fit with electricity delivery in the market space you have chosen." – challenge fund applicants can distribute the appliances to households that are grid or off-grid connected.

- For grid connected households, records should be kept of the stability and experience of the grid (voltage drops etc), i.e. whether it might be considered a strong or weak grid.
- For off-grid households, the supply may be a mini-grid or a home system.
- If the appliances are being used with mini-grids, then time of use is likely to be important and some provision for data gathering must be made.

Any appliance must fit into the market space and should be maintainable and durable. A mechanism to support the use and maintenance should be included in the application.

Tarif experiments are within scope. For home systems, the assumption is that applicants may wish to upgrade existing customers. We will consider new customers but will score low accordingly.

1.1 The research

This research will utilise commercially available efficient electric cooking appliances within the target country. The application should be descriptive of at least four key elements of the research and the data gathered at each stage.

Research Element 1: Community pilot study preparation :- The proposal should describe how the target community will be selected and the eligibility criteria for the households engaged in the study. These selection decisions should take into account the following factors:

- the existing behaviour and practices of the target community and how they will be documented
- intra household decision dynamics and
- the gendered roles within the household. Applicants are asked to consider and incorporate accessibility issues (for example, in relation to those with disabilities).

Your application should also describe how efficient electric cooking appliances within the target community will be identified and what criteria will be used to select the appliance(s) for the study. You must highlight how you will ensure asset management, including the storage and transportation of the efficient electric cooking appliances.

This theme will explore the potential efficient electric cooking appliances options available within the wider country and is intended to have an ongoing impact. As such, ensuring the safety of the appliance is essential. Therefore, if the efficient electric cooking appliance(s) that is proposed meets European standards, we would allow the immediate go ahead of the project. If the efficient electric cooking

appliance(s) does not meet European standards, we would require the receipt of one efficient electric cooking appliances for testing before the main purchase can go ahead. (link to EU standard)

Research element 2. Community engagement and efficient electric cooking appliances distribution.

It is expected that the funding will ensure the purchase of a significant amount of efficient electric cooking appliances for distribution and monitoring within a specific target group(s). The application should describe how the appliances will be distributed. The project may test alternative business models for appliance distribution. For instance, will the households incur a cost to acquire the efficient electric cooking appliances? The upfront expenditure may not necessarily cover the whole cost of the appliance within this pilot study however the applicant should describe how the proposed distribution will test household's willingness to pay. Upfront costs may be mitigated by a pay as you go model, in which case the cost recovery model should be presented in the application. Again, we note that this research and willingness to pay may not result in the full cost recovery of the efficient electric cooking appliances.

Your application should highlight how you will deliver training as part of your project

Research element 3. Community use of efficient electric cooking appliance and monitoring.

The application should describe how the use of the appliances will be monitored. It should outline what data will be collected and how this will be obtained. The applicant should consider what types of data would be best to report and design the collection and analysis of the data accordingly. Examples of relevant data include (but are not limited to) the load profiles of cooking typical local foods, the acceptability of financing mechanisms, changes in cooking practice, and potential wider behavioural/societal changes such as those concerning household decisions making dynamics and gendered roles.

The application should state clearly how the use of the appliance will be monitored. Households are likely to use the efficient electric cooking appliance for a part of their cooking. Fuel stacking is common, and households moving on from one fuel to another often keep their previous cooking devices. It will be important to gain insight into how the efficient electric cooking appliance is being used, in addition to other fuels. The research from this ECO challenge fund will inform the development of finance mechanisms to assist modern energy cooking services to reach scale. Finance mechanisms currently being considered include Results Based Finance and Carbon finance. Both of these greatly depend on knowing the actual use of the efficient electric cooking appliances. Use data is also of importance to the wider MECS programme to inform other research on Life Cycle Analysis, techno-economic modelling, business modelling, grid stability modelling among others.

For information, MECS has conducted studies where households keep a cooking diary, facilitated by enumerators, which is then matched with electrical data read from appliance-level sub-meters. There are also experiments with more automated data logging to record the load profiles of cooking typical local foods with particular appliances. Proposals should be clear what datalogging technology and analytics will be used to monitor the community-scale pilot. An indication of outputs should be provided.

To facilitate the community use of efficient electric cooking appliances, your application should also highlight how you will deliver ongoing support to your appliance users. This should include (but is not limited to) training in the use of the efficient electric cooking appliances and providing maintenance.

Research element 4. Concluding the pilot, learning and post pilot steps.
At the conclusion of the research phase, the applicant will have responsibilities to the pilot community: what actions may be taken beyond the time of the pilot study? How will the learning from the pilot be translated into an ongoing electric cooking outreach to relevant other communities? What would be required to take the outreach to scale? You should include a strategy for the long-term sustainability of the project and how it will be implemented.

1.2 Scope of the Competition

This is a targeted call to explore the options for efficient electric cooking appliances and stimulate the uptake of usage within a community context to inform the transition towards the use of a modern energy cooking services in one or more countries supported by DfID. (The list of countries supported by DfID can be found in the FAQ document)

The key details of the fund are as follows:

- Funder: UKAid funded Modern Energy Cooking Services (MECS) programme
- Level of funding: up to GBP 60,000. Match funding is desirable. The finance element of your application will be preferentially scored if this is secured
- Initial payment at contract signing with three subsequent payments based on a mid-term reports and a final report
- Project length: 12 months. This will include 3 months for set up, 6 months for the monitoring phase and 2 months for dissemination and outreach. The final month will be for documenting learning and delivering the report
- Location: project must apply to a country supported by DFID (see FAQ's)
- Open to all companies/organisations, any size, based anywhere
- Collaborations with organisations based in a country supported by DFID are encouraged
- Funding will be partly based on deliverables, with an initial 30% provided after signing of the contract, 20% will be paid on receipt and approval of both the first and second quarterly report. The final disbursement of 30% will be transferred on delivery of the final report highlighting the learning as part of end of project report and implementation plan for long-term sustainability.

2.0 Theme 2 – Market assessment

Research Question – How could the use of an efficient electric cooking appliances (generally an EPC, and/or rice cooker) fit within the local economy of a given market? Are relevant devices already available, and what policies, tariffs, taxation, infrastructure, networks and finance mechanisms would strengthen the supply chain?

2.1 Overview

The purpose of this theme is to gather market intelligence on the opportunities emerging in DFID priority countries. The applicant should propose and show forethought on how a market assessment might be undertaken, with the intention of leading to a commentary on the opportunities of the near future for efficient electric cooking appliances.

The response to this theme may be made either by the applicant organisation itself or by the applicant hiring consultants. If a hire of consultants is proposed, the application should include which consultants are being considered, and what their track record is.

The market assessment will consider the detailed and objective evaluation of the potential of efficient electric cooking appliances. We suggest that the study should include, but not be limited to: -

- A review of the supply chain for the efficient electric cooking appliances
- Will the appliances be built, assembled in country?
- If not assembled in country, from which country could they be sourced.
- An assessment of some key features of the target market (i.e. poverty, gender, vulnerability and disability) and how this impacts uptake
- Consider the availability, reliability and affordability of the electricity supply, whether on or off-grid
- What is the relationship of the market country to the country of origin?
- Comment on the reliability and sustainability of the manufacturer
- Does the manufacturer have particular finance needs?
- How will the application of import tariff and customs affect the supply chain?
- What is the current regime of standards and importation certifications?
- How does the ease of doing business affect the supply chain and is there potential for importing efficient electric cooking appliances in greater quantity?
- What is the role of distributors and intermediaries?
- What socio-political factors could affect the uptake of efficient electric cooking appliances into the local economy?
- What are the current key retail outlets and what are the possibilities of increasing the reach?
- What are opportunities for finance for consumers?
- What is the role of pay as you go systems and on bill financing?
- A commentary on the future of local manufacture
- A commentary on the future waste disposal of equipment

In other terms the factors being considered could be framed as: -

- Entry barriers
- Environmental considerations
- Regulatory framework/barriers

- Market trends
- Competition
- Risks
- Opportunities
- Resources and constraints

2.2 Scope of Competition

This a targeted call to explore the market factors that may inhibit or promote the wider uptake of the use of efficient electric cooking appliances. The key points for this funding are as follows:

- Funder: UKAid funded Modern Energy Cooking Services (MECS) programme
- Level of funding: up to £20,000 with up to 30% matched funding. Applications with matched funding will be preferentially scored.
- Initial payment at contract signing with one subsequent payment based on the final report
- Project length: a maximum of 6 months. This will include both the market assessment and the delivery of a final report. The final report should include the learning outcomes from this study.
- Location: project must apply to a country supported by DFID
- Open to all companies/organisations, any size, based anywhere
- Collaborations with organisations based in a country supported by DFID are encouraged (a list of these countries can be found in the Guidance Document)
- Funding will be based on deliverables, with an initial 30% provided at the first reporting stage six weeks after the project starts. The remaining disbursements will be issued once the mid-term report is delivered and approved (40% disbursed) and the final disbursement on delivery of the approved final report highlighting the learning and next steps as a result of the market assessment (30%).