Evidence gathering and impacts assessment for the deployment of low-GWP heat pumps in Europe

CLASP is seeking a contractor to gather evidence and conduct impacts modeling associated with the deployment of low-GWP heat pumps (HPs) in the European Union and the UK.

DUE: 17 November, 2023 at 23:59 CET **QUESTIONS:** lkelpsaite@clasp.ngo

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About CLASP

CLASP serves at the epicenter of collaborative, ambitious efforts to mitigate climate change and in the global movement for clean energy access, through appliance efficiency. Our mission is to improve the energy and environmental performance of the appliances & equipment we use every day, accelerating our transition to a more sustainable world. We work hand-in-hand with governments, experts, industry, consumers, donor organizations and others to propel policies and markets toward the highest quality, lowest resource-intensive appliances possible.

CLASP has worked in more than 100 countries since inception in 1999. CLASP is headquartered in Washington, DC, with teams in China, Europe and the United Kingdom, India, Indonesia, and Kenya. We are mission-driven and committed to a culture of diversity, transparency, collaboration, and impactful work. See our Team Page to learn more about us.

Introduction

The heat pumps (HP) are essential technology for the European Union (EU) to achieve clean energy transition and carbon neutrality goal by 2050. To date, nearly 20 million heat pumps have been installed in the EU with 3 million pumps sold in 2022 alone. Under the REPowerEU plan, the policymakers seek to accelerate the uptake of HPs with the objective to install 60 million pumps by 2030.

Currently, the main refrigerants used in the HPs are fluorinated gases (F-gases) such as hydrofluorocarbons (HFCs) R-32 and R-410A that are hundreds to thousand times more potent than carbon dioxide. With the recent ambitious agreement on the revision of the F-gas regulation, the risk is two-folds: 1) if not well anticipated, new constraints might in some cases complicate the transition to decarbonized heating, and 2) that the millions of HPs still to be installed before the complete phase-out of HFCs could include F-gases that will be locked-in in the European heating systems for the coming decades – potentially leaking and requiring replacement. Some of them, including R-410A, are considered per- and polyfluoroalkyl (PFAS) substances causing additional concerns for the environment and health. Heat pumps with environmentally friendly refrigerants such as hydrocarbons or R-290 are available on the market today and growing number of manufacturers add them to their product portfolios.

Increasing the uptake of HPs with low-GWP or natural refrigerants is therefore imperative to avoid locking-in F-gases and PFAS in the deployment of heat pumps under REPowerEU. This project seeks to investigate and gather evidence on the feasibility of mass deployment of low-GWP HPs 1) to meet the timelines in the latest revision of the F-gas regulation currently awaiting for approval and 2) to identify an optimal pathway - more accelerated/optimal timelines that do not impact the demand and the EU HP deployment targets. This work will build on recently published ATMO report.

Timeline

Contract Timeframe: December 2023 – March 2024

Please let us know if you require more time for this effort.

Deadline for Application: 17 November, 2023 at 23:59 CET

Application includes registering as a Consulting Partner and submitting the technical and financial proposals per the instructions below.

Deadline for Questions: 14 November, 2023 at 23:59 CET

All questions must be addressed in English to Lina Kelpsaite at lkelpsaite@clasp.ngo. We request all inquiries be made to this e-mail address and not by phone.

Scope of Work

The Consultant will be responsible for successfully executing the following activities and tasks as part of the project. Execution of all activities and tasks must be conducted in close consultation with CLASP.

Task 1: Research and Evidence Gathering

The purpose of the research is to gather information on availability of HP technology in Europe with particular focus on the availability of HPs with natural refrigerants that have low-GWPs. We define low-GWP refrigerants with GWP of 150 (proposed limit in F-gas rules) or less which includes natural refrigerants.

The research under this Task should seek to answer the following questions:

- What is the status of HP manufacturing in the EU regarding refrigerants? Are they switching to natural refrigerants? What percentage of them are?
- What are the opinions of individual manufacturers on natural refrigerant transition and when do they expect all HPs manufactured with natural refrigerants?
- What does it take and how long does it take to convert lines to natural refrigerants? What would it mean in terms of costs?
- What are the challenges that manufacturers face? What works against them? What works for them?
- Is industry ready for mass production of HP with R290 or other natural refrigerants? If not, what is needed to achieve that and what is the anticipated timeline?
- Are there any obstacles to a mass deployment of HP with R290 or other natural refrigerant on installation and servicing side? Is the training of technicians needed? What does not mean in terms of effort, time and costs?

To respond to the above questions, the Contractor is expected to gather the following (but not limited to) data:

- HP market in Europe especially focusing on HPs with natural refrigerants market share and trends,

- HP manufacturing in Europe especially focusing on HP with natural refrigerants production and trends/estimated growth rates,
- Types of refrigerants used in HP, types of natural refrigerants used in HPs and their availability/supply chain,
- Availability of components needed specifically for natural refrigerant-based equipment, their supply chain and cost,
- Time and costs required for switching the production line from high-/medium-GWP to natural refrigerants,
- Evolution of average purchase price of HPs with natural refrigerants compared to current most common options.
- Technicians trained to date and further training needs across EU member states

The technology scope includes the common types of heat pumps in the residential sector in the EU: it will include heat pumps for hydronic heating systems and may include air-to-air HPs. The technology scope will be discussed and agreed upon with CLASP.

The quantitative and qualitative data is expected to be gathered through desk research, interviews and other means as the contractor deems necessary. CLASP will share with contractor any relevant data that we already have.

Task 2: Impacts Modeling

Model transition of HP market to natural refrigerants based on gathered data, costs and timelines based on different scenarios. The goal of modeling and the scenarios is to propose pathways that reassure policy makers (at the national or European levels) that accelerating the transition to low-GWP refrigerants will not hinder the deployment of HPs or make the transition more costly for their citizens, and help us design market transformation tool (better targeting the main issues, assessing the cost differences, etc.).

Considerations for the scenarios:

- The speed of transition on the manufacturing/supply side, the costs of the different technologies and the ambition of relevant regulations. Ideally, the scenarios would consider the consequences of accelerating the shift for all types of HP vs. hydronic HP (ecodesign lot 1 – hydronic heating) only.
- A potential increase of the share of air-to-air HP, in particular if the increasing cooling needs is met by reversible HPs rather than by simple ACs.
- Current status of adopted regulations and ongoing discussions.

The modeling should seek to provide the estimates for the scenarios on how fast the shift to natural refrigerant HPs can happen on the manufacturing/supply side and the impacts/consequences of this shift including financial (e.g. costs to manufacturers, consumers), job creation, needed training for technicians (including cost and time), necessary retooling, etc.

CLASP will work on parallel modelling to estimate the climate impact (carbon dioxide emissions) of the shift under the same scenarios. Thus, the contractor should expect collaboration with CLASP.

Key Milestones and Deliverables

1. Brief inception report, detailing the approach and methodology for the research and evidence gathering and modeling (max 8 pages)
2. Excel spreadsheet with accompanying documents, if necessary, which include all collected quantitative and qualitative data, analysis and modeling, and sources
3. Draft and final reports that includes key findings, evidence and impacts modeling, and recommendations

Key Qualifications

- Demonstrated ability to collect comprehensive relevant data for energy-consuming products in Europe
- Understanding of the European heat pump market, relevant policy landscape and policymaking ecosystem
- Experience with modeling of the impacts for appliance and equipment standards and policies
- Demonstrated experience in preparing reports

Submittal

Register as a Consulting Partner

Interested parties must register as a CLASP Consulting Partner.

Submit Technical and Financial Proposals

Interested parties should submit separate technical and financial proposals electronically, in English, via this form link (preferably in PDF format). The files should be named as per the following example:

[CONTRACTOR_NAME] _Technical Proposal_ RFP 2023-10-18
[CONTRACTOR_NAME] _Financial Proposal_ RFP 2023-10-18

The length of the technical proposal should not exceed 20 pages and should include:

- Detailed approach and methodology for the design, implementation, and management of the project
- Detailed timeline for all project activities, tasks, milestones, and deliverables for the project within the time frame indicated above
- Background and experience of conducting similar activities
- A summary of qualifications and experience of key personnel that will execute the project

The financial proposal (in USD) should include a detailed budget with all direct and indirect cost estimates for executing the project, including a breakdown (in days) of the level of effort and costs associated with each team member that will be engaged in the project.

CVs and related summaries of experience and qualifications of proposed project team staff should be included in an Annex and should not exceed 10 pages.

Optional At This Stage – Fill Out Pre-Qualification Questionnaire (PQQ)

All contractors must fill out the PQQ before working with CLASP. This can be voluntarily completed at the RFP stage but will be mandatory if a contract is awarded.

The PQQ is a thorough due diligence screening aimed at gathering legal and financial information on prospective partners/vendors. Contract awards are conditional upon passing the due diligence screening. Organizations that have already completed the PQQ do not need to complete it again unless the structure of the business has changed. If you are unsure, please email Andrea Testa (atesta@clasp.ngo) to determine next steps.

Evaluation Procedure

A committee appointed by CLASP will evaluate proposals received. Selection of qualified companies or organizations will be based upon the following criteria:

- **Technical Evaluation Factors**
- **Financial Evaluation Factors**

All bids will be evaluated and ranked using Quality and Cost Based Selection (QCBS), with 80 percent of the score accorded to the technical proposal, and 20 percent to the financial proposal. The detailed evaluation criteria can be found in Annex A.

ANNEX A: EVALUATION CRITERIA

Technical Approach (35 points): The technical approach described in the proposals will be evaluated on:

- The demonstrated understanding of the overall project context (15).
- The detailed work plan and approach clearly defining the target objectives and the strategy to achieve the objectives as outlined in the scope of work (20).

Management Structure and Staff Qualification (25 points): The proposed management structure and staff will be evaluated on:

- The professional qualifications and the extent to which the requisite expertise and experience of the key personnel will directly contribute to the completion of the tasks (25).

Past Performance and Corporate Experience (20 points): The experience and capacities of the contractor will be evaluated based on:

- The past performance, familiarity, and experience in understanding policies and program related to standards and labelling (10).

- Extent of local expertise including experience, qualifications, and track record in implementation of similar programs (10).

Cost Evaluation Factors (20 points): While the overall Technical Evaluation is the key factor in reviewing the proposal, the cost evaluation will be an essential factor in determining the final contract award and ability to remain in the competitive range and will be evaluated for feasibility, completeness, and practicality.

FREQUENTLY ASKED QUESTIONS

- **When was the RFP published?**

This RFP was published on 19 October 2023.

- **Can the deadline be extended?**

As of 8 November, we have extended the deadline for proposal submission from 11 November to 17 November.

- **Can you provide an indication for the budget?**

We cannot provide this information.

- **Can we propose to extend the project timeline as per the following comment in the RFP – "Please let us know if you require more time for this effort"?**

It is fine to propose longer timeframe for the project implementation that is reasonable and justified.

- **You have identified the EU as a focus for the HP feasibility study, do we need to prioritize factors such as population size, climate, etc.?**

Those could be some of the criteria.

- **We recommend focusing our feasibility assessment on the top 3 HP technology providers and refrigerant producers. Would you agree with this approach?**

CLASP is concerned that the views and interests of the top 3 providers would impact the study's conclusions and may not represent the opinions of all sectors.

- **Our assessment of the technology and refrigerant producers will involve conducting interviews with the senior team. Would we be able to gain access to the senior team?**

CLASP can provide support with contacts we have, but, in general, CLASP expects the contractor to secure its own access.

- **As we have to carry out consultations/interviews with technology suppliers, please define the maximum number of technology supplier consultations to be carried out under the project.**

CLASP expects the contractor to propose the number of technology supplier consultations, and CLASP can then discuss, if needed, the appropriate number of consultations/interviews based on the contractor's proposals.

- **As mentioned in the RFP, CLASP will work on parallel modeling for carbon emissions. Will the parallel modeling be based on the data collected by the contractor? If yes, then will the parallel modeling take place after the submission of the Excel spreadsheet?**

Relevant data collected by the contractor may inform the carbon emissions modeling.

- **Is there a maximum size for the HP technology to be included in the assessment?**

Focus up to 12 kW (=single family and multi-family housing)

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CLASP looks forward to reviewing your responses and would like to thank you in advance for your participation in this Request for Proposals. CLASP will notify all respondents who submit proposals when a decision has been made.

CLASP is an equal opportunity employer that celebrates diversity and are committed to creating an inclusive environment for all employees. CLASP's goal is to be a diverse workforce that is representative, at all job levels, of the citizens we serve. CLASP complies with all federal, state and local employment law in the countries we operate and is committed to providing equal opportunity for all employees and applicants without regard to race, color, religion, national origin, sex, age, marital status, sexual orientation, gender identity or expression, pregnancy, disability, political affiliation, personal appearance, family responsibilities, matriculation, genetic information, military or protected veteran status, credit information or any other characteristic protected under federal, state or local law.

Each person is evaluated based on personal skill and merit. CLASP's policy regarding equal employment opportunity applies to all aspects of employment, including recruitment, hiring, job assignments, promotions, working conditions, scheduling, benefits, wage and salary administration, disciplinary action, termination, and social, educational and recreational programs.