



Annex 60 – retrofitting heat pumps in large non-domestic buildings

Annex status report covering the period 1-11-2022 to 31-10-2023

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Background and Objectives

Non-domestic buildings are responsible for around 30% of the sector's emissions. However they are difficult to address because, unlike households, buildings vary in form, size, function and therefore energy use, leading to a wide variety of possible heat pump system options. Decision makers tell us that this creates confusion about which option is right for their particular circumstances.

The principal objective of this Annex is to provide simple on-line guidance for decision makers to help them identify and assess the heat pumps options available to them. The three principal target audiences for the Annex are:

- Building owners and managers, who will need a general understanding of the heat pump system options available to them.
- HVAC system designers and engineers, who will need more detailed information on system options and their performance.
- Policy makers and their technical advisors, who will need information to assess the costs and likely outcomes of policy instruments.

Highlights/success stories

Please present one highlight, focusing on results that you have accomplished since the last ExCo meeting.

Difficulties recruiting an operating agent meant that the Annex spent the first half of the year on scoping activities such as developing a workplan and designing the literature review.

The second half of the year focused on understanding how much we know about heat pump deployment in the sector. A preliminary literature review was carried out between April and July 2023. The main finding was that we understand the various technical options well, but that there is very little information about system deployment, and particularly how this can be affected by different country circumstances such as climate and regulatory pressure. This meant that we will be using the case studies to collect information to fill this gap as well as demonstrating best practice.

We also have a significant knowledge gap around how decisions are taken as part of the retrofit process, and therefore how we can best configure our guidance to help decision-makers. The academic literature covers the theory of organisational decision-making very well, but again there are few studies that focus on how decision makers actually make decisions. This gap will also be addressed as part of the case study process.

Activities since last ExCo report

In this section, please describe the activities carried out since the last ExCo meeting [200 words]. Have there been any collaborative activities with other TCPs?

Please see above for a summary of the literature review findings.

We have now started recruiting case studies. We developed a simple on-line survey for people to complete with basic information about the organisation and the retrofit they have carried out. The survey can be found [here](#).

Between the 6 participating countries we have identified 30-40 possible case study organisations. We will now be approaching these organisations directly. Depending on the mix of organisations we may have to conduct a second recruitment round.

We work closely with HTP Annex 62 (heat pumps for multi-family residential buildings in cities), and attend their meetings as an observer.

Across the other TCPs we are also collaborating with ECB Annex 81 (on data-driven smart buildings). They have developed a case study website that we would like to emulate that allows users to configure their search activities. We have also spoken to web developers to understand how to develop on-line guidance.

Achievements in the Annex

In this section, please describe the achievements (e.g. technical, economic, environmental, social) since the last ExCo meeting [400 words]

We were pleased to welcome the Republic of Ireland in September 2023 as the sixth participant country. We now have a full complement.

From the literature review we are confident that we have a good understanding of the state of knowledge around heat pump deployment in non-domestic buildings, and from this that we know what our main knowledge gaps are. We plan to revisit the literature later in the project.

Deviations compared to legal text/Work plan and suggested corrective actions

Please describe how the annex is running according to plan, and if not, identify actions to bring the project back on track.

None envisaged.

The project is running according to schedule

YES:

NO: *(Please remove the mark that is not correct)*

If the answer is no, please explain why.

Delays in recruiting the Operating Agent means that we are roughly 6 months behind schedule. It is too early to tell how this might affect the project. At present, we do not think there will be any impact. However there are two main risks:

- Recruitment of case studies could well be a limiting factor, particularly from organisations prepared to provide (and publish) energy performance monitoring data. We should have a clearer idea of where we are early in 2024.

- We do not think that on-line guidance has been attempted in a TCP Annex. We think the task is reactively straightforward to deliver but it is still a potential risk. We are talking to the HPC web development team to see how best they can assist us.

We will take a view in the first half of 2024 on whether the Annex might need to be extended to April 2025.

Report on any changes in the annex concerning participants, and if there are any observers in the annex

6 countries have signed up to be participants (Austria, Canada, Italy, the Netherlands, the Republic of Ireland and the United Kingdom).

Observer organisations are still joining the Annex, and we expect more to approach us as the case study work progresses. We will have a clearer idea of the complete list early in 2024.

Are there any changes to the legal text concerning the project plan regarding technical or communicative nature?

Not at this stage.

Have all participants paid the OA fee?

If not, please state the participants that have not yet paid.

Not relevant. The UK is covering all Operating Agent costs.

Planned activities

Please give a brief summary of what activities you have planned for the next year, including annex working meetings. Is there any planned collaborative activities with other TCPs?

The three key activities for the rest of 2023 and first half of 2024 are to recruit a satisfactory mix of case studies, to use these to fill the gaps in our knowledge on how heat pump retrofit is carried out and to begin the development of the guidance.

We plan to hold two in-person meetings in 2024 and around 6-8 virtual meetings. The exact mix between regular participant meetings and special meetings (eg problem solving webinars) is yet to be decided.

We will continue to collaborate with EBC Annex 81 to inform the development of our website.

There is considerable research interest in the work of the Annex primarily because of the focus on decision-makers in accelerating technology deployment. We held a workshop in September 2023 to explore this with a range of business, policy and research interests. We hope to develop this activity in 2024 and hopefully identify areas for publication in the academic literature.

Workshops/Conference contributions/papers

Please report what communication activities you have carried out in the project.

We will be presenting the work of the Annex to the CIBSE Build2Perform Live conference in December 2023 in London in the session “Heat Pumps – leading the way from niche to mainstream”.

We have had a paper accepted entitled “Developing the market for retrofitting heat pumps to non-domestic buildings” for the 2024 CIBSE Technical Symposium at Cardiff University in April 2024.

We have been invited to speak at the Industrial and Commercial Heating Equipment Association (ICOM) winter conference in November 2023.

Other communication activities

Report on other communication activities, e.g. films, discussions with policy makers, standardisation bodies.

The Annex website landing page has been refreshed on the HTP website. We hope to begin adding content such as meeting papers before the end of 2023. We are in discussions with the HPC web team and our own web developers for the creation of specialist pages (eg case studies), which we hope to set up in the first half of 2024.

Lessons learned

Please give your lessons learned from the annex, both regarding the specific technology you are working on, but also on how the annex work can be better organized, and what actions you might need help from the HPC to fulfill.

We understand that, in focusing on guidance for decision-makers, the work of the Annex is closer to market than is usual for a TCP activity. We are aware that this has a number of practical implications, particularly for policymakers and researchers seeking to understand how best to influence the way decisions are made in organisations.

We will be working closely with the HPC to extract the lessons from the Annex as they emerge.