

Summary of The First “Lunch & Learn”

“Residential Retrofit: What Have We Learned and What Should Come Next?”

With 14 participants, host experts Jean-Sébastien Broc and Lisa Groves, as well as experts Kate Jenkins and Albane Gaspard, discussed retrofit perspectives from the UK and France. Active participation from attendees, including perspectives from England, France, and Ireland, enriched our discussions and broadened our horizons.

Following you can read more about the take away points from the discussion.

What We Have Learned:

1. Residential retrofit programs are vital for reducing carbon emissions and enhancing building efficiency, necessitating rigorous evaluation.
2. Retrofitting a substantial portion of existing buildings in Europe is a critical and ongoing challenge.
3. Two types of studies, dynamic thermal simulations and real-life instrumentation, help assess retrofit strategies' impact on energy savings and thermal comfort, at building level. Both are complementary.
4. Billing analysis combined with other datasets for statistical analysis help assess impacts at policy level.
5. Monitoring data is essential for program effectiveness assessment, but it can be challenging to obtain due to budget constraints, data privacy and property access.
6. Challenges related to data availability and consistency in EPC (Energy Performance Certificates) assessments were discussed.
7. EPC informs about the energy performance of buildings in standardised conditions of use. Whereas measurements inform about how buildings are actually used.
8. Monitoring occupant behavior and feedback post-retrofitting is as crucial as building performance evaluation.
9. Deep retrofits minimize the risk of rebound effects, as the high energy performance of the renovated buildings makes that even if indoor temperature is increased the corresponding heating consumption remains low.
10. Recruiting homes for retrofit studies and establishing baselines before retrofitting require careful planning. Assessing the baseline in case of buildings heated with heating oil is challenging.
11. There is often a pressure to provide evaluation results within tight deadlines linked to decision processes, and therefore there might not be enough time for a complete assessment.
12. The use of monitoring equipment and data collection challenges in retrofit studies were highlighted.
13. A recent study by ADEME has looked at how building renovation can contribute to summer comfort (and reduce the need for air conditioning).

What Should Come Next:

1. Collaboration between countries to develop standardized evaluation approaches for residential retrofit programs respectively share experiences and document the evaluations, so that they are transparent.
2. Further exploration of user-friendly guides, videos, and innovative methods for consumer engagement in retrofit projects.

3. Enhanced training for installers in sizing, designing, and fine-tuning energy-efficient systems.
4. Continued emphasis on accurate data collection and baseline establishment.
5. Development of unified metrics for assessing retrofit achievements that consider both individual houses and overall housing stock objectives.
6. Ongoing small-scale studies to understand the effectiveness of deep retrofit strategies, with a focus on real-life performance data.
7. Exploration of new technologies and tools for monitoring and assessing retrofit projects.
8. Robust planning and data collection strategies to address the challenges associated with retrofit program evaluations.

Discussion Highlights:

1. **Accurate Reporting and Data Collection:** The participants stressed the importance of collecting accurate data and baseline information for existing buildings to assess the effectiveness of retrofit measures.

2. **Setting Targets:** The discussion revolved around the challenges of setting clear and meaningful targets for retrofit programs. Different metrics and approaches were mentioned, but there was a consensus that targets should encompass both energy efficiency and carbon reduction.

3. **Consumer Engagement:** Engaging homeowners and residents in the retrofit process was considered crucial. The experts emphasized the significance of understanding consumer behavior, improving their understanding of new technologies like heat pumps, and guiding them in the proper use of retrofit equipment.

4. **Installer Training:** The training of installers was highlighted as a critical factor in ensuring the correct installation and configuration of heat pump systems. Fine-tuning heat pumps in real-life situations was seen as essential for achieving optimal efficiency. It is also important to train installers about monitoring equipment, so that the actual performance of heat pumps and other actions can be monitored properly.

5. **Supply Chain Challenges:** Challenges related to the supply chain, including equipment and materials availability, were recognized as factors that can affect the success of retrofit programs.

6. **User-Friendly Documentation:** The need to simplify technical documentation and provide user-friendly resources such as videos or scenarios to guide homeowners in operating and maintaining retrofit equipment was discussed as a means to enhance user experience.

7. **Thresholds for Heat Pump Installation:** The idea of establishing thermal efficiency thresholds for buildings to determine their suitability for heat pump installation was explored. This approach would require homes to reach a specific energy efficiency level before installing heat pumps. Identifying the right thresholds was highlighted as a key issue for effective renovation strategies and policies.

8. **Real-Life Performance vs. Predicted Performance:** The participants acknowledged the gap between predicted energy performance and real-life performance of retrofit measures, particularly heat pumps. Further research was deemed necessary to understand and address these discrepancies.

9. **Performance Warranties:** There was a mention of considering the possibility of performance warranties for retrofit measures, where contractors guarantee the expected outcomes of their work.

In conclusion, the webinar underscored the complexity of evaluating retrofit programs and the need for a holistic approach that considers technical, behavioral, and supply chain factors. Collaboration and knowledge sharing among experts from different countries were seen as valuable for addressing these challenges and improving the success of retrofit initiatives.

Overall, the next steps should involve refining evaluation methodologies, improving installer skills, engaging homeowners effectively, and developing standardized metrics to ensure the success of residential retrofit programs in Europe.

Useful Links:

Homepage Energy Evaluation: <https://energy-evaluation.org/events/>

Conference papers: <https://energy-evaluation.org/2022-europe-conference/>

YouTube Channel: <https://www.youtube.com/@energyevaluation6616>

LinkedIn: @ Energy Evaluation

Summary in English about ADEME scenarios for 2050: <https://www.ademe.fr/en/futures-in-transition/scenarios/>

Recent summary of ADEME Research about building renovation (in French):

<https://infos.ademe.fr/lettre-recherche/la-renovation-globale-et-performante-dune-grande-partie-du-parc-de-batiments-est-donc-incontournable-pour-latteinte-des-objectifs-climatiques-de-la-france/>

study on summer comfort (in French) : <https://librairie.ademe.fr/changement-climatique-et-energie/6409-resilience.html>

Report of the measurement campaign on deep renovations (in French):

<https://librairie.ademe.fr/urbanisme-et-batiment/5265-perf-in-mind-renovation-performante-de-maisons-individuelles.html>

Report discussing the current policies and upcoming challenges to succeed in getting the building stock renovated to high enough energy performance (in French):

<https://librairie.ademe.fr/urbanisme-et-batiment/5750-reussir-le-pari-de-la-renovation-energetique.html>

French observatory on building renovation (in French): <https://www.ecologie.gouv.fr/observatoire-national-renovation-energetique>