



Flexibility meets end-users: Co-creating the Finnish pilot sites

The piloted energy flexibility solution combines spot-price optimization with TSO balancing markets. The service provider OptiWatti acts as aggregator towards TSO markets. The solution will be piloted at 10 apartments.

Co-creation with end-users in the STREAM Finnish pilot means working directly with residents, building owners, and other stakeholders to design, test, and refine energy flexibility solutions that fit real needs and everyday life. This approach ensures that technical innovations are grounded in user experience, leading to higher acceptance and better outcomes.

How did we do it?



Series of user workshops

Multiple interactive workshops were held with end-users to map their current systems, motivations, and flexibility potential. Tools like Miro boards enabled collaborative exploration of comfort, incentives, and practical constraints.

focus such as prioritizing direct electric heating and user-friendly interfaces was shaped by what participants said mattered most.

Pilot site selection and customization

Pilot sites were chosen based on user commitment and feedback. The technical

Iterative feedback and solution design

Users were engaged throughout, providing input on acceptable comfort levels, control preferences, and feedback mechanisms. Their voices directly influenced the development of the OptiWatti energy management system and the design of pilot activities.

Lessons → Learned

1 Motivation goes beyond money

While cost savings are important, many users are also motivated by environmental impact and community benefit. Participation for the common good is a real driver.

2 Simplicity is key

Flexibility markets and control options can be complex. Users want simple, clear participation models and easy-to-use interfaces.

3 Customization matters

Comfort thresholds and willingness to participate vary. Solutions must allow users

to set their own limits and preferences, and level of participation. Some users want to have visibility on how and when their assets are used for flexibility.

4 Continuous engagement

The regular meetings and direct communication with OptiWatti and VTT research experts keep the end users motivated and enthusiastic. In the final OptiWatti product the regular feedback and transparent reporting help to keep users engaged and committed.

5 Technical and social challenges

Addressing device compatibility, usability, and fairness in participation is essential for success.

Why involve end-users?

End-user involvement is crucial for several reasons:

- Ensures solutions to meet real needs and constraints
- Builds trust and commitment increasing adoption
- Recognises technical and behavioral challenges early

→ Enables continuous improvement through feedback

→ Supports the broader energy transition by making flexibility accessible and attractive

The STREAM Finnish pilot demonstrates that when end-users are at the center, flexibility becomes not just a technical solution, but a shared journey toward a smarter, greener energy future.