

The Energy Ambassador Program: A just transition to post-oil heating in homes

Elizabeth Akins, Elisa Dametto, Jane Lehtinen, Uttishta Varanasi

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Summary

The Energy Ambassador Program was developed as a part of the Design for Government course at Aalto University. The brief for the course, "Just transitions to post-oil heating in homes," was commissioned by the Finnish Ministry of the Environment in collaboration with the research group Towards Eco-Welfare State: Orchestrating for Systemic Impact (ORSI). Over the course of four months, our team worked to provide a proposal that supported the Ministry's goal of supporting citizens in transitioning away from oil-heating.

Our team included Elizabeth Akins and Uttishta Varanasi from the Collaborative and Industrial Design masters program and Elisa Dametto and Jane Lehtinen from the Creative Sustainability Program at the Department of Design at Aalto University. This report will illustrate our process, progress, and solution.

We began our research with a participatory workshop with representatives from the Ministry of the Environment and ORSI to dive deeper into the brief and concisely define the goals of the project. To bring a human perspective to the project, we conducted video, call, and email interviews with homeowners who currently use oil heating systems. The systems perspective came into our project via interviews with industry professionals and experts.

The analysis of our research was done with various mapping techniques which allowed us to define and refine our design drivers and insights. Our team was specifically interested in what justness in transitions looks like practically and used this as a lens for our work. The final proposal, The Energy Ambassador Program, was informed by this dedication to just solutions and defined low-threshold options for intervention and transition.

As this project was done mostly remotely during the Covid-19 crisis, we would like to extend a thank you to our lecturers, fellow students, commissioners and interviewees for adjusting to the difficult situation.



A typical detached house in rural Finland.

Research

Briefing by The Ministry of the Environment

Design for Government is an advanced studio at Aalto University within the Creative Sustainability master's program. Since its inception in 2014, Design for Government (DfG) has collaborated with key players in the Finnish public sector to bring a design perspective to governmental practices. The course is project based and each year interdisciplinary students teams receive briefs from Finnish governmental bodies to create a project that answers a current question.

This year, DfG student groups received briefs from the Ministry of the Environment. Our team's brief focused on "Just transitions to post-oil heating in homes." Finland has the ambitious goal of leading the world in carbon neutrality by becoming a carbon neutral society by 2035. Given the naturally cold climate in Finland, residential heating is a significant consumer of energy. The Finnish government has identified transitioning from oil-heating in single-family homes to sustainable heating methods as one way to reach the goal of carbon neutrality by 2035.

Our brief asked teams to explore how the Finnish government can best understand, motivate, and support citizens in the transition process. There are an estimated 130,000 single-family homes in Finland which are still using oil as a heating source. However, there is very little specific information known about the locality, condition, and future of these homes as well as little information about the residents themselves. Our group sought to understand the situation from both a human and systems perspective before ideating possible solutions.



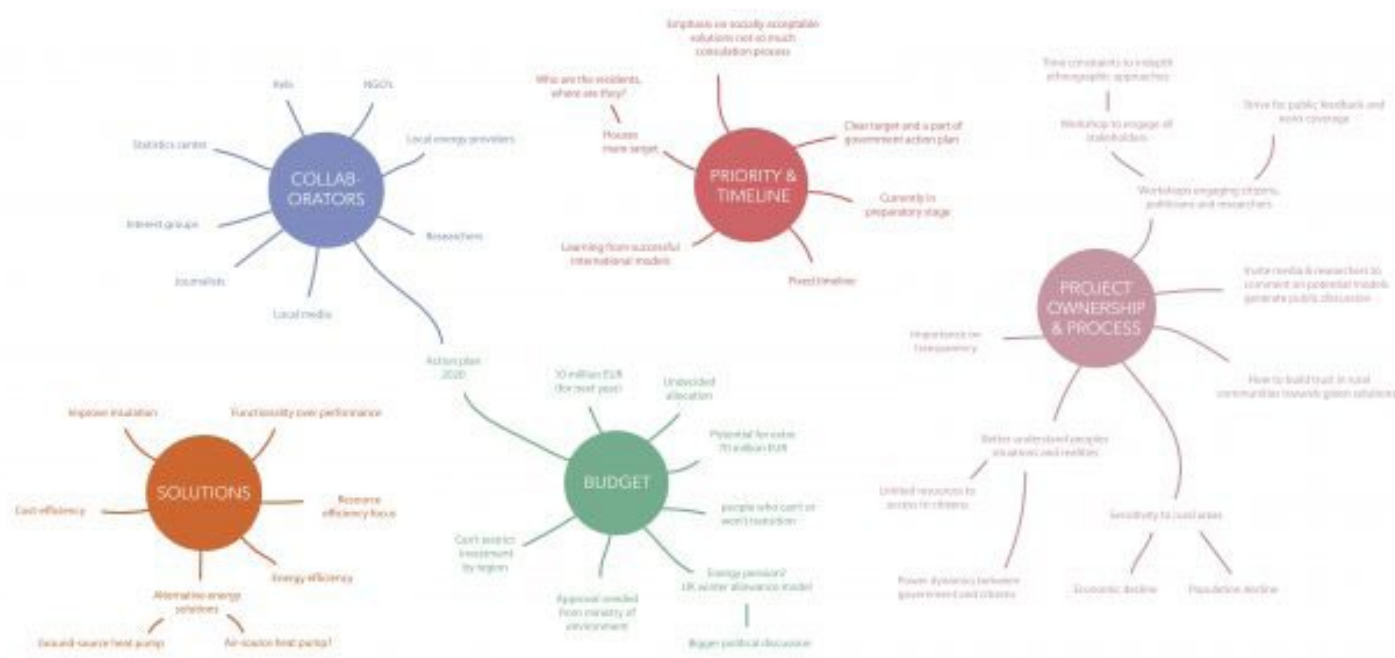
The residence of one of our research participants.

Stakeholder Workshop

In the second week of the project in early March our supergroup conducted a workshop for key stakeholders, who included representatives from the Climate Unit of the Ministry of the Environment and the ORSI research project. The workshop led to gaining a better understanding on what a just transition means from the perspective of the various stakeholders and to increasing our insight into the residents of detached houses with oil-heating.

The workshop was composed of a warm-up exercise, followed by an activity for visioning and defining expectations about the project into groups of wishes on the topic of energy, challenges to renewable energy and perceptions about transitions. The session was wrapped up with a whiteboard exercise on facts, insights and ideas. We had a rather low amount of participants for the workshop, but a very active engagement from the part of the commissioners and stakeholders who were able to attend.

It was noted that there are plenty of interrelated reasons standing in the way of residents transitioning to renewable forms of energy. These include financial issues, geographical limitations, and value-based perceptions. It became clear that one solution will not suit the range of house sizes, types and demographics of the inhabitants and the government does not wish to promote a certain type of technological solution. In terms of the just aspect of the transition, it was highlighted that rural areas must be taken into account with a balance between regional and national politics, as these areas are more impacted by increasing urbanization leading to population and economic decline. The solution needs to be politically and socially acceptable, as well as within a realistic timeframe and budget.



Key considerations for enabling just post-oil transitions for the Ministry of Environment



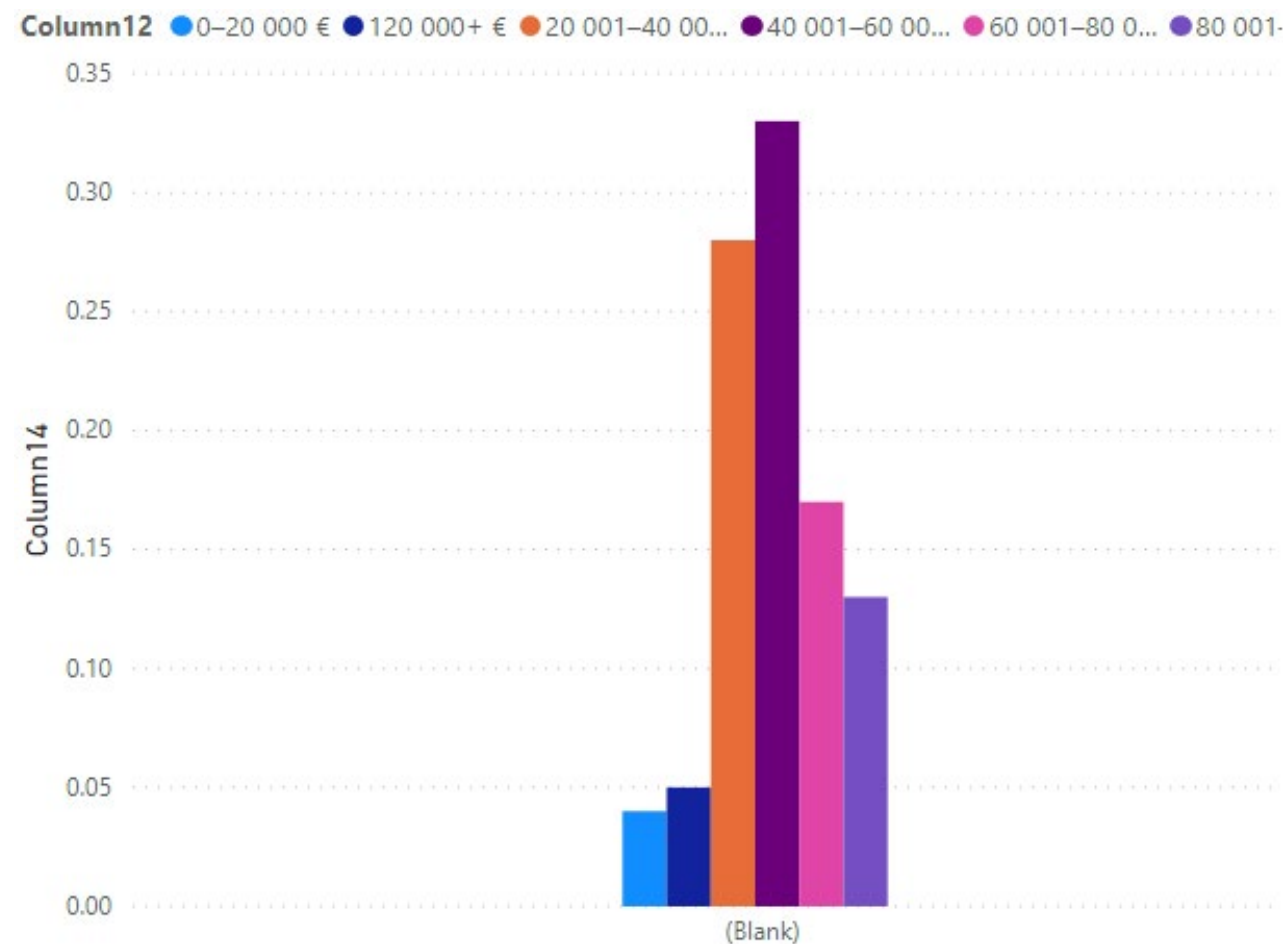
Workshop discussion and documentation. (Photo: Shreya Sood)

The challenge: lack of information on oil-heated detached house residents

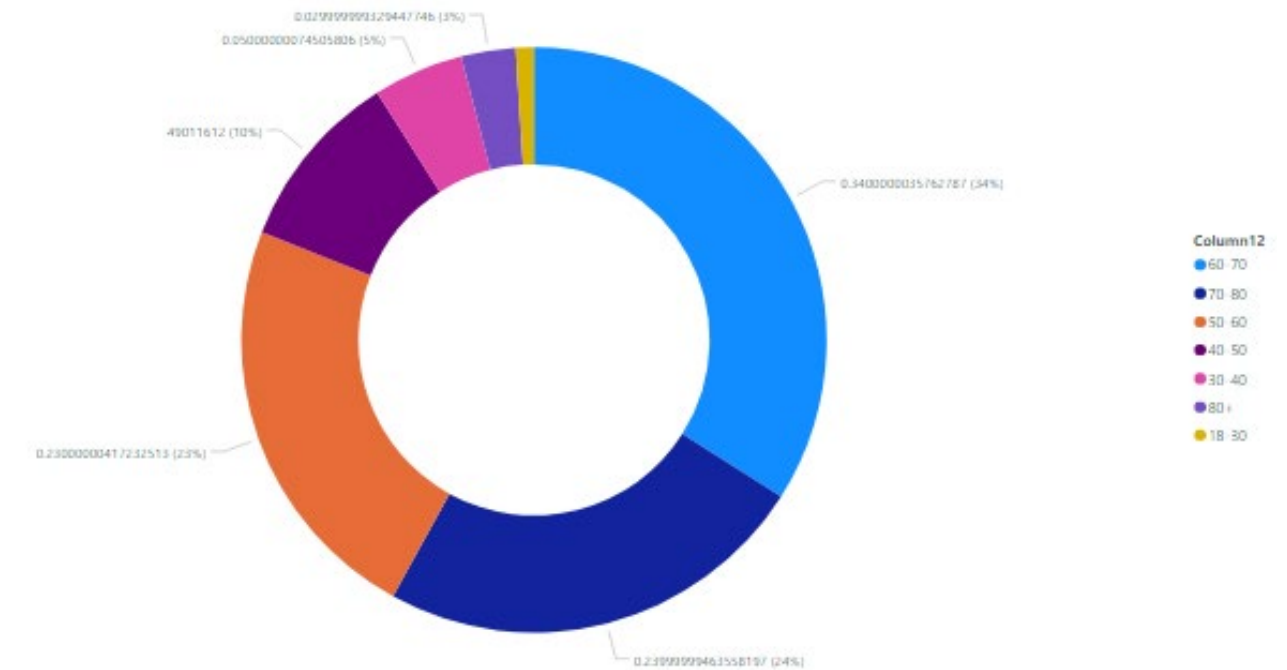
The Finnish government has a target to reach carbon-neutrality by 2035. Energy and heating play a large role in the greenhouse gas emission reduction potential to reach this goal. The Government Program of 2019 includes transitioning away from oil heating in houses by 2030, leading the way with municipal buildings by meeting this goal already by 2024.

A main challenge of the brief is that the Finnish government and research institutions, such as Statistics Finland, lack current statistics and information on the estimated 130,000 detached houses that are still using oil-heating systems. It was noted that the demographics of citizens residing in these houses are aging and the building stock is mainly composed of old houses built in the latter half of the last century, now inhabited by family units declining in size.

Based on this input, our supergroup conducted a survey yielding 3,774 responses from the members of Omakotiliitto. We found that the majority of oil-heating homeowners are over the age of 60, living in two-person households with a combined average annual income of 20,000 - 60,000 euros. Additionally, a third of the respondents hadn't chosen their current form of heating themselves, they had bought homes with existing heating systems. Homeowners cited price, reliability and ease of use as reasons for their current form of heating.



*Income distribution of oil heaters
(Original data from oil-heating respondents (n=959) in questionnaire to Single Family House Association members)*



*Age distribution of oil heaters
(Original data from oil-heating respondents (n=959) in questionnaire to Single Family House Association members)*

Research Questions

Based on the workshop and initial research during the first weeks of the project we drafted, refined, and clustered all of our research questions into three broader themes. The themes were centered around regionality of transitions, questions related to homeowners, and criteria of a just transition:

- Which regions are crucial to maximizing the impact of transitioning away from oil-heating?
- Who are the homeowners? What are their needs, resources, perceptions and expectations for heating their homes?
- What are the qualities and criteria of a just transition?

Our research throughout the project included secondary research of several government reports and academic sources. Additionally, we conducted primary research through multiple semi-structured stakeholder interviews and received user input through user interviews and observations. This information was later extended to broader problem framing, analysis, and systems mapping which we synthesized to form the insights to inform our proposal.

Desktop research

We reviewed reports such as the Finnish Government Program of 2019 with objectives relevant to the brief, Carbon Free Finland 2035 and the climate strategy, and think tank Demos Helsinki's report Design for Government: Human centric governance through experiments (2015). We also reviewed lectures from the 4th Behavioural Change Theory Symposium hosted at Helsinki University, and other academic articles throughout the project (please see more in the references).

Primary research: Towards a systems perspective

To bring a systems perspective to our work, we interviewed researchers, public sector professionals, individuals, and non-profit organization representatives to map relevant players and networks which support transitions away from oil-heating to renewable energy options. A total of six stakeholder interviews were conducted by the supergroup, three of which our team were directly involved in. These included representatives from ORSI, Kela, Lämmitysenergia Liitto (Heating Association), Omakotiliitto (Single Family House Association), the Finnish Climate Change Panel, and ARA. In our group, we interviewed two additional stakeholders; a researcher on governmental support on energy transitions from Eindhoven University in the Netherlands and a Sami activist from Finland located in Alta, Norway (Please see examples of interview schedules and more details of the interviews in the attachments).

Primary research: Gaining a human perspective

For a human perspective, we conducted interviews with single-family homeowners who currently heat with oil. User engagement included an observation conducted remotely via video call plus an email interview, as well as three user interviews of homeowners from Southern and Central Finland. After analysing the data from these interviews, it became evident that there is a willingness to transition away from oil provided there is adequate financial support. Homeowners defined reasons for maintaining oil heating as due to a need for heating security over the winter months and the ease-of-use of current heating systems.

We found very few initiatives as benchmarks; Motiva's successful energy saving scheme in collaboration with residents living in apartments co-ops, an initiative of resident advisors in Hökarängen, Stockholm in co-housing with rather low success rate for engagement (Nilssen et al., 2020), and an ongoing co-design process on heating intervention in New Zealand currently in its early stages of development for implementation (Policy by Design, 2020).

Findings from the first phase of the project

One of our main findings from the first phase of the project is that the opportunity to transition is defined by considerations of individual timing, financial status, regional availability of solutions, and social barriers. There is an evident gap in current support frameworks for transitioning away from oil-heating for those who have less capabilities and opportunities for this, including low-income and elderly residents who make up the majority of oil-heating users as detailed. On the other hand, we have discovered a motivation for transition among certain user demographics, but a need for alignment in the above mentioned factors to support in transitions. There are also varied opinions and distrust for the level and means of government support for solutions.

Therefore there needs to be a range of options with regards to solutions, with a focus on building trust and equity over equality by offering tailored solutions for various residents depending on their context and capabilities; in other words, simply meeting people where they currently are.



Initial mapping of the broader system and stakeholders

Analysis

PESTLE framework & affinity diagram

Near the end of our research phase, we began our analysis by pulling out the key points, observations, and facts from our notes. We then discussed and clustered them together in the online whiteboard platform Miro. As a starting point, we used the PESTLE framework to organize our data according to their relevance to political, economic, social, technological, legal, and environmental topics. Within each of these broad topic areas, we identified smaller clusters that revealed important patterns, such as the financial barriers to transitioning away from oil-heating and a lack of awareness and misinformation many homeowners face when trying to understand different heating system options.

We also utilized affinity diagramming in clustering information related to characteristics of oil-heating systems and their users to get a clearer sense of how current oil-heating systems work for homeowners. As our team was particularly interested in exploring how to enable a just transition for homeowners, we clustered information and discussed the findings along the following themes: 1) What is a just transition? 2) How to meet the diverse needs of homeowners, and 3) How to build trust and communication.

Identifying Opportunities

Following this initial synthesis of our research data, we utilized Susan Michie et al.'s Behaviour Change framework (Michie et al., 2020) to formulate insights around motivation, opportunity, and capability as conditions that lead to behaviour.



Capability

There is a wide range between homeowners capabilities to transition.



Opportunity

Defined by timing, financial status, local solutions, and social barriers.



Motivation

Top-down, coercive solutions cause distrust in the government.

COM-B system: Behaviour occurs as interaction between three necessary conditions (Michie et al. 2011)

These insights were very useful in identifying our team's main design challenge, which we identified as:

How might homeowners in smaller communities be supported in resilience and independence for easing the transitions?

We then shared our findings, insights, and design challenge with the other student teams and course instructors and received feedback during the mid-review presentation.

Design Drivers

Following the mid-review presentation in April, we shifted to generating ideas and refining them into a final solution. Armed with insights gathered in the first phase of the project, we focused on how homeowners in smaller communities could be supported in transitions through leveraging existing people's capabilities, networks, and resources to speed up the process of transitioning away from oil-heating.

We formulated the following design drivers:

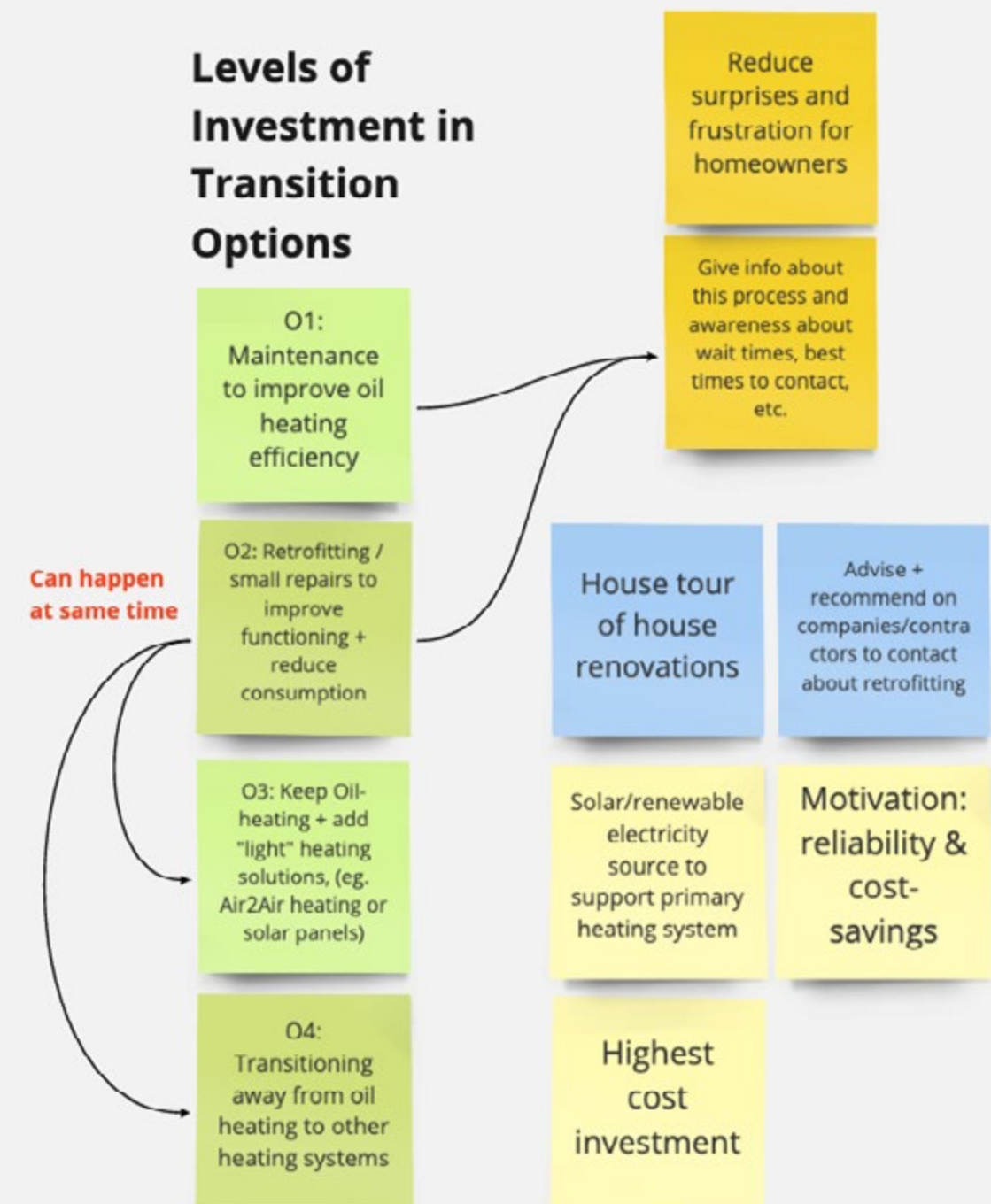
- Community-centered knowledge and systems.**
- Supporting self-sufficiency and energy-independence.**
- Approach with equity over equality - provide adequate support to meet people where they currently are.**
- Enabling a range of technological choices.**
- Plurality of adaptation strategies.**
- Transparency with honest, accessible and inclusive communication.**
- Supporting resilience-building to change.**
- Leveraging partnerships and existing resources.**

Within these eight drivers, we focused on *Community centered knowledge and systems*, *Leveraging partnerships and existing resources*, and an *Approach with equity over equality* as a backdrop for our proposal.

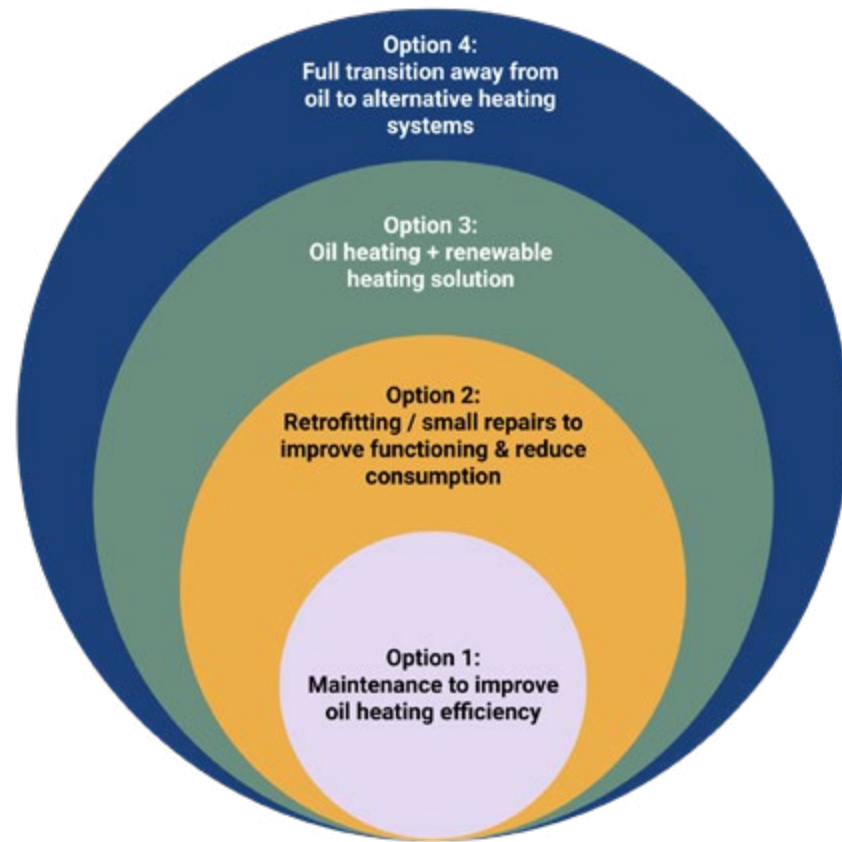
Levels of investment in transition options

We identified four levels of investment in making transitions ranging from very low involvement - with easy steps like improving existing oil heating systems and reducing oil consumption - to partial or complete transitions to further reduce or fully transition away from oil.

This division helped us clearly define areas which would require different types of involvement and assistance from the Ministry of the Environment.



Since our focus is on a just transition, it became apparent that developing levels of transition that can fit different levels of need would be an equitable solution. We identified four levels of opportunity for transition, ranging from minor energy efficiency improvements to reduction in the use of oil to complete transitions. Although we aimed to develop a proposal that was flexible in accommodating different transition levels, our team chose to emphasize the latter options, focusing on the idea of building a Program and network of enthusiastic citizens to act as Energy Ambassadors within their local community.



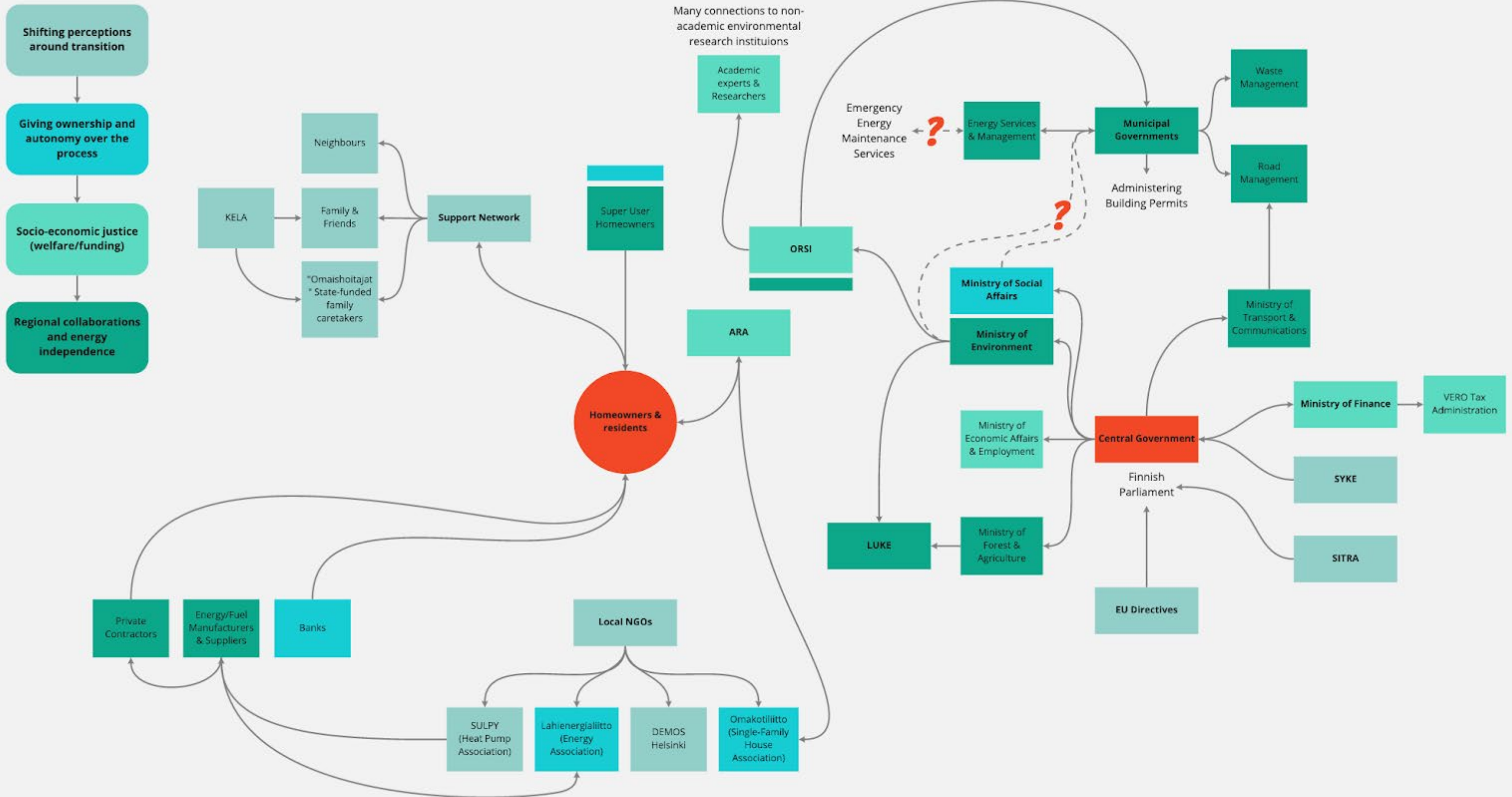
The four different levels of transition.

Stakeholder and user journey mapping

To understand what we might have missed in imagining how this would work, we interviewed two additional homeowners who had either completed the transition away from oil heating or were in the beginning stages of a transition. They added their perspectives on what they wished they had known before and where they might have benefited from outside advice. In addition, we took continuous feedback into account from numerous expert tutorials.

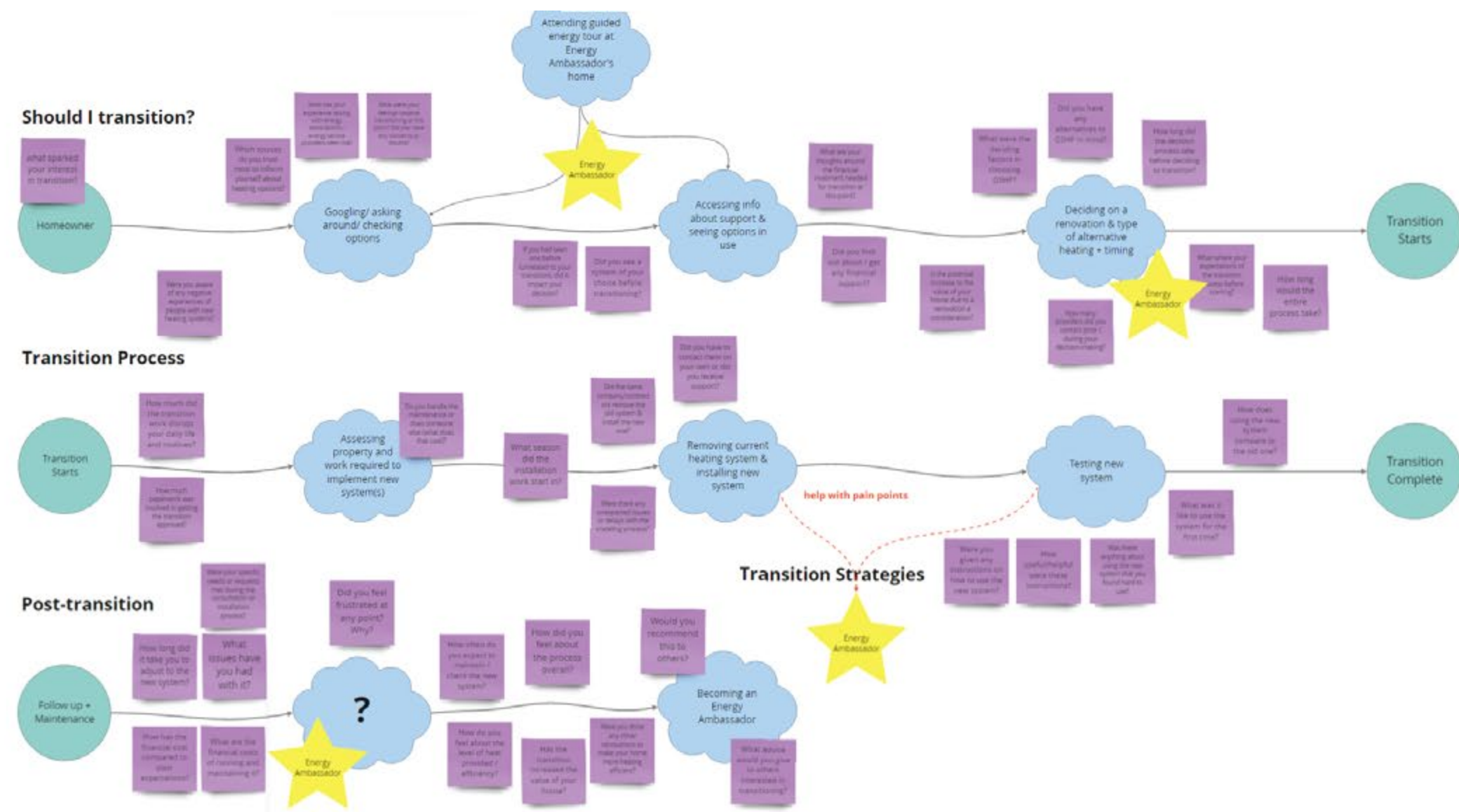
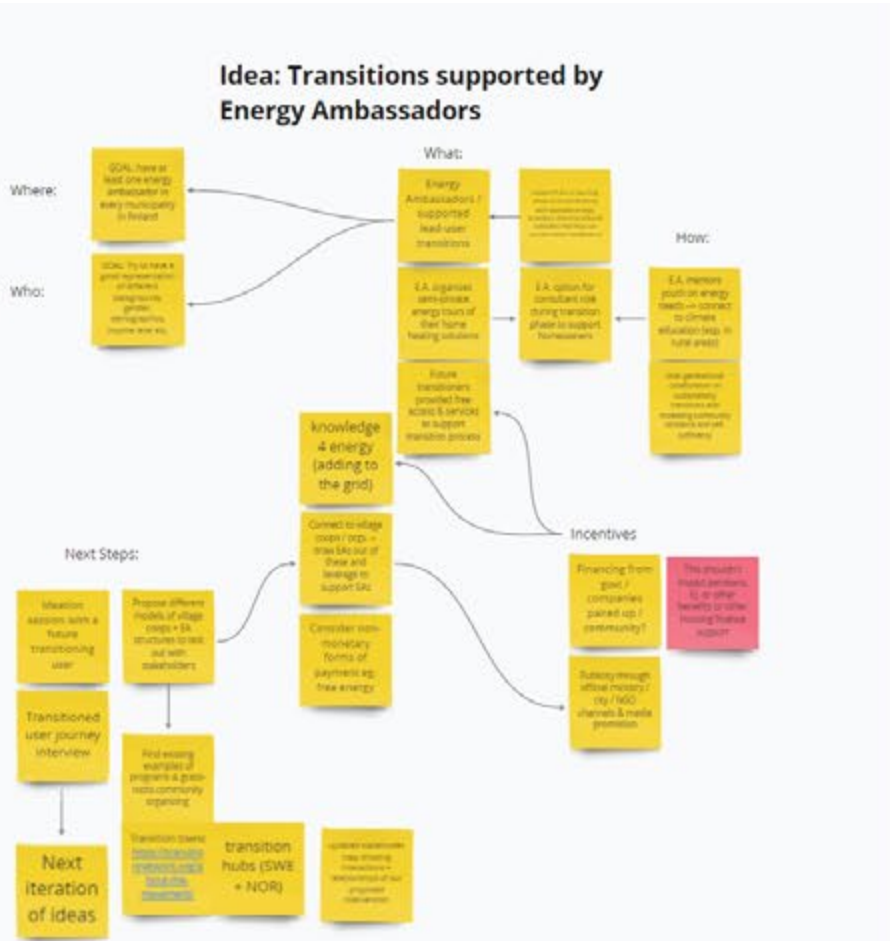
These discussions helped us distill our idea and discover pain points that needed to be worked through. We then generated a user journey map to help us further reflect on our proposed idea and how it could be realized.

JUST TRANSITION AWAY FROM OIL-HEATING



As we moved closer towards our final presentation, we realized that we needed to further refine and sharpen the role and purpose of the Energy Ambassadors in each municipality. We updated our stakeholder map to clarify how the energy ambassador, homeowners, the Ministry of the Environment, and other stakeholders would interact and support homeowners in their transition.

Some key details concerning our proposal that we uncovered included identifying incentives for becoming an energy ambassador and key supporting structures for the Program from ministries and housing organizations. In addition, we defined the lifespan of the Program and what kinds of participation would be expected of ambassadors. In this way, we were able to present a clear role that the Ministry of the Environment could play in initiating, launching and maintaining the proposed program.



Survey Demographics



Perceptions towards transition



Actors / Relevant Organizations



Finding Info



Financial Support



Proposal

The Energy Ambassador Program

Our proposal, The Energy Ambassador program, leverages community-centered knowledge and systems by partnering with and supporting local residents and actors in every municipality in Finland. By using these local connections, the program aims at raising awareness and increasing stakeholder buy-in for the transition to heating in an equitable way.

Process Phases

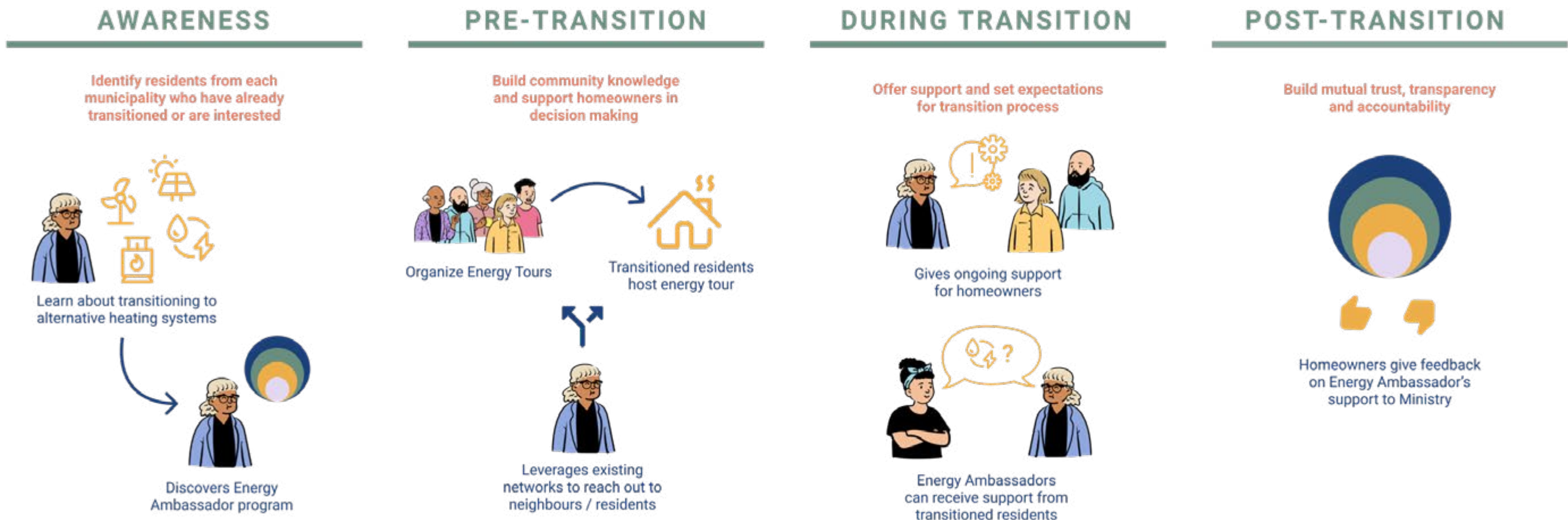
The chart above outlines the 4 key stages of the transition process with the energy ambassador; Awareness, Pre-Transition, During Transition, and Post-Transition. Here we will detail this from the resident's perspective and by utilizing persona's, and the Ministry's perspective will follow.

During the **Awareness** stage, the main aim is to identify residents from each municipality who have transitioned, or are interested in doing so. The resident learns more about the program itself and how they can contribute and their incentives to do so.

The next stage, **Pre-Transition**, focuses on developing community knowledge and supporting homeowners in decision making with regards to their transition. The Energy Ambassador is responsible for organising "Energy Tours" and showing potential transitioners the benefits of doing so. The Ambassador also learns more about these transitioners financial and social capability with regards to the transition.

During **Transition** is when the Energy Ambassador's role is to provide ongoing support to the homeowners who are in the process of changing their heating systems or reducing their energy impact. The Ambassadors can also contact homeowners who have already transitioned in the area for further guidance and advice. The Ambassador is a support system for the transitioning homeowners.

The final phase, **Post-Transition**, is about building the network of mutual trust, transparency and accountability between the homeowners, the Ambassadors and the government after a successful transition. By ensuring a proper communication channel, there is sufficient room for feedback for the ministry to develop other green policies that can be implemented in a sufficiently.



Personas: The Program through the eyes of the users

To visualize the different roles of an Energy Ambassador, we created the persona of Aino. Aino is a recently retired detached house resident who finds herself having more spare time than before. She has lived in an Eastern municipality of Finland for ten years. An active member of her community who enjoys connecting to all types of people, she knows many of her nearby neighbours might be interested in changing their heating systems. Aino is also a keen learner with an interest in renewable heating and sustainability.

Aino is interested in transitioning away from oil heating and she has already been talking with some neighbours who are also interested. The process is quite overwhelming with so many options, different service providers, needs for consultation, and costs to consider. She learns about The Energy Ambassador Program through her town's Facebook group. There she learns about how she and her neighbours can get support for the transition, plus additional incentives by supporting others in transitioning.

Aino decides to sign up to be an Energy Ambassador and through undergoing the training: She is made aware of all the different available technical and funding options for transitions that are available in the local area, she is introduced to the program's materials, including a supporting website platform, an information package, and templates to aid in the process, and finally, Aino is connected with key stakeholders and previously transitioned residents linked to the program in her locality.

After completing the training, she feels knowledgeable enough to link a neighbor, or a group of neighbours, to all the options, contacts, and the website of the program. She can also arrange for them to see a local transitioned resident's renewable heating system.



Energy Ambassadors helping others to transition

To make the narrative more clear, we have created two other personas of homeowners in Aino's locality; Tuuli and Jaakko. These personas are based on data gathered from our resident interviews.

Tuuli lives in the same community as Aino and has a moderate disposable income from her job as a self-employed dog trainer. She knows that more sustainable options than oil-heating exist, but is technically clueless to what they are and how much they would cost. She finds Aino through some fliers put up at her local community centre.

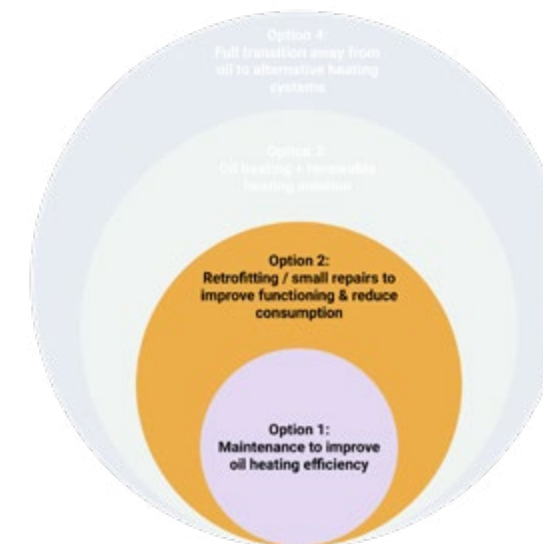
Aino helps Tuuli with some initial energy calculations for her house and can point Tuuli to any professionals in the area for further help. Aino also helps Tuuli apply for grants that offer support for her transition to a ground-source heat pump. Aino is an important advisor for Tuuli over the transition process that lasts for several months.

Tuuli is happy to have made the switch and feels she made the right decision, having saved money in the long run and reducing her carbon footprint. She has also made a valuable contact, and friend, in Aino for any future green transitions.



Jaako is also a resident of the same community, but works two part-time jobs so he is unable to commit the time or money to transition away from his old oil heater. He understands there is a climate emergency, but feels like he can't contribute much because of his lack of resources. He also feels that green technology is only for the wealthy, but out of interest he reaches out to Aino, since he knows that it's free and his finances are his top priority. He knows that he doesn't need to commit to anything yet.

Aino helps Jaakko optimize his house's insulation and increase the efficiency of his oil heater; which are all good options to decrease his overall carbon footprint. Jaakko feels like he has helped contribute to his country's vision of carbon neutrality in his own way. This encourages him to take more ownership over other environmental issues that he can control within his own household, such as composting.



Implementation Plan from the Ministry's Perspective

In the Awareness phase, the Ministry of the Environment's role is being responsible for outreach and recruitment of Energy Ambassadors in collaboration with local municipalities and potentially NGOs. The goal is to initially identify residents for The Energy Ambassador Program from each municipality, ensuring that the whole of Finland is represented and supported.

During the Pre-Transition phase, the Ministry is responsible for developing toolkits, most likely with the help of one-off externally procured services, to guide Energy Ambassadors in helping homeowners to transition. In this phase their role is also in providing training and organizing mentor support from transitioned residents in each locality.

During Transition, the Ministry is responsible for distributing toolkits to guide Energy Ambassadors in helping homeowners to transition. This is the phase, where the least intervention and involvement should be needed, if the program is prepared successfully.

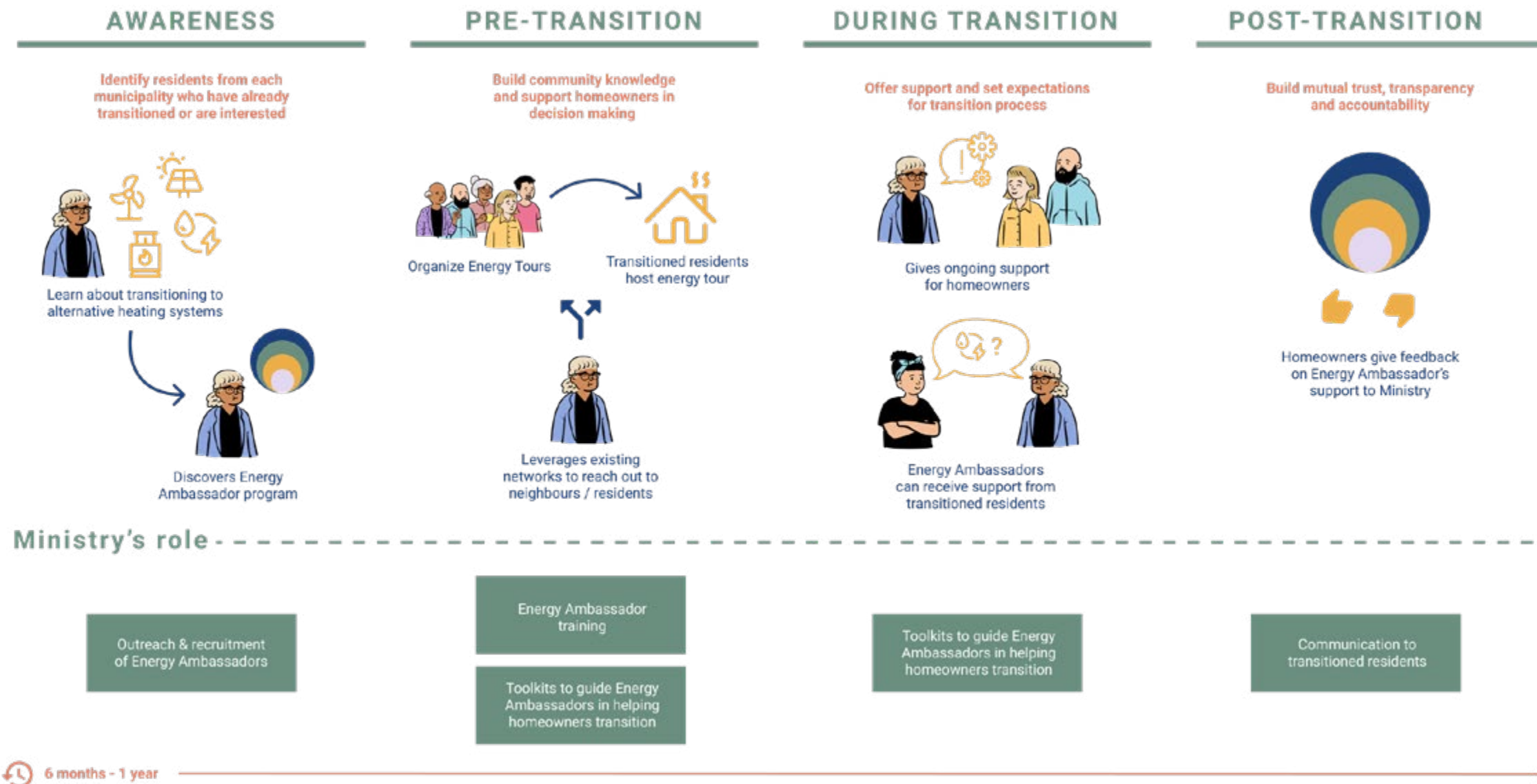
Post-transition, the Ministry will continue communication to transitioned residents to maintain the connection established during the process and collect feedback on the program to improve it in the future. Beyond reaching the goal of transitioning away from oil-heating by 2030 if the target keeps the same after the COVID-19 crisis, the established program could be itself transformed to be used for other local energy and emission reduction measures.

Evaluation Criteria for the Program

In order to evaluate the success of The Energy Ambassador Program, we defined two criterias to be measured against: by how compelling and accessible it is and it's success in accelerating energy transitions.

The aim of our proposal would be to have at least one energy ambassador in each of the 310 municipalities in Finland. Keeping this as a baseline to be achieved, it can be recorded how many Energy Ambassador's join the program as volunteers and what demographics they come from. In addition to the number of people joining the program, the number of those who complete the program like Aino is crucial for a high success rate. Once these figures have been established, the most effective number and ratio of Energy Ambassadors to transitioned residents, such as Tuuli and Jaakko, within a community can be determined. However, this might vary from region to region. For example, the remote rural areas of northern Finland will most likely have differences to southern and more densely populated municipalities.

To determine the success of the program in accelerating energy transitions from it's normal rate, the number of homes that transition with the help of Energy Ambassadors can be recorded. Additionally, it's important to note what levels of transition are happening - a modest change such as in the case of Jaakko or a complete transition like Tuuli made - and if there are notable decreases in heating oil sales and usage.



Conclusion

The Energy Ambassador Program provides multiple levels of alternative solutions fitting to various needs of residents. It supports citizens in their efforts to either reduce or completely transition away from oil-heating. The aim is to be a tailored program in each municipality that provides local available solutions and connections. The Energy Ambassador program differs for example from the existing Motiva scheme of resident energy advisors by covering detached houses in both urban and rural areas and offering a range of solutions beyond the Motiva's scheme energy reduction and efficiency measures.

The solution leverages existing community-centered knowledge and systems by partnering with and supporting local residents and actors in every municipality in Finland. We propose it as an equitable solution by reaching people where they are at, building and leveraging existing networks built on trust, and providing equity over equality.

With The Energy Ambassador Program, we hope to support Finland's goal of carbon neutrality by 2035 without compromising on their culture of equality and welfare for all. We hope to keep justness central to change by emphasizing an equitable solution to energy transitions.



Appendices

Attachment 1.

Interview Schedule, Mikko Jalas, Aalto University and ORSI on 18.3.2020.

Jane Lehtinen, Elisa Dametto, Asta Agustsdottir, Hsin-Yun Lai

What are the main sources of heating oil currently in Finland? How many suppliers are there?

What are the most used heating systems replacing oil-heating in single-family houses currently? What are their prices?

How do these options differ by region and according to availability of district heating?

What are the main practical problems with transitioning from a user perspective?

With the oil prices going down and a promotion of bio-fuels in the Finnish context has there been a trend of people transitioning towards oil-heating from another source? What about installing new oil-heating systems due to the energy-efficiency of oil?

Are there already some increases planned to be made in taxation for oil or some other similar measures for fossil fuels, besides shifting away from coal in electricity generation?

If the transition from oil-heating were to shift to electric solutions, that would increase national energy consumption by 6%. What do you see as options for generating this electricity, with an increasing shift towards energy independence into account?

Overall, what could be a model that would enable the oil-heating transition?

Could you expand on your opinion on technology neutrality and directing / recommendations towards certain types of technological solutions from government and municipalities?

What kind of private funding is available for the transitions?

What are the most effective communication strategies for motivating people to participate in the oil-heating transit?

Would you agree that the “neighbourhood effect”, being influenced by what your neighbours do, is quite strong in Finland?

Which interest groups should definitely be engaged in this transition and it’s planning?

Do you see groups or organizations that would potentially be opposed to these transitions?

Any recommendations of who else to interview from ORSI?

Attachment 2.

Interview Schedule, Managing director Arto Hannula and Senior Specialist Eero Otronen,

Lämmitysenergiailiitto on 19.3.2020

Ville Pellinen, Daniel Leiviskä, Jane Lehtinen

How high is the motivation level of citizens living in oil-heated houses for transitions such as this?

What kind of (private & public) financing options have you recognized to support these kind of transitions?

What are the most efficient communication techniques and channels for reaching and motivating people for these transitions?

In your opinion, how strongly do resident’s social circles (for example neighbours) influence the action taken on these transitions?

What are the most important sources of heating oil in Finland and how concentrated or dispersed is the market? What is the situation on oil-heating technologies?

What are the most common heating forms replacing oil-heating in Finland and are there regional differences? What is your view regarding technologies -should some areas focus on certain solutions?

How many households are there that only have oil-heating?

Are there options for technologies for emission reduction for oil-heating in a household scale?

What kind of special features do oil-heated households and their residents have regionally?

What enablers and challenges can you recognize for transitions?

What is the current, annual pace of transitioning away from oil-heating systems regionally?

What actors are the most important decision-makers with regards to these transitions on regional and national levels?

In your opinion, how much oil-heating of households and related transition needs are discussed in the media?

What initiatives exist on regional, national and international level with regards to these transitions?

Which additional stakeholders should be involved in planning and realizing these transitions?

How well can you reach your membership base and hypothetically could you send them a survey?

How significant is the tax benefit on oil vs. electricity?

Attachment 3.

Email interview sent to a user prior to remote video observation on 3.25.2020
(copy translated to Finnish)

Could you tell us a little about yourself and your house?

What about your oil-heating system? Is it a stand-alone oil-fired or hybrid for example with a wood-fired boiler? When did you start using it?

How many liters can the tank fit, how long does it last to heat your house around the year?
How often do you need to order oil? Who is your supplier?

Have you felt that it's easy to use; has it required maintenance often (how often?) and worked well?

Is there much difference in oil use in winter compared to the summer?
Have you ever thought about hanging your oil-heating system to another form of heating?

Why did you decide to get oil-heating? If eg, it didn't come with your house, did your neighbours or friends/family's opinions and experiences with oil-heating affect your decision?

Would you consider transitioning to a renewable heating system, if you received extensive financial support from the government for it?

What would you think if the EU and the state ordered your heating system to be switched to another type of system, and this would require investments from you?"

References

Adan, Olaf. (April 2020). Eindhoven, Netherlands. [remote personal communications].

Hannula, Arto and Otronen, Eero. (March 2020). Semi-structured interview [remote personal interview].

Jalas, Mikko. (March 2020). Semi-structured interview [remote personal interview].

Kääriäinen, Katja. (March 2020). Semi-structured interview [remote personal interview].

Mattila, Janne. (April 2020). Semi-structured interview [remote personal interview].

Michie et al. (2011). The behaviours change wheel: new method for characterizing and designing behaviour change interventions. *Implementation Science* 6:42.

Nilssen et al. (2020) A bridging framework for studying transition pathways – From systems models to local action in the Swedish heating domain. *Technological forecasting & social change*. 151.

Pekkola, Lisa-Marie. (April 2020). Alta, Norway. [remote personal communications].

Design for Government: human-centric governance through experiments (2015). Demos Helsinki. Government's analysis, assessment and research activities.

Finnish Government Programme (2019). Inclusive and Competent Finland -a socially, economically and ecologically sustainable society. Publications of the Finnish government 2019:33. Accessed in March 2020.

Government's Climate Policy: Carbon Free Finland 2035. Available: https://www.ymp.fi/en-US/The_environment/Climate_and_air/CarbonNeutral_Finland_2035
Accessed in March 2020.

Policy by Design -exploring the intersection of design & policy in Aotearoa NZ: Seven case studies (2018). *Policy by Design Symposium*. p. 29-33.

Haast et al. (2016)

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9.6.2020
Design for Government
School of Art, Design and Architecture, Aalto University
Ministry of the Environment
ORSI

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