



INNOVATE project

WP2, D.2.2

Local Development Plan

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Introduction

Sweden has set a target for reducing energy intensity by 20% between 2008 and 2020. It has also targeted to reduce specific energy use in buildings by 50% till 2050 to significantly reduce greenhouse gas emissions [1]. Sweden's national strategy for energy-efficient building renovation projects requires comprehensive renovation in 75% of existing buildings by 2050 [2]. However, the deep renovation market in Sweden is in a very primitive stage. Energy renovation of individual houses is rather slow. In the 2001-2011 period, annually about 1.8%, 1.2% and 1.8% of the houses installed energy efficient windows, improved attic/wall insulation, and installed new type of heating systems respectively [3]. Växjö is recognized as the greenest city in Europe. The municipality has clear-cut strategies and guidelines for new construction. The municipality has set a target for 50% of newly built buildings to be energy smart buildings made from renewable materials viz. wood-based with low carbon and energy consumption [4]. There is no specific target quantified when it comes to deep or energy renovation of houses. However, the municipality energy plan 2016 has identified the need for comprehensive strategies and actions to be taken to the existing old buildings in order to fulfil its goal of green city. The activities under INNOVATE project within Växjö territory will be a way forward in this direction.

This is a local development plan (LDP) for renovation of detached houses in Växjö municipality. The plan has been prepared taking the market gaps analysis as an entry point. The plan will be developed considering the strength and available market opportunity to overcome the existing challenges for deep renovation. LDP summarizes the key steps that are crucial to achieve the locally set renovation goals.

¹ Energy-Efficiency Watch, 2013. Energy Efficiency in Europe Findings from the Energy Efficiency Watch Project. Country Report Sweden.

² Palm J, Reindl K. 2016. Understanding energy efficiency in Swedish residential building renovation: A practice theory approach. *Energy Research & Social Science* 11, 247–255.

³ Energistatistik för småhus, various years (Statistics Sweden/ Swedish Energy Agency)

⁴ Växjö the modern wooden city Växjö Municipality's Wood Construction Strategy, Växjö Municipal Council 2013.

A. What is the starting point?

Synthesis of the MGA conclusions you would like to address through your LDP. Why take action? What are the needs and opportunities?

The deep renovation market is in very primitive stage in Växjö despite a huge market potential. The starting point in market development may vary depending upon the existing level of development, market conditions and the geographical conditions. Depending upon this, the pathways that need to be taken for developing the market and the interim targets can also vary among the partners within this project, though the ultimate goal for developing the market for deep renovation remains the same. Setting reasonable expectations is crucial for any business plan to be successful which demands the understanding of current market conditions [⁵].

In order to understand the market for deep renovation in Växjö, an online questionnaire survey was conducted by LNU in 2017 with 7500 homeowners in Kronoberg County (where Växjö is situated). This has given many insights in terms of market potential, market stage and the customers' perception of the deep renovation market. Our survey has identified several existing hindrances to energy renovation from the demand side (from house owner's perspective); the supply side (from the service providers' perspective) as well as from the market environment perspective. Thus, the local development plan will be designed focusing to addresses these hindrances. Lack of proper awareness of the benefit of deep renovation, attitude towards energy efficiency and in-convenience during the renovation process, cumbersome deep renovation process with multiple contracts and lack of access to capital for performing deep renovation are some of the key barriers identified from the customers' side.

On the other hand, the renovation market in Växjö is fragmented and dominated by a craftsman-based approach with individual solutions. Most of these construction and installation related companies operate with less than four employees promoting their own product(s) or service(s) whereas deep renovation needs knowledge of various renovation actions and proper sequencing of such actions and not many of these companies are in a position to undertake such deep renovation jobs as a single contract. Even if the homeowners are willing to implement renovation measures, they need to do this in a piecemeal approach, which could lead to sub-optimal solutions in terms of cost and energy efficiency as compared to comprehensive solutions by a professional. Also, under such conditions, individual companies may not take the liability for overall renovation work and homeowners usually end up taking all the risks and responsibilities of coordinating several companies and the workplace related regulations.

A one-stop-shop business-framework could overcome some of the above-mentioned issues where a single actor offers a concept-to-commission package of holistic renovation including consulting, independent energy audit, renovation work, follow-up (independent quality control and commissioning) and financing. Since such a concept has not been well established for deep renovation in the past, it is equally important to understand the actors (viz. construction companies, real-estate agents, financial institutions), to have their perception of such a market concept and to see the preparedness of the market to adopt such a business framework. This will help to propose the different possible business models within a one-stop-shop. Such proposed business models will be discussed with the stakeholders/actors in Växjö and later will be tested with the implementation of renovating some detached households, bringing interested actors together.

Besides, the local development plan will also focus on the activities that are instrumental in creating an enabling environment for the development of deep renovation market. So, we will plan consultative meetings with various stakeholders (banks, insurance companies, construction companies, consultant, experts and representatives from energy agencies) to discuss about (i) the possible inputs to the building regulation, (ii) possible financing schemes that could be appropriate for the deep renovation

⁵ Jensen M. 2001. The Everything Business Planning Book: How to Plan for Success in a New Or Growing Business. Business & Economics - 297 pages.

market in Sweden and, (iii) various business models.

B. Where to?

What is the aim? What are the objectives? Description of the general goals you would like to achieve to fill the gap identified in the MGA.

The aims of the project in this territory are to

- (i) create positive vibes about the deep renovation market among the stakeholders;
- (ii) assist in creating an enabling environment to capture the potential of the deep renovation market
- (iii) develop and test the business model with a one-stop-shop for the deep renovation of detached single-family houses in Växjö.

So activities under this development plan will be designed to achieve above goals at large.

Our survey has identified that homeowners, who are less than 55 years old, especially the youngest ones (<36 years), living in urban areas, and with high income are more likely to renovate their houses. The survey has also identified that the buildings that were built during 1960-80 and

those having direct electric heating could be the primary target group for energy renovation. The main reasoning behind primarily targeting these building blocks are (i) because of their poorer energy performance than those built after 1980, (ii) largest share (representing around 47%) in the building stock and, (iii) mostly heated with electric system which provide greatest potentials in terms of primary energy, greenhouse gas emission (marginal accounting approach), and cost savings. Therefore, this could be a potential targeted market segment but not limited to deep renovation market.

C. How? What?

What is the operational strategy? How can we get from A to B (main steps)? What are the key activities needed to develop an integrated EE service package and access to long-term financing to homeowners? This central part will also explain how to get from the hypotheses and different options to an actual project, including the process that will allow making choices among the options. The steps will be detailed in the Action Plan, attached to the LDP.

As mentioned earlier, the local development plan will consist of the activities that will intervene over the hurdle of the deep renovation market on

1. Demand side incorporating house owner's perspective.
2. Supply side (service provider's perspective including construction companies, banks, insurance companies, real estate agents, consultants and architects) and,
3. Market environment (considering the policy instrument and strategic pathways).

1. Planned Activities focusing on Home Owners:

1.1 Analyze the existing deep renovation market situation and house owner's perception regarding deep renovation and one-stop-shop market framework: This activity will be conducted through the deeper analysis of the large sample of the household survey results, which will help to understand the renovation practices in the past and to look at the future of deep renovation in the local context. Two scientific publications and a popular science article are planned under this activity.

1.2 Two Consultative meetings/workshops with House Owner's Association (Villaägarna Kronoberg): The initial consultative meeting will be organized to present the results obtained from the analysis of activity 1.1 and receive their reflection on the same. The second consultative meeting will be organized to further discuss on the conceptual market framework, on the one-stop shop and a possible business model. Getting reflection on such a developed business model will help to refine the model. This meeting is also important to explore the possible role such associations could play within the business model.

1.3 Selection of house owners interested to participate in deep renovation: Depending upon their willingness to participate and financing capacity for renovation, some potential house owners interested in participating in deep renovation under the OSS market framework will be selected. LNU will facilitate and support through preparation of initial energy blue prints of such houses to know the energy performance of the buildings and have an initial estimation of the cost for the deep renovation of such houses.

1.4 Preparing a short systematic guideline for house-owners: A short systematic guideline for house-owners entering into the deep renovation under OSS framework will be prepared which could raise awareness and facilitate the house-owners in understanding the key steps within

the OSS market framework and role of homeowners in the process.

2. Planned Activities focusing on Service Providers:

2.1 Analyze the perception and preparedness of service providers: We will analyze the perception of service providers in terms of deep renovation and one-stop-shop market framework and their willingness and preparedness to come to deep renovation market under OSS framework. The one-to-one interview will be conducted with the representatives from construction companies, bank loan officials, real estates, insurance company agents and energy officials from municipality office.

2.2 Service provider consultation meeting/workshop: The consultative meetings with the local stakeholders including municipality, construction companies, real estate companies, insurance companies, architects/consultants will be organized once every 6 months. This meeting will be instrumental in sharing the OSS conceptual framework (see figure 1) with the stakeholders and getting their reflection on the concept and to figuring out the role they are interested in playing within OSS. This meeting is also important to discuss the possible business models, which could fit well in the local context of Växjö.

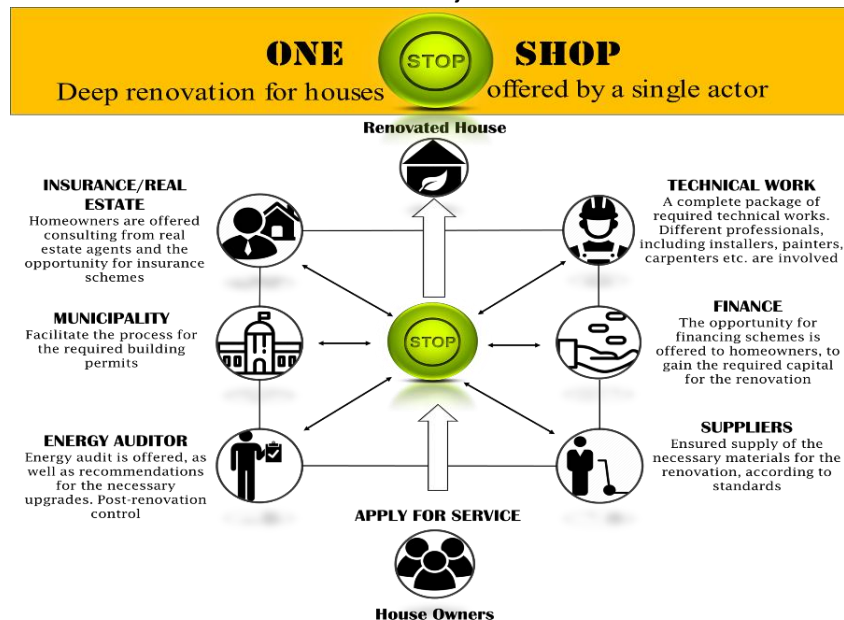


Figure1: One-Stop Shop for deep renovation market.

2.3 Develop business models under OSS: The possible business model within the one-stop-shop concept will be developed and their possible pros and cons will be analyzed thoroughly, discussed with the stakeholders to have their feedback on the model, and finalized based on the feedback received. We will also identify the actors that are interested in participating in the business model proposed under OSS and implement the deep renovation of houses. The services offered within OSS will be tested on pilot territory to demonstrate the business model.

3. Planned Activities focusing on Enabling Environment:

3.1 Capacity Building Trainings: Training modules will be designed on "Coordination and Management of Renovation Projects under OSS". Such training will be focused at the private companies, local businesses, craftsmen and parties that are interested in the one-stop-shop.

LNU being an academic institution will also organize short courses/seminar series to MSc students from Built Environment and Energy Technology to develop their entrepreneur skills.

3.2 Policy Dialogues/Debates: In coordination with Växjö municipality, LNU will conduct some policy dialogues debates on deep renovation inviting the representatives from home associations, banks, insurance companies, and energy consultants/architects. The agendas to discuss for such dialogues/debates could be (i) energy renovation friendly building regulation, (ii) tax rebate possibilities linked with energy efficiency measures in houses and, (iii) possibility of special package loan and insurance for energy renovation in buildings etc. These discussions will be helpful in preparing the strategic policy recommendations for deep renovation.

3.3 Awareness campaign and communication: Awareness campaigns have been planned to popularize the relevance of the one-stop-shop renovation concept in the society. Preparing leaflets, rollouts and posters on the one-stop shop and distributing and displaying them in various buildings and construction related exhibitions, seminars or conferences will help to raise the awareness on OSS and deep renovation. Conference papers and popular science articles on OSS will also be a part of this project to make the stakeholders aware of the opportunities and existing hindrances to energy retrofitting and financing.

D. Who?

Project resources, project-holders (see attached table for detail)

The role of LNU is a facilitator or coordinator in all of the planned activities and LNU works in close cooperation with the Växjö municipality. LNU will work in consultation with homeowner association Villaägarna Kronoberg for all the tasks 1.1 to 1.4. For task 2.1 to 3.3, LNU will coordinate and consult with various banks viz. SEB, NORDEA, and SWEDBANK, other local governmental agencies Energikontor Sydost, Region Blekinge, Länsstyrelsen Blekinge. Another important partner in accomplishing this task is Länsförsäkring Kronoberg, which has bank, insurance and real estate companies.

Details on partners for specific tasks are mentioned in the action plan prepared in a separate excel sheet.

E. In what time?

See Action Plan, attached to the LDP.

F. What will be the indicators of success?

See Action Plan, attached to the LDP, for detail.

Objective 1: Create positive vibes about deep renovation market among the stakeholders

Means of measuring success:

- (a) Number of homeowners being aware of OSS.
- (b) Number of construction companies and craftsmen showing interest in the OSS.
- (c) Number of participants from banks/insurance and real estate companies who have attended various seminars/workshop organized by LNU on OSS.
- (d) Number of Scientific Journals, conference papers and popular science articles about deep renovation and the one-stop shop.

Objective 2: Assist in creating an enabling environment to capture the potential of the deep renovation market

Means of measuring success:

- (a) Strategic policy recommendations for creating an enabling environment for deep renovation in place.
- (b) Number of trained craftsmen and MSc students (potential future entrepreneurs).
- (c) Number of actors that will offer or will show willingness to offer special schemes/package for deep renovation.
- (d) Number of homeowners who show interest in deep renovation.

Objective 3: Develop and test the business model with a one-stop shop for the deep renovation of detached single-family houses in Växjö.

Means of measuring success

- (a) Possible business models for the deep renovation of detached single-family houses are in place.
- (b) Business model tested in renovation of some of the buildings.

Other comments