

# NeZeR - Promotion of smart and integrated NZEB renovation measures in the European renovation market



**Maria Ahlm, Senior Project Manager**  
**IVL Swedish Environmental Research Institute**



# NeZeR Partners and time frame

*Project duration:  
March 2014 - March 2017*

W/E  
Rotterdam City  
Amersfoort City  
Portaal  
[Platform31]

Tecnalia  
Sestao City

VTT (coord.)

IVL  
Stockholm City  
Stadshus AB  
Stockholmshem

ISPE  
Timisoara City





## ACTION PLAN

### Background

- Municipality
- Energy experts
- Environment. organisations

### Conditions

- Municipality
- Tenants org.
- R Estate owner
- Economists

### Target Group

- Municipality
- Tenants org.
- R Estate owner

### Objectives

- Municipality
- Environment. and health organ.
- Tenants org.

### Strategy

- Municipality
- Strategists
- Energy supplier

## WORKSHOPS

# Roadmap matrix

|   | GAPS AND BARRIERS | ACTION ITEMS | IMPACT | INDICATOR |
|---|-------------------|--------------|--------|-----------|
| National Government                             |                   |              |        |           |
| State Agency                                    |                   |              |        |           |
| Municipal Government                            |                   |              |        |           |
| Architects, Designers, Consultants and Planners |                   |              |        |           |
| Public Housing Companies                        |                   |              |        |           |
| Contractors                                     |                   |              |        |           |
| Tenants   |                   |              |        |           |

# Roadmap Sweden

|   | GAPS AND BARRIERS  | ACTION ITEMS  | IMPACT   | INDICATOR   |
|---|--|---|--|---|
| National Government                             | Lack of continuity due to 4 yrs cycle  | Make policies, adapt regulations, create awareness                    | Long term perspective, stimulate all stakeholders          | Energy demand and employment                                      |
| State Agency                                    | No comprehensive and independent information. Financial model.               | National information center. Financial grant. Green loans.            | Long-term renovation plans. Well informed building owners. | More NZEBR. Valuation of properties with regard to energy demand. |
| Municipal Government                            | Financial model. Other requirements outcompete NZEBR.                        | Increased cooperation between departments. Green loans.               | NZEBR more profitable, more NZEBR in practice.             | Municipal energy demand, satisfied tenants.                       |
| Architects, Designers, Consultants and Planners | Lack of holistic view and responsibility. No def of NZEBR. Poor supervision. | Harmonized calculations. Define NZEBR. Add resources for supervision. | Better end results, more NZEBR in practice.                | More good examples, more NZEBR being built.                       |
| Public Housing Companies                        | Financial model, not raise rents. Evacuation of tenants. Tax on RES.         | Financial grant. Lower tax on RES.                                    | Better end results, more NZEBR in practice.                | More NZEBR. Satisfied tenants.                                    |
| Contractors                                     | Financial model, not raise rents. Tax on RES. Education, holistic view.      | New business models. Financial grant. Lower tax on RES                | Holistic view of building economy                          | More good examples, more NZEBR being built.                       |
| Tenants   | Not interested in financing savings for property owners.                     | Mutual financial incentives. Dialogue. Longterm investments.          | New models for cooperation. More NZEBR.                    | Satisfied tenants and citizens. More NZEBR,                       |

# Roadmap Netherlands

| Stakeholders                                 | GAPS AND BARRIERS   | ACTION ITEMS   | IMPACT   | INDICATOR   |
|--|---|--|--|---|
| National Government                          | High level of abstraction, fragmented regulations, 4 year cycle of politics | Make policies, adapt regulations, stimulate awareness, subsidies         | Long term ambition perspective, stimulating all stakeholders           | National CO2 reduction and employment                           |
| Regional Government (=provincial gov.)       | Role unclear, different for each province                                   | Facilitate/educate stakeholders, subsidies                               | Ambition perspective, stimulating all stakeholders                     | Provincial CO2 reduction and employment, overview policies      |
| Municipal government                         | Limited influence, 4 year cycle of politics                                 | Make policies, facilitate awareness, initiatives, monitoring             | Energy on the agendas of stakeholders                                  | Municipal CO2 reduction, employment + overview local activities |
| Social housing associations                  | Lack of urgency and direction, distrust, overregulation                     | Customer focus, innovative, integrated renovation concepts and contracts | Upscaling and higher speed of energy renovations                       | Customer satisfaction, better energy certificates               |
| Construction companies                       | Traditional and fragmented sector   | Integrated, customer focused supply, publicity of examples               | Available product range of affordable, energy efficient, healthy NeZeR | Quantity of NeZeR projects                                      |
| Tenants                                      | Lack of urgency and ignorance, distrust                                     | Awareness, education and willingness for dialogue                        | Upscaling and higher speed of energy renovations                       | Customer satisfaction, lower (real) energy use and costs        |
| Home Owners (incl. Home Owners Associations) | Lack of urgency and ignorance, distrust, limited budget                     | Awareness, education, initiative, local (energy) cooperatives            | Broad acceptance and upscaling of energy renovations                   | Customer satisfaction, lower (real) energy use and costs        |

# Roadmap Finland

|   | GAPS AND BARRIERS  | ACTION ITEMS   | IMPACT   | INDICATOR   |
|---|--|--|--|---|
| Manufacturers of NZEBR and RES components | <ul style="list-style-type: none"> <li>Lack of new products, concepts and implementation models</li> <li>Lack of selling know-how</li> </ul>   | <ul style="list-style-type: none"> <li>Environmental label and declaration schemes as drivers for development</li> <li>Selling indoor environment quality instead of technical solutions</li> </ul>            | <ul style="list-style-type: none"> <li>Emergence of markets for NZEBR products</li> <li>Potential decrease of operational energy and carbon in residential housing stock</li> </ul>          | <ul style="list-style-type: none"> <li>Number of new environmental declarations</li> <li>Number of articles about development of new NZEBR and RES components</li> </ul>            |
| Designers and architects                  | <ul style="list-style-type: none"> <li>Overall stiffness and reluctance for changes</li> <li>Partial optimization loses energy-efficiency</li> <li>NZEB level not required by the customers</li> </ul> | <ul style="list-style-type: none"> <li>Processing best practice examples into functioning, replicable concepts.</li> <li>Comprehensive approach and life-cycle aspects as a compulsory prerequisite</li> </ul> | <ul style="list-style-type: none"> <li>Increased demand for NZEBR design skills</li> <li>Potential decrease of operational energy and carbon in residential housing stock</li> </ul>         | <ul style="list-style-type: none"> <li>Number of design competitions emphasizing nZEB performance</li> <li>Number of articles in trade magazines introducing NZEBR cases</li> </ul> |
| Housing companies                         | <ul style="list-style-type: none"> <li>Boards lack competence, decision-making skills and good examples</li> <li>Long-term viewpoint is lacking</li> <li>Lack of funding</li> </ul>                    | <ul style="list-style-type: none"> <li>Supporting boards in long-term planning and energy-efficiency</li> <li>Directing incentives on the implementation of long-term plans</li> </ul>                         | <ul style="list-style-type: none"> <li>Increased wellbeing and health of the residents.</li> <li>Potential decrease of operational energy and carbon in residential housing stock</li> </ul> | <ul style="list-style-type: none"> <li>Number of building permission applications that target on NZEBR level</li> </ul>   |
| Housing investors                         | <ul style="list-style-type: none"> <li>Difficulty to understand and utilize the value increase of the building</li> <li>Unwillingness to increase investment cost</li> </ul>                           | <ul style="list-style-type: none"> <li>Development and use of energy saving agreements among owners</li> <li>Energy-efficiency and RES as image improving issues</li> </ul>                                    | <ul style="list-style-type: none"> <li>Increased wellbeing and health of the users.</li> <li>Potential decrease of operational energy and carbon in residential housing stock</li> </ul>     | <ul style="list-style-type: none"> <li>Number of buildings renovated to NZEBR level</li> </ul>  |



# Roadmap Spain

| Stakeholders selected in previous deliverables | GAPS AND BARRIERS   | ACTION ITEMS   | IMPACT   | INDICATOR  |
|--|---|--|--|--|
| Building owners / Tenants                      | <ul style="list-style-type: none"> <li>• Can't raise rent or dwelling value</li> <li>• Lack of awareness and knowledge</li> <li>• Economical vulnerability</li> </ul> | <ul style="list-style-type: none"> <li>• Rent+dwelling value related to Energy qualification</li> <li>• Awareness EE</li> <li>• Subsidies</li> </ul>         | <ul style="list-style-type: none"> <li>• Upscaling of energy renovations</li> <li>• Tenants satisfaction</li> <li>• Habitability improvement</li> </ul>    | <ul style="list-style-type: none"> <li>• Upscaling of NeZeR interventions</li> </ul>   |
| Building component manufacturers               | <ul style="list-style-type: none"> <li>• Unjustifiable payback periods</li> <li>• No technical solutions for all rehabilitation particularities</li> </ul>            | <ul style="list-style-type: none"> <li>• Awareness about EE interventions advantages</li> <li>• Development and testing of particular solutions</li> </ul>   | <ul style="list-style-type: none"> <li>• Upscaling of energy renovations</li> <li>• Upscaling of manufacturers business</li> </ul>                         | <ul style="list-style-type: none"> <li>• Upscaling of products &amp; systems &amp; particular solutions towards NZEB renovations</li> <li>• Lower prices for these products</li> </ul> |
| Municipal decision-makers                      | <ul style="list-style-type: none"> <li>• Limited influence (4 years)</li> <li>• Lack of integral involvement</li> <li>• Undemanding legislation</li> </ul>            | <ul style="list-style-type: none"> <li>• Facilitate awareness</li> <li>• Propose new strategies and policies</li> <li>• Toughening up legislation</li> </ul> | <ul style="list-style-type: none"> <li>• Operative legislation</li> <li>• Upscaling of energy renovations</li> <li>• Energy renovations quality</li> </ul> | <ul style="list-style-type: none"> <li>• Upscaling of NeZeR interventions</li> </ul>   |
| Planners                                       | <ul style="list-style-type: none"> <li>• Lack of know-how</li> <li>• Difficulties to achieve NZEB due to existing building features</li> </ul>                        | <ul style="list-style-type: none"> <li>• Facilitate awareness</li> <li>• Training and information</li> </ul>   | <ul style="list-style-type: none"> <li>• Good quality plans and projects for NZEBR</li> </ul>  | <ul style="list-style-type: none"> <li>• Upscaling of NeZeR interventions</li> <li>• Energy and cost savings</li> <li>• Quality of NeZeR projects</li> </ul>                           |
| Construction companies                         | <ul style="list-style-type: none"> <li>• Lack of know-how</li> </ul>  | <ul style="list-style-type: none"> <li>• Facilitate awareness</li> <li>• Training and information</li> </ul>   | <ul style="list-style-type: none"> <li>• Upscaling of energy renovations</li> <li>• Quality of NeZeR renovations</li> </ul>                                | <ul style="list-style-type: none"> <li>• Upscaling of NeZeR interventions</li> <li>• Energy and cost savings</li> <li>• Quality of NeZeR interventions</li> </ul>                      |
| Research Companies                             | <ul style="list-style-type: none"> <li>• Considerable gap between investigation and market</li> </ul>   | <ul style="list-style-type: none"> <li>• Increase collaboration and feedback actions with the market</li> </ul>  | <ul style="list-style-type: none"> <li>• Overcoming of death valley of innovation activities regarding EE renovation</li> </ul>                            | <ul style="list-style-type: none"> <li>• Upscaling of innovative solutions and strategies that reach the market</li> </ul>   |
| Energy agencies                                | <ul style="list-style-type: none"> <li>• Particular interests</li> <li>• Lack of involvement</li> </ul>   | <ul style="list-style-type: none"> <li>• Increase communication between Energy agencies and other stakeholders</li> </ul>                                    | <ul style="list-style-type: none"> <li>• Upscaling EE knowledge of all the stakeholders</li> </ul>   | <ul style="list-style-type: none"> <li>• Upscaling of NeZeR interventions</li> </ul>   |



# Roadmap Romania

| Stakeholders                                   | GAPS AND BARRIERS   | ACTIONS   | IMPACT  | INDICATOR   |
|--|---|---|---|---|
| Government                                     | Lack of continuity due to the 4 year cycle or more frequent             | Develop policies, adapt regulations, stimulate awareness, approve subsidies       | Long term perspective, stimulate all stakeholders                     | Energy savings, CO <sub>2</sub> reduction, employment |
| Local authorities                              | Limited funds, change of priorities                                     | Lobby for attracting additional funds, facilitate awareness                       | Stimulating all stakeholders, mainly final beneficiaries              | Reducing of energy consumption and GHG emissions      |
| Energy suppliers (DHS companies)               | Obsolete equipment, loss of clients                                     | Rehabilitation and modernization of equipment and installation                    | Increase the number of clients  | Energy and CO <sub>2</sub> reducing                   |
| Construction companies                         | Lack of know-how  | Education, Information  | Increase demand for efficient materials, market development           | Increase of NZEBR projects                            |
| Owner associations                             | Mistrust, ignorance, inconvenience, limited budget                      | Awareness, information, more examples of best practices                           | More energy efficient buildings, nicer aspect, more healthy buildings | Customer satisfaction, lower energy use and costs     |
| Research, engineering and consulting companies | Lack of know-how, lack of national suppliers, conservatism              | Technical training sessions, European professional certification,                 | More studies and analyses, more buildings designed as NZEBR cases     | More good practices as NZEBR examples                 |
| ESCOs  | Limited private budget, low energy cost, new and expensive technologies | Elimination the energy subsidies, specific financial schemes, industrial research | More NZEBR projects   | More NZEBR innovative solutions                       |

# Roadmap: conclusions all countries

**Three** common actions to overcome the barriers:

1. Education/Information → reference projects
2. Changing working process, calculation methods and tools
3. Financial grants or longer economic perspectives (LCC)



## Near Zero Energy Building Renovation (NZEBR)





### *To your Action Plan (3.1): BACKGROUND*

Assemble appropriate stakeholders to a workshop where you try to find parameters from all aspects that can describe the situation in your community. *The following parameters shall be analysed in the workshop:*

- ☐ Demography
- ☐ Quality of public spaces
- ☐ Energy use and exhaust levels
- ☐ The awareness of energy- and environmental questions in the society
- ☐ Overall plan for environment and sustainability
- ☐ Point out good examples that have been performed in your community

There are many aspects in society that can *influence* the outcome of your Action Plan of reducing energy in buildings. You must consider technical, economic, social and health aspects in your Action Plan. *The following parameters shall be analysed:*

- ☐ Different groups in society can influence the process in energy efficient renovation, such as tenants, politicians, energy suppliers, suppliers of products.
- ☐ Consequences you see with an eventual raise of the rent.
- ☐ Possibilities with a better comfort, new kitchen / bathroom and a higher wow-factor, which means a *feeling* of something good in connection with energy efficient renovation.
- ☐ The importance to become independent of certain energy suppliers, such as import of gas and oil for instance.
- ☐ The importance of improving the indoor climate and the conditions for a better health.
- ☐ Renovating a building and making it more energy efficient and sustainable will probably raise the value of it.
- ☐ Eventual positive effects of a better health if you can convert energy sources from coal/oil to renewable energy sources.

### *To your Action Plan (3.2): CONDITIONS*

Assemble appropriate stakeholders to a workshop and discuss the conditions for your Action Plan. The conditions shall include both economy, structure of ownership and definition of regulations among others. *The following parameters concerning economy shall be analysed:*

- ☐ Define the method to estimate profitability. Life Cycle Cost (LCC) is a calculation method that takes benefits of reduced energy use and lower maintenance costs into account.
- ☐ Financing. How shall the renovations be financed? There must be a discussion about the possibilities of different business models to engage more people and see the benefits of the project.
- ☐ Describe that if you don't make any renovation now, it can be more expensive in the future when the buildings have decayed and it's urgent to do something – that will be expensive!
- ☐ It's not always more expensive with energy efficient renovation; lower cost for energy use and maintenance can make it a good business.
- ☐ Show the possibility to packet different measures to make it more profitable.

How can the *structure of ownership* affect the process? Depending on the owner structure you have different opportunities to decide and perform energy efficient measures. *Choose from the examples below the type or types of ownerships you have:*

- ☐ Private owners
- ☐ Social housing
- ☐ Public owners, for example State or City owners
- ☐ Commercial owners
- ☐ Others.....

There are different kinds of *regulations* that must be regarded in an Action Plan. In this case it's of course the energy regulations at first hand that you must consider. *The most important regulations that you shall define are:*

- ☐ Energy regulations on city level
- ☐ Energy regulations on national level
- ☐ Energy regulations on EU level
- ☐ Other local regulations, such as targets for construction companies, real estate owners and so on.

### ***To your Action Plan (3.3): TARGET GROUP***

Assemble appropriate stakeholders to a workshop and discuss the Target group for your Action Plan.

*The following parameters shall be analysed:*

- ☐ Is there a need for renovation both for the buildings, the surrounding public space?
- ☐ Is there a general need for renovation in the buildings but not in the surrounding area?
- ☐ Is there no need for renovation, but only a need for energy efficient renovation?
- ☐ Get information of energy use on building level, for instance from energy declarations and measured data.
- ☐ Are the energy cost high compared to the income? (Energy poverty)
- ☐ Get information about exhaust levels.
- ☐ Is there a need for improvement in different areas due to social aspects?
- ☐ Make an inventory of what kind of energy systems that supply or could supply the buildings? District heating, oil or gas boilers, electricity etc.



### *To your Action Plan (3.4): OBJECTIVES*

Assemble appropriate stakeholders to a workshop and discuss the objectives for your Action Plan.

When you shall set point out your objectives in your Action Plan *the following parameters shall be analysed:*

- ☐ You can set goals for **energy efficient renovation** in buildings and you can influence real estate owners to make improvements.
- ☐ You can set goals for **energy efficient renovation** in buildings, but you cannot enforce real estate owners. However you can support and help them in different ways such as help with building permits, knowledge spreading, economic support etc.
- ☐ You can set goals for **soft values when renovating** buildings and you can influence real estate owners to make improvements.
- ☐ You can set goals for **soft values when renovating** buildings, but you cannot enforce real estate owners. However you can support and help them in different ways such as help with building permits, knowledge spreading, economic support etc.

It's very important that you check that your objectives have been fulfilled after the renovation. In order to do that you must make a plan for how to perform the follow ups. You must follow up technical, economic, health and social aspects. *Consider the following parameters when you plan the follow up:*

- ☐ Make a time schedule for your follow ups.
- ☐ Define methods for follow ups.
- ☐ Define base information and parameters that you want to follow up. Clarify if you want to follow up the use of heating energy, electric energy and warm water for instance. Be clear with the boundaries of the project.
- ☐ Perform measurements before and after the renovation.
- ☐ Use questionnaires to the tenants before and after the renovation for the follow ups of health and social issues.

### *To your Action Plan (3.5): STRATEGY*

The strategy plan is probably one of the most important parts in the Action Plan. You must reflect of the situation in your community and find out which ways that are the best to communicate your ideas and ambitions. Assemble appropriate stakeholders to a workshop and discuss the strategies for your Action Plan. *The following parameters shall be focused on:*

- ☐ Make a time schedule.
- ☐ Take in account the results from WP2 and WP3.
- ☐ Shall you go for a change of technical solutions or change in behaviour?
- ☐ Shall you make the energy efficient renovation in a limited amount of buildings or the whole stock?
- ☐ Shall you make the energy efficient renovation in a certain area?

It's important to find ways to communicate your goals and activities in your Action Plan. There can be a need both for information and education. *The following parameters shall be analysed:*

- ☐ Energy advisors to inform citizens about energy efficient renovation.
- ☐ Perform a website about energy efficient renovation.
- ☐ Use twitter and Facebook as communication channels.
- ☐ Information groups with tenants and real estate owners.
- ☐ Education efforts to citizens and politicians.
- ☐ Information materials to use at exhibitions and other information situations.
- ☐ Street ambassadors groups; someone starts to perform some energy efforts – there will be a chain effect when they talk about it and show it to neighbours, friends and relatives.
- ☐ Showings in apartments that have been renovated.
- ☐ Organised walks in areas that have been renovated.
- ☐ Small scale information evenings in people's homes.
- ☐ Organise games, for example webbased, where tenants can compete about how much energy they have saved during a specific time period.
- ☐ Interactive website, including a map, where tenants can add their experience with the renovation project (e.g. price, quality of building company, type of measures) so other can learn from it.
- ☐ Perform good examples and spread them.
- ☐ Others.....

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#### NATIONAL WEBPAGES



Co-funded by the Intelligent Energy Europe Programme of the European Union



## NeZeR

### Promotion of smart and integrated NZEB renovation measures in the European renovation market

The goal of the NeZeR project is to promote implementation and smart integration of Nearly Zero Energy Building Renovation (NZEBR) measures and the deployment of Renewable Energy Sources (RES) in the European renovation market.

The NeZeR project will cooperate with all stakeholders in the building supply chain to increase the awareness about potential advantages from Nearly Zero Energy Building Renovation. This will be achieved through the following activities:

- *Technical solutions* for Nearly Zero Energy Building Renovation and utilization of Renewable Energy Sources will be analysed and combined to packaged solutions. Successfully executed Nearly Zero Energy Building Renovation cases will be analysed and presented.
- The feasibility of Nearly Zero Energy Building Renovation over traditional renovation will be emphasized by *feasibility studies and environmental and economic assessments*.
- *Nearly Zero Energy Building Renovation city action plans* will be developed as well as *concrete guidelines for developing similar action plans in other European cities*.
- *National clusters* will be established in the participating countries consisting of the most relevant stakeholders.
- Knowledge in the whole building chain with respect to Nearly Zero Energy Building Renovation concepts will be improved through a series of *competition and training workshops*.

Search here

#### News and upcoming events

2014-05-30

##### Best technical solutions for Nearly Zero Energy Building Renovation - Workshops in September

The NeZeR project team invite you to national workshops about best technical solution for Nearly Zer...

2014-05-30

##### The website of the NeZeR project is now up and running!

At the website you will find news, coming events and publications from the NeZeR project team. The N...

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