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measures in the European renovation market
(NeZeR)**

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**Report of the national cluster
workshops**

28/4/2017

IVL

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Table of contents

1	Minutes from national cluster workshop no. 1, all countries	4
1.1	Finland	4
1.2	Netherlands	4
1.3	Romania	5
1.4	Spain	5
1.5	Sweden	6
2	Minutes from national cluster workshop no. 2, all countries	6
2.1	Finland	6
2.2	Netherlands	7
2.3	Romania	7
2.4	Spain	7
2.5	Sweden	8
3	Minutes from national cluster workshop no. 3	9
3.1	Finland	9
3.2	Sweden	9
3.3	Netherlands	10
3.4	Spain	10
3.5	Romania	13
4	Minutes from national cluster workshop no. 4, all countries	15
4.1	Finland	15
4.2	Netherlands	17
4.3	Spain	17
4.4	Sweden	18
4.5	Romania	19
5	Minutes from national cluster workshop no. 5, all countries	21
5.1	Finland	21
5.2	Netherlands	22
5.3	Spain	22

- 5.4 Sweden23
- 5.5 Romania.....25
- 6 Minutes from national cluster workshop no. 6, all countries.....27**
- 6.1 Finland27
- 6.2 Netherlands.....27
- 6.3 Spain27
- 6.4 Sweden29
- 6.5 Romania.....30

1 MINUTES FROM NATIONAL CLUSTER WORKSHOP NO. 1, ALL COUNTRIES

The main objectives of this first workshop was to collect expectations for the NeZeR project and experiences of NZEBR and RES but also, identify barriers and opportunities with near zero renovation, and discuss the focus and content of the national cluster workshops. All partners have followed this objective.

1.1 Finland

In Finland, VTT organized the workshop, which involved 28 participants; among them were architects, consultants, professional building owners, researchers etc.

The aim of the Finnish workshop was to identify existing barriers and opportunities for NZEBR. The first part of the workshop identified possible challenges with NZEBR and the impacts the resolved challenges could have. The second half of the workshop collected solutions for the challenges and the meters for the impacts, in some cases no solutions or impacts were found.

There were three key points made in the workshop, which should be taken into consideration:

1. The renovations should be planned in a long term perspective
 - WP4 should take this into account
2. The communication between customers (building owner, housing corporations) and consultants, planners and engineers should be improved
 - WP5 should give some guidelines for communication
3. Funding and profitability are the main barriers for energy renovations
 - In WP2 some cost effective technologies should be found

1.2 Netherlands

In Netherlands, W/E Consultants organized the first workshop which gathered 13 participants, including members of the NeZeR Steering Committee, and the Dutch partners in the NeZeR-project.

The objective of the Dutch cluster meeting was to discuss how the activities within NeZeR can be executed in the best way in order to achieve optimal impacts for the Dutch renovation market. More specifically, the discussion oriented around what the focus and content of the national cluster workshops should be.

Erik Alsema, from W/E, presented the NeZeR project objectives and work programme. He also proposed a general approach towards this project by which The Netherlands could both contribute (the Netherlands have good knowledge in how to stimulate near zero renovation in the social housing sector) and obtain certain knowledge (the approach of private ownership sector) from European partners.

For the Dutch NeZeR activities and stakeholder meetings, a focus was proposed on the communication towards two specific groups and specific intervention moments:

- 1) Private owners in large multifamily buildings, at the moment of buying their apartment, and
- 2) Social housing corporations at the time when they sell a house to private owners.

Multifamily buildings with mixed ownership appear to be good choice for the type of building to focus on.

1.3 Romania

In Romania, ISPE organized the first workshop which was attended by 17 participants, including among others, NeZeR Cluster members, representatives of local authorities from Timisoara, House owner association, Universities, consulting companies etc.

The aim of this workshop was to present the NeZeR project, identify the main existing residential buildings in Timisoara (built before 1990) and establish the current situation of the ESCOs in Romania.

Four presentations were held; two by Adriana Milandru, representative of ISPE, who presented the aim of the NeZeR project and the general terms for ESCO and EPC. Thereafter, Aura Junie, representative of and Timisoara Municipality, presented the main types of multifamily buildings built in the time period of 1946-1990. Finally, Patricia Danciu, the representative of ROSENC cluster, presented the ESCO system as a financial tool for energy efficiency projects developed within the industrial and construction sector.

1.4 Spain

In Spain, TECNALIA organized the first workshop, which included 27 participants; among them were building companies, product developers, architects, and an energy efficient platform. The main objective of this first workshop was to stimulate the discussion regarding NZEBR and it was composed of two world cafés. The first one aimed to identify existing barriers and opportunities for NZEBR. The second one was oriented towards identifying existing technologies for NZEBR. Three main barriers and opportunities were identified.

Barriers:

- (i) *lack of knowledge and awareness,*
- (ii) *lack of economic resources, and*
- (iii) *lack of social involvement*

Opportunities:

- (i) *existing funding,*
- (ii) *new market niche, and*
- (iii) *broad real demand: large inefficient building stock)*

The second World Cafe, which was dedicated to obtain attendees vision on technologies for NZEB renovation, identified the following:

- The need to use renewable energy sources combined with passive solutions. It was emphasized to take the opportunity to use technologies that transform kinetic energy into energy for consumption.
- The need to work at district level, not only at building level.
- The importance of the legislators' role was pointed out in the majority of cases

- The importance of widespread dissemination of the generated knowledge and the executed pilot cases was underlined.
- The existence of a gear that fits all stakeholders is fundamental. This concept was also stressed through the concept of network (working in a network/technology in network

1.5 Sweden

In Sweden, IVL organized the first workshop, which gathered 17 participants: including the Swedish partners in the NeZeR-project, property owner associations, architecture schools, contractors, technical consultants, trade associations, interest groups and the Stockholm County Council. The overall aim of the workshop was to discuss participants' expectations, potential benefits that the national network can provide, and suitable techniques for NZEBR.

From the project partners' point of view, the network represents a platform where project results can be shared and input to the work of the different work packages can be provided. Furthermore, the network is an important area to spread awareness and promote the benefits of energy efficient renovation, as well as to avoid the mistakes of others.

Housing cooperatives and smaller private property owners are deemed target groups that are significant in the Swedish market but often lack knowledge. Banks and contractors are mentioned as key players to involve in this work as well as The Swedish Energy Agency and the Swedish National Board of Housing, Building and Planning (Boverket).

Lastly a discussion was held on providing a definition of near-zero energy building, since Sweden lacks one.

2 MINUTES FROM NATIONAL CLUSTER WORKSHOP NO. 2, ALL COUNTRIES

The topic of the second workshop was, besides giving a brief project update, to review the general guidelines for creating city action plans. However, not all partners have followed this topic.

2.1 Finland

In Finland, VTT organized the second workshop which included a total of 8 participants; among them were professionals in the building energy sector in the three selected cities and the Ministry of Environment. The aim of this second workshop was to discuss the general guidelines for creating city action plans. The main interest was to focus on the development of cities' own building stock. VTT presented concrete ideas and plans on the development of the action plan.

The focus of the action plan/guideline, which is to be developed within NeZeR, will be on buildings. Energy generation or district level issues will thus, not be in the focus of the work. Retrofitting by demolishing and rebuilding will also be taken into account. Issues that potentially cause problems, especially health-related problems, should also be considered in the action plans. It is also important to develop guidelines with regard to buildings of different ages (e.g. measures to be recommended or risks that should be avoided).

Helsinki, Espoo and Porvoo will comment and express their most important desires for the development of the action plans/ guidelines. After receiving comments from Helsinki, Espoo and Porvoo, VTT will make a proposal for the next step.

2.2 Netherlands

In Netherlands, VNG, 033 Energie, Municipality of Amersfoort, W/E held the second workshop. The first half of the workshop included 20 participants and the second half 100 participants. The aim of this second workshop was to discuss the owners' associations as a target group for NZEBR renovation.

About one third of all privately owned apartments (approx. 1.2 million apartments) are part of an owners' association. The amount of owners' associations is growing, partly because of the increasing sale of rental houses by housing associations. There is a substantial risk that owners' associations will spend little money on sustainable renovations, with a potentially negative effect on the real estate value and the liveability in the specific areas and municipalities.

A master class was held by VNG and VvE Belang on energy saving and sustainable energy for owners' associations. Owners' associations are often hard to track, as data has to be collected from different sources: land register, chamber of commerce and the municipalities' administration. VvE Belang is going to have an analysis conducted in order to create clarity on this matter, because there is a high potential of energy saving in multifamily buildings.

Municipalities will play an important role because they are considered trustworthy. The municipality can also stimulate the setting-up of owners' association platforms, where the associations' boards can bundle information and knowledge.

2.3 Romania

In Romania, ISPE and Timisoara Municipality held the second workshop. The workshop was concentrated to financing of NZEBR (which is the topic of workshop 4) and presented EU and national legislation, regulation and specific documents regarding implementation of NZEBR criteria in Romania, relevant fiscal incentives and other financing sources in Romanian building energy performance field.

41 participants attended the workshop, including NeZeR Cluster members, representatives of local authorities from Timisoara, house owners' association, universities, consulting companies, operator of Timisoara's DHS, members of ROSENC Cluster, banks, NeZeR partners (ISPE and Timisoara Municipality).

The conclusion of this second workshop in Romania was that here are several ways (financing sources) for facilitating the increase of energy performance at existing residential buildings, such as different national programs, bank loans and the ESCO system as an alternative financing solution.

2.4 Spain

In Spain, TECNALIA organized the second workshop, which was attended by 7 participants of different profiles; building companies, product developers, architects, energy efficient platform, etc.

The main objective of this second workshop was to analyze different possibilities to determine NZEBR criteria (which was the topic of workshop 1), which is the next task to be developed within the project.

In order to define appropriate NZEBR criteria, the following aspects should be considered:

- Energy certification procedures: heating and cooling demand and CO₂ emissions. Try to look for minimum demand by means of efficient technologies.
- European standards and regulations that determine near Zero Energy Buildings

2.5 Sweden

In Sweden, IVL organized the second workshop which included 30 participants; among them were the Swedish partners in the NeZeR project, property owner associations, architecture school, contractors, technical consultants, trade associations, interest groups and the Stockholm County Council.

The working group has developed a definition of Near zero energy renovation for Sweden. The starting point was standard SS24300-2: 2012. The working group followed BBRs (Swedish National Board of Housing, Building and Planning) definition of energy consumption, division of heating methods and climate zones.

Örjan Lönngren from Stockholm City, introduced the topic of the second workshop – action plans for Near zero energy renovation of cities. Örjan informed on how the work is conducted today, from the politicians' visions and goals on energy efficiency through implementation of requirements.

A survey was sent out to the other European countries in order to obtain a good overview of how their situation looks like. The main results were that there is little mandate to introduce targets with pronounced effect of improving energy efficiency in the other EU countries in NeZeR. In Sweden and Finland energy is included in the rental prices. In other countries the tenant pays separately.

Birgitta Govén presented the proposed setup of guidance for cities. One important lesson from the project meeting with the project partners was that the Swedish partners in the project were initially focused on technical solutions, profitability, etc. while the European partners were more interested in the soft issues that affect politicians, increase awareness, etc.

The participants were asked to describe 1-3 "musts" to be included in the guidance. The different "musts" identified were:

- that the results are followed up and the purpose of the monitoring is clear,
- incentives linked to the economy, which depends on the type of tenure (tenancy/housing cooperative)
- Show all the benefits of improvement, not just the energy – alternatively provide the cost of doing nothing, i.e. no renovation
- Measurement data to relate to before and after energy efficiency renovations, indoor environment - health impact assessment.

3 MINUTES FROM NATIONAL CLUSTER WORKSHOP NO. 3

The topic of the third workshop was environmental and social aspects of NZEBR. Three partners, Romania, Finland and Sweden, have held the third workshops while the other partners are preparing to have the third workshop after the summer. The minutes from the Romanian workshop are however not compiled and therefore not included in this interim report.

3.1 Finland

The Finnish workshop, held by VTT, was concentrated to financing of NZEBR (which is the topic of workshop 4) and included 30 participants, among them were architects, consultants, professional building owners, researchers, manufacturers NZEBR components. First there was a presentation held on *financial incentives for energy efficient renovations*, thereafter *Financial tools for refurbishment*, and *Financial tools for energy efficient refurbishments* and lastly *Business models and financial tools for energy efficient refurbishment*.

In the workshop session the participants were then asked to list down issues regarding energy refurbishments under three topics: "business", "finance" and "incentives". The issues could be defined as "dreams" or as "to be improved".

In terms of business, dreams included *Incentives for "group refurbishments" of housing companies* and *Private actors take charge of energy refurbishments*. Improvement included *Developing the ESCO-model for housing companies*.

In terms of financing, dreams included *more extensive state guarantee* and *interest subsidised loans by ARA* (The Housing Finance and Development Centre of Finland). Improvement included *general lack of information*.

In terms of incentives, there was a range of dreams; *Law which makes decision making for housing companies easier*, *Long term planning and financing, for improving the efficiency*, *Domestic reduction for housing companies*. Improvement included *Long term energy grant for housing companies*.

3.2 Sweden

The third Workshop held by IVL included 26 participants including; NeZeR project partners, representatives from trade associations, university, contractors, etc.

Ambjörn Lätt, Johanna Fredén and Lena Dahlgren (all IVL) presented results on environmental benefits with near-zero-energy renovation. Ambjörn presented the energy calculations conducted within the framework of NeZeR for a house in Årsta, and Johanna and Lena presented the Life Cycle Assessment conducted for the same house.

Furthermore, Stina Stenquist from IVL presented social aspects within near-zero energy renovation, based on the results of the project Nearly Zero Energy Neighborhoods (Zenn) where non-technical barriers to energy efficient refurbishment are studied. Stina also briefly presented results from a Boverket study which showed that extensive renovations of rental property leads to increased

relocations of residents, those with the lowest income are relocating to a higher extent. Lastly, Stina held a joint discussion about the benefits and obstacles with near-zero energy renovation from a social perspective.

3.3 Netherlands

The third workshop in the Netherlands was held in Utrecht the 12th of August 2015. The workshop was held as a round table discussion. Eight participants (from Municipalities and housing associations) discussed the national Roadmap, environmental and economic advantages with NZEBR and the organisation of the upcoming design competition.

3.4 Spain

The Spanish third cluster workshop took place 10th July 2015 in Derio (Spain), at TECNALIA premises. It was attended by 6 people of different profiles (sociologist, architects, engineer, and economist). The list of participants is the following:

Francisco Rodríguez
Elena Usobiaga
Ana Garbisu
Iraide Pérez
Ainhoa Pérez de Arrilucea
Leire Garmendia

Objectives and Agenda

The main objective of this second workshop was to define NZEBR criteria. The agenda was as follows:

- 10.00-10.10h Introductory round of participants
- 10.10-10.20h NEZER project status
- 10.20-11.45h Environmental and social aspects for NZEBR
- 11.45-12.00h Conclusions

Ainhoa and Leire presented NeZeR project progress to attendees, explaining activities carried out until the moment and expected next steps. It was underlined that the objective of this third workshop was to analyse environmental and social aspects of NZEBR.

Three energy rehabilitation case studies were presented:

- Rehabilitation of the building located in 25 de Diciembre street in Sestao.
- Rehabilitation of the Mogel neighbourhood in Eibar.
- Rehabilitation of a neighbourhood in Ondarroa.

25 Diciembre (Sestao)

Description of the situation

The building in Sestao needed to be rehabilitated as pieces of the façade were falling. The main problem to undertake the rehabilitation was the low income or inexistent income of the dwellers.

How was executed the rehabilitation project?

The first step to execute the rehabilitation was to look for funding. The Basque Government accepted to fund part of the rehabilitation project but on one condition: the accessibility must be improved by means of installing a lift.

The dwellers were against of installing a lift as this fact would have a negative effect on their dwelling. As there was not possible to install the lift outside the building, it had to be executed inside the building, reducing the living area of the dwellings.

Thus, in order to agree an appropriate economic scheme that could be faced by every dweller (each dweller had to pay around 8.000€) and convince residents for the installation of the lift, an enormous effort was done. It took four years of meetings to convince and negotiate with the dwellers the rehabilitation project. Finally, the Construction Company gave a 10-years-loan to the Community.

On the other hand, the municipality of Sestao also negotiate the energy rehabilitation of the building, which was also accepted with difficulties.

Mogel neighbourhood (Eibar)

Description of the situation

The situation in the Mogel neighbourhood was different from Sestao as the main objective of the dwellers was to install a lift. In order to have a funding, the Basque Government obliged to carry out an energy rehabilitation.

How was executed the rehabilitation project?

The neighbourhood had created a Neighbours Committee in order to plan an adequate social intervention target to convince all the dwellers to undertake the energy rehabilitation project. Special agenda was established depending on the characteristics of each neighbourhood that compose the whole Mogel neighbourhood. The strategy was to start convincing the most positive dwellers and leave for the end the most reluctant, as nobody wants to be the “ugly duckling” of the neighbourhood. Additionally, as there is a leader in all neighbourhood, special effort was dedicated to search this figure. Once the leader is convinced, it is easier to persuade the rest of the people. It took 5 years until the final approval of the project.

15 out of 6 neighbourhoods have been rehabilitated. Currently, the rest of the neighbourhoods want also to accomplish the rehabilitation.

Ondarroa

Description of the situation

The neighbourhood was composed of three buildings. Initially, the idea was to carry out the rehabilitation of the façade. Nevertheless, in order to receive the Basque Government funding, an energy rehabilitation had to be done.

How was executed the rehabilitation project?

Periodic meetings were arranged and the negotiation with the neighbourhood took a year. This case can be considered favourable as dwellers have some money earned for the intervention.

Conclusions

Analysing the three case studies, the following conclusions can be presented:

- Banks are not interested in financing energy rehabilitations. They perceive the negotiation with the neighbourhoods as a big challenge.
- There is no a sole social approach. A specific strategy must be develop for each case.
- Dwellers are encouraged when they have the opportunity to see a pilot case and be sure that energy efficiency works.
- There is no awareness about environment. Only energy rehabilitations are undertaken

3.5 Romania

The third workshop in Romania was held in Timisoara the 26th of March 2015. The central workshop point was the presentation of NeZeR project focused on the general guideline for creating the NZEBR action plan. Following the main blocks/interest points of guideline, the speakers presented the experience gained from the previous projects for increasing the energy performance of the existent multi-family building placed in Timisoara. Based on the analysis of previous projects finished in the last period in Timisoara, there were presented some deficiencies appeared in the building renovation processes. There discussed the possibilities for overcoming these bottlenecks for the next NZEBR Action Plan.

Organizers: ISPE and Timisoara Municipality

Participants: 56 persons, NeZeR cluster members, representatives of local authorities from Timisoara, house owner association, professional association, university, students consulting companies, energy auditors, operator of Timisoara's DHS, NeZeR partners (ISPE and Timisoara Municipality)

Presentations:

- Dan Diaconu, Timisoara's Vice Mayor and NeZeR SC member, welcomed the participants – representatives of many organisations involved on Romanian building energy performance field and chaired the workshop
- Adriana Milandru, representative of ISPE - project partner, presented the NeZeR project, main its activities for promoting the NZEBR works, including the project progress. She described the main blocks of the AP guideline.
- Ivantie Ruset, the representative of COLTERM - operator of the DHS Timisoara, presented the DHS. He described the main projects propose for increasing the DHS energy efficiency and introducing the heat and water metering. These works will contribute at the next projects to reach the smart city level for Timisoara.
- Ana Georgiu, representative of the Department for increasing the building energy performance, presented the Local programme for increasing the energy efficiency of residential buildings. She presented the success projects, but she focussed the barriers which appeared in the project development process from technical to financial issues.
- Petru Olaru, representative of The Lodgers' Associations Federation (FALT) in Timișoara presented the Local programme for increasing the energy efficiency of residential buildings

from householder point of view - advantages/disadvantages and possible ways to overcome these disadvantages.

- Ion Nina, representative of NGF – construction company, presented some of building renovation projects included in Local programme for increasing the energy efficiency of residential buildings. He specified the modalities for increasing the quality and profitability of renovation work execution using the qualified specialists and good quality materials. That situation could be improved using the real and correct specific costs in comparison with the standard cost level, lower than real costs for obtaining the requested targets.
- Valeriu A. Stoian, the representative of University Politehnica Timisoara, presented the comparative study the passive house concept vs. NZEB concept. This study was made based on the real data resulted by the monitoring of these two building types (PH and NZEB) which were designed and built by UPT team using the national research programme.
- Discussions – it was an attractive part of this workshop, many of the participants presented their point of view regarding the actual status of local building renovation programme and the possibility of increase the energy savings and quality level requested after implementation of the NZEBR Action Plan.
- Conclusion – The majority of stakeholders have knowledge about the advantages/disadvantages of NZEBR projects in comparison with traditional renovation taking into consideration energy savings, CO2 reducing, health and social aspects. Many of them have enough expertise to realize this new type of projects.

There were identified some of the important barriers of NZEBR development:

- lack of regulations regarding standard specific costs per NZEBR works and utilization of good quality materials;
- lack of local financial support for achieving a NZEBR project could be used as good example for convincing the building owner associations;
- lack of an official and mandatory monitoring system for proving the energy savings after achieving the renovation works, according to the project.

4 MINUTES FROM NATIONAL CLUSTER WORKSHOP NO. 4, ALL COUNTRIES

The topic of the fourth workshop was environmental and social aspects of NZEBR and business model of NZEBR.

4.1 Finland

The fourth Finnish workshop took place in Espo the 21st of October 2015 with 18 participants from architects, cities, consultants, professional building owners, researchers and manufacturers of NZEBR components.

9:00 Jaakko Ketomäki opened the event

9:05 The NeZeR project, Riikka Holopainen, VTT

Riikka Holopainen presented the current situation of the NeZeR-project.

- NeZeR-newsletter on August 2015
- Latest reports of NeZeR in www.nezer-project.eu/publications
 - Proposal of relevant fiscal incentives and other control instruments for supporting NZEBR
 - Current situation of country-specific economic incentives that could support NZEBR and deployment of RES, defining main barriers and proposing new incentives in the partner countries.
 - Report on technical and social feasibility studies
 - Advantages of NZEBR over traditional renovation alternative from technical and social point of views in the partner countries.
- ZERO! student competition <https://zerocompetition.wordpress.com/>
 - Kick off 27.10.

9:15 financial aspects of the NZEBR and ePass calculator for energy renovations, Sakari Pulakka, VTT

Sakari Pulakka presented the financial effects of NZEBR. The calculations were made using the E-Pass –tool. It is an internet tool for estimating the energy efficiency of the building, effect of the energy renovations and cost of them.

Pulakka presented first the renovation process and Finnish legislation of energy renovations, role of each participant of the project and procedure how the risks of the renovation could be managed.

There were also several examples of the energy renovations where both energy and financial effects were calculated. This was partly done using E-Pass. Examples were residential apartment house, two schools at different decades, one kindergarten and one old office building which were renovated with very high energy efficiency.

Conclusion was that it is most efficient to use all potential ways to increase energy efficiency as a whole. Thus the NZEBR targets – high energy efficiency, high utility value and increased resale value –

could be reached. The marginal cost of the energy renovation is thus 200...250 eur/m² and payback time is 20...30 years.

Most profitable energy renovation actions are improving the air tightness of the building, replacing the windows with energy efficient ones, inserting heat recovery, using energy efficient lighting system and renewable energy.

To reach the goal it is necessary to govern the whole process of the renovation.

10:15 Total concept method - major reduction of energy use in non-residential buildings, Tytti Bruce, Bionova

Tytti Bruce presented the Total Concept, which is a method presenting economic rationales for major reduction of energy use in non-residential buildings.

The method applies a holistic approach to work with energy issues in the building with the aim to achieve maximum savings in a cost-efficient way. It includes economic realities a building owner has to take into account, while at the same time increasing the ambitions and making it possible to come much further with improving buildings' energy performance than with traditional methods.

The method is based on an action plan comprising a package of measures that as a whole fulfils the property owner's profitability requirements. With the Total Concept tool the expected returns on investment of the various identified measures and for the action package can be determined, taking into account different economic lifetimes of the measures.

The Total Concept is divided into three steps in a systematic approach covering the entire building process: 1) Creating the action for decision, 2) Carrying out the measures and 3) Follow up

Bruce presented also several reference buildings from different countries in which the Total Concept –too have been applied.

10:50 Energy renovation in housing companies, Petri Pylsy, The Finnish Real Estate Federation

Petri Pylsy told about the renovations in private owned housing associations. First he told some statistical information of the renovations. It was noticeable, that renovation cost covers the most part (24%) of the costs of the real estate management. Heating was the second greatest part with 23%.

Pylsy told also, that most common energy renovation is HVAC-renovation. Also changing the windows, adjusting and light modification of the heating system were common renovations.

Message of the presentation was, that resistance against the renovations is not as common as is usually assumed. Owners of the buildings are ready to make reasonable renovation. Problem might be, that the communication between the planners and construction companies and building owners might be inadequate.

11:40 Business model for NZERB renovations

Jaakko Ketomäki presented the business model developed in NeZeR. After a short discussion it was agreed, that the feedback of the business model will be collected using the internet survey.

4.2 Netherlands

The fourth workshop in Netherlands was held in Utrecht the 16th of July 2016. Nine participants from municipalities, housing associations, building companies and the university discussed the topic "From City action plans to National Roadmap".

Minutes from this workshop is available in Dutch only.

4.3 Spain

The fourth Spanish cluster workshop took place 10th July 2015 in Derio (Spain), at TECNALIA premises. It was attended by 6 people of different profiles (sociologist, architects, engineer and economist).

The list of participants is the following:

- Celia Lana
- Xabier Agirre
- Ángel Cea
- Ana Garbisu
- Alessandra Gandini
- Ainhoa Pérez de Arrilucea
- Leire Garmendia

Objectives and Agenda

The main objective of this fourth workshop was to discuss City Action plans and Business Models and share experience on two IEE projects Nezer and Certus. The agenda was as follows:

- 10.00-10.10h Introductory round of participants
- 10.10-10.30h NEZER and CERTUS project presentation
- 10.30-11.45h City Action Plans and Business Models for NZEBR
- 11.45-12.00h Conclusions

Presentation of Nezer and Certus projects

Ainhoa and Leire presented Nezer project and the activities carried out: package solutions, business models, city action plans and different dissemination activities. Alessandra, Celia and Xabier presented Certus project which is aimed at seeking financing mechanisms to undergo energy renovation of public buildings located in the Mediterranean area of Europe. The municipality of Errenteria is also involved in the project and provides three buildings as case studies. The selected buildings are part of the Cultural Heritage of the municipality which implies additional difficulty to undertake energy renovation. Certus project has defined a specific renovation project for each case study providing a financing model to have a feasible project. The financing is based on ESCO model.

City Action Plans and Business Models

Sestao and Errenteria face numerous difficulties when undertaking energy renovation.

Difficulties vary depending on the ownership type; public or private. All attendees agree that it is necessary to promote energy renovation with the help of public funding. Municipalities must pave the way by means of funding and get some exemplary cases. Maab has designed a renovation city

action plan in various Basque municipalities but underlines the need to seek for additional financing (e.g. Europe) to boost the market.

4.4 Sweden

The fourth Swedish workshop took place on the 21st of October 2015 in Stockholm. 20 participants (NeZeR project partners, representatives from trade associations, University, contractors, etc) discussed environmental and social aspects of NZEBR.

Presentation of LCC calculations

Daniel Holm, IVL, presented the LCC calculations done within this project for a MFH in Årsta (Stockholm). The calculations are based on two scenarios: traditional refurbishment and ambitious renovation. The measures have been modeled in a computational program for energy. The results of energy modeling shows that ambitious renovation provides an opportunity to reduce energy consumption by 55% compared with no action, and a traditional renovation can cut energy use by 20% compared to not take any action. Life cycle cost calculations show that despite the greatly reduced energy consumption is the ambitious scenario more expensive over the forecast period due to high investment costs and higher maintenance costs.

Challenges with NZEBR

Olof Sjöberg, Stockholmshem, outlined the challenges facing the company in the energy-efficient renovation of its housing stock. Olof stressed the importance of energy efficiency as well as reduced carbon emissions and measures are economically feasible. It is not obvious that efficiency leads to lower costs and reduced emissions of greenhouse gases.

Financial benefits of NZEBR

Josefin Florell, Passivhuscentrum Västra Götaland, presented the case Brogården; both the background to the action of contract, challenges and the building process. Further Josephine described the lifecycle perspective and the economic aspects of the project.

Government's proposal to support for renovation of multi-family dwellings from the Million Program

Fredrik von Malmborg presented the government's proposal to support for renovation of multi-family dwellings from the Million Program. Fredrik explained the background, purpose and schedule for the aid. The aid will be available in 2016 as planned, but the preparation of the support has not been given priority because of the refugee disaster.

Swedish renovation strategy

Vanessa Liu, Boverket och Sandra Lennander, Energimyndigheten, told of their joint mission of proposals for a developed strategy for energy efficiency renovation. The work is based on a proposal drawn up by the authorities in 2013 and has now further developed the strategy. In the current work considered two draft instruments: information centers and funding the latter study credit guarantees and state loan programs. Proposals will be sent out to stakeholders for comments and notification can be made to Vanessa and Sandra. The authorities also reported on the continuation of their work on the strategy which will include five parts.

Sustainability aspect of renovation of multi-family houses

Lovisa Högberg, Researchers at KTH, Department of Real Estate and Construction, outlined in its presentation of different aspects of sustainability that are essential for the renovation of apartment buildings. Furthermore, it is clear from the presentation that different actors have different approaches but common is that there are a lot of issues to consider, such as professionalism, cost estimation, rent, etc.

4.5 Romania

The fourth workshop in Romania was held in Passive House Dumbravita, Street Quasar nr. 5, Dumbravita, Timis county the 1st of March 2016 with 12 participants.

The central workshop point was the presentation of NeZeR project focused on the environmental and social advantages of NZEBR. Following the main blocks/interest points of NZEBR works, the UPT's representatives presented the experience gained from the previous projects regarding sustainable solutions (PH and NZEB) for residential buildings. Based on the analysis made in NeZeR project, ISPE's representative presented the LCA, LCC and CBA results, and environmental and social advantages of NZEBR implementation. There were some discusses about the possibilities to minimise the initial costs (investment costs) or maintenance costs for increasing the LCC profitability or NPV value.

Presentations:

- Valeriu A. Stoian, the representative of University Politehnica Timisoara, presented the comparative study the passive house concept vs. NZEB concept. This study was made based on the real data resulted by the monitoring of these two building types (PH and NZEB) which were designed and built by UPT team using the national research programme.
- Adriana Milandru, representative of ISPE - project partner, presented the NeZeR project, main its activities for promoting the NZEBR works, including the project progress. She described the results of LCA and LCC calculations.
- Madalina Anastasiu, representative of ISPE - project partner, presented the NeZeR results regarding CBA conclusions and social advantages of NZEBR.
- Marinela Topor, representative of the Department for increasing the building energy performance, presented the Local programme for increasing the energy efficiency of residential buildings. She presented the success projects, but she focussed the barriers which appeared in the project development process from technical to financial issues.

Discussions:

It was an attractive part of this workshop, many of the participants presented their point of view regarding the actual status of local building renovation programme and the possibility of increase the energy savings and quality level requested after NZEBR implementation.

Conclusion:

The majority of stakeholders have knowledge about the advantages/disadvantages of NZEBR projects in comparison with traditional renovation taking into consideration energy savings, CO2 reducing, health and social aspects. Many of them have enough expertise to realize this new type of projects. There were identified some of the important barriers of NZEBR development:

- lack of knowledge regarding the NZEBR and the comparison between traditional renovation and more ambitious alternative for building renovation;
- lack of regulations regarding standard specific costs per NZEBR works;
- lack of regulations regarding the possibility for commercialisation the electricity produced by RES with installed powers lower than 500 kW;
- lack of an official and mandatory monitoring system for proving the energy savings after achieving the renovation works, according to the project.

5 MINUTES FROM NATIONAL CLUSTER WORKSHOP NO. 5, ALL COUNTRIES

The topic of the fifth workshop was the development of the Roadmaps for the residential building energy renovation, identifying necessary actions to overcome existing barriers and gaps and their prioritization.

5.1 Finland

The fifth workshop in Finland was held the 16th of May 2016 with 15 participants (Architects, cities, consultants, professional building owners, researchers, Manufacturers NZEBR components).

Jaakko Ketomäki opened the event and then Riikka Holopainen presented the current situation of the NeZeR-project.

The company GreenBuilt and the roadmap towards low-carbon passive houses, Matti Kuittinen, Aalto University

Matti Kuittinen from Aalto University told about the energy consumption of the whole life cycle of the building, starting with the principles of the energy efficiency. When discussing about the energy efficiency it should be taken into account not only the energy consumption but also the costs and carbon footprint. As an example Matti spoke about the company GreenBuild and their concept Termex. In this building concept the construction of the single house has been modified so that also carbon footprint was taken into account. E.g. the foundations have been made using low-carbon technologies and also structure of outdoor walls have been modified so, that more timber has been used. To conclude; NZEBR renovation is inefficient without taken into account the whole life cycle of the building.

New renovation element, Juha Laihonen, Paroc

Juha Laihonen presented a new renovation element and renovation concept of Paroc. In the presentation he concentrated not only the properties of the new product but also the way, how the new product was developed.

Workshop

In the workshop the material for stakeholder roadmaps for NZEBR renovation were collected. Main topics of the discussion were connected to

- financial aspects – specially the definition of the pay pack time
- co-operation with habitants and renovation companies
- quality of the renovation

The workshop returned a good material for roadmaps for stakeholders and the results will be utilized in roadmap work.

5.2 Netherlands

The fifth workshop in Netherlands was held in Utrecht the 5th of September with 6 participants from the municipalities, housing associations, building companies and the university discussing the topic “From City action plans to National Roadmap”.

Minutes from this workshop is available in Dutch only.

5.3 Spain

The Spanish fifth cluster workshop took place 25th April 2016 in Derio (Spain), at TECNALIA premises. It was attended by 10 people of different groups (construction company, manufacturing company, neighbourhood association, construction cluster, Design office).

Participant	Company (name, profile)
Angel Cea	MAAB, design office
Daniel Barredo	Eraikune, Construction cluster
Fernando Martínez	Sarkis, Construction company
José Luis Cívico	Technal, product manufacturer
Luis Mari Zabalza	Manager of the Txabarri neighbourhood association
Michel Zugadi	Isovas, installer
Ana Garbisu	Sestaoberri, Association responsible for the urban regeneration of Sestao
Luis Carlos Delgado	Sestaoberri, Association responsible for the urban regeneration of Sestao
Ainhoa Pérez de Arrilucea	Tecnalia, Applied research company
Leire Garmendia	Tecnalia, Applied research company

Objectives and Agenda

The main objective of this fifth workshop was to contribute to the development of the Roadmaps for the residential building energy renovation, identifying necessary actions to overcome existing barriers and gaps and their prioritization. The agenda was as follows:

9.00-9.15h Contextualization

9.15-9.30h Sestao Action Plan

9.30-10.50h Roadmap for the residential building energy renovation

10:50-11.00h Conclusions

Ainhoa and Leire presented NeZeR project progress to attendees, explaining activities carried out until the moment and expected next steps; Sestao Action Plan is developed and now is time to define the Roadmap for its effective implementation. It was underlined that the objective of this fifth workshop was to contribute to the development of the Roadmap identifying necessary actions and their prioritization. Angel (Maab) presented the Action Plan developed for the municipality of Sestao.

After that, attendees were divided in two groups in order to identify: 1) necessary actions to overcome existing barriers and gaps for residential buildings energy renovation and, 2) prioritize the implementation of these actions.

Actions

Effective management of the renovation process within the neighbourhood by the definition of a renovation board: Neighbourhoods are not used to large renovation project. They usually react when the problem appears. They are reactive rather than proactive. Usually, they do not have a property manager. They need a person responsible for the effective management. It can be in contact with the municipal manager who has to be a person they can rely on.

For social aspects, the social assistance is fundamental.

Legislation. More demanding laws are needed. The awareness of the population is usually achieved by hard laws, e.g. work budget depends on the emission of CO₂, reduce the necessary number of positive votes to accomplish a renovation.

The municipality must have a specific strategy for the development of the existing building stock, not only for new construction. This strategy should go beyond the city level and reach the neighbourhood level. Additionally, tenants are not conscious of the fact that their block of flats are part of a bigger building. The neighbourhood perspective would help tenants to be aware of this fact.

Municipality must go further than the urban regeneration and develop a strategy for energy planning.

Support for the selection of existing products for energy renovation. This support cannot be given by product manufacturers. It must be an external agent.

Involvement of the energy companies. They are private companies and they are not interested in energy renovation. Government should define actions to involve them in the process. Government should also promote the partnerships for the commercialisation of green energy.

Government should provide more funding for energy renovation.

Prioritization of the actions

After the discussion of possible actions to be undertaken, the attendees prioritized them. The prioritization remains as follows:

1. More funding for energy renovation
2. Speed up and toughen the law to force energy renovation
3. Define a energy renovation board to give support to neighbourhoods.
4. A neighbourhood level strategy to promote the energy renovation
5. Go through the city level to the neighbourhood level.

5.4 Sweden

The fifth workshop in Sweden was held in Stockholm the 14th of April 2016 with 17 participants from NeZeR project partners, property owners, national energy agency, professional and industrial organisations and interest groups etc.

Jenny Gode, IVL, began by greeting welcome and told about the Nezer project and today's workshop. The workshop was conducted within the framework of the national network of nearly zero energy renovation, initiated by Nezer. During the project, four workshops conducted and another one will be arranged. All highlight different themes related to energy efficiency of buildings.

Action plan; Nezer

Örjan Lönngrén, Stockholm city, presented the guidelines of the Action Plan which the City of Stockholm has developed within the framework of Nezer. The purpose of this action plan: you are to develop a plan on how to reduce energy consumption in buildings at the city level. The following participated in the work: Rotterdam, Amersfoort, Helsinki, Timisoara, Sestao and Stockholm.

The goals of the Action Plan are:

- to show politicians and property owners how to work;
- to describe existing conditions and the city's situation;
- inviting local stakeholders early in the work;
- setting goals and strategies to make work successful and
- the economic, social and technical aspects to be taken into calculation.

Energy Agency

Emma Thornberg presented the Energy Authority government mandate to develop a national strategy for energy efficient renovation. Roger Eriksson reported on their efforts to evaluate the low-energy building and awareness-raising activities.

In the development of a national strategy for energy efficiency renovation should now Energy Agency:

- provide an updated overview of the national building stock;
- provide suggestions for cost-effective renovation methods;
- make an economic analysis of proposals for instruments and measures to stimulate cost-effective complete renovation of buildings;
- provide suggestions for a future-oriented perspective to be able to guide individuals, the construction industry and financial institutions in their investment decisions and
- provide an evidence-based estimate of expected energy savings and benefits in the broad sense.

The energy agency's work with the evaluation of low energy buildings included the measurement of energy consumption and indoor climate in eight renovation projects. For the awareness-raising efforts include: power lifting, energy builders; client expertise and new glasses.

Workshop Roadmap for NZEBR and RES.

Stina Stenquist, IVL, held a workshop with the aim of producing material for a Roadmap (Roadmap) to facilitate the implementation of NZEBR and RES (near zero energy renovation and use of renewables). The roadmap includes general descriptions of how to achieve near-zero energy renovation and utilization of renewable energy sources from the perspectives of different stakeholders. The roadmap will provide recommendations for future actions for different players and at the national level. The participants were divided into three working groups. We discussed the

obstacles to reach NZEBR and RES and also the activities that are needed to address these barriers. Workshop results will form the basis of the road map now being developed.

5.5 Romania

The fifth workshop in Romania took place in Timisoara the 9th of June 2016 with 14 participants. The central workshop point was the presentation of NeZeR project focused on the NZEBR and RES roadmap. Following the main blocks/interest points of NZEBR works, the NeZeR representatives – ISPE and Timisoara Municipality have presented the Timisoara Action Plan and Guideline for elaborating the national NZEBR roadmap. An important part of this workshop has had an interactive characteristic. The audience actively participated to fill in the Roadmap matrix using each category of stakeholders for collect the main data: actions/impact/indicators.

Presentations:

- Marinela Topor, the representative of Timisoara Municipality – project partner, presented the NZEBR Action Plan for Timisoara.
- Adriana Milandru, representative of ISPE - project partner, presented the NeZeR project, main its activities regarding technical solutions for increasing the energy savings.
- Adriana Milandru, representative of ISPE - project partner, presented the NeZeR results regarding feasibility of NZEBR over traditional renovation.
- Adriana Milandru, representative of ISPE - project partner, presented Roadmap procedure. After this presentation, she proposed an interactive part for filling in the roadmap matrix.

Discussions:

This workshop has had two parts: presentation of all elements of making the roadmap (Action Plan, NZEBR technical solution, NZEBR economic, social and environmental impact) and an interactive part for elaborating the matrix – a main element of roadmap.

Conclusion:

This workshop was very good received by audience. They participated with responsibility for proposing the best alternatives for filling in the roadmap matrix.

There were identified some of the important gaps and barriers of NZEBR roadmap development:

- The foremost barrier in regard of government is that politicians are selected for 4 years, or sometimes the changes could be more frequent. This creates a risk of non-continuity which makes it difficult to reach the targets on long-term;
- From local authority point of view, the limited funds or low local fund could lead to slow of renovation works, or to increase the owner contribution, or to stop and change the priorities of local authority;
- Many of existing DHSs operate at a half or less of installed capacity, in majority there are obsolete installation and equipments. That is a consequence / a result of the loss of clients;
- Due to the economic situation (reference costs of renovation work were very small) the demand for very efficient renovation was very low and it was not interest for works that using new technologies, efficient materials and equipments. That is the reason which leaded at a capping of the workers through utilization of the classic and cheaper

technologies. In present, many of the construction companies do not know enough about the NZEBR.

- Taking into consideration that 99% of the residence buildings are private property, the owner associations represent an important stakeholder in the NZEBR developing. In the same time, the NZEBRs need a greater financial contribution of the each owner, but they do not have enough knowledge to study the advantages/ disadvantages of this alternative. Lack of knowledge connected with a limited budget led to mistrust about the efficiency of NZEBR vs. classic renovation.
- Despite of the fact that there are many experts, specialists and researchers involved in building energy performance sector, do not exist a national operational market in this field. The demand creates the offer and limited budget lead to conservatism and knowledge capping (lack of know-how).
- According to the feasibility study for ESCO implementation and increasing the ESCO acceptability in the energy performance field of multi-family buildings elaborated by ROSENC cluster, there were identified as main barriers: low level of energy costs due to the existing local/national subsidies, limited private budget vs the high costs of new technologies.

6 MINUTES FROM NATIONAL CLUSTER WORKSHOP NO. 6, ALL COUNTRIES

The sixth and final workshop with the national clusters is about experiences from the NeZeR project and how to take further steps from an EU project to real life.

6.1 Finland

The sixth cluster workshop in Finland took place in Helsinki the 27th of January 2017 with 22 participants from architects, cities, consultants, professional building owners, researchers, and manufacturers of NZEBR components.

Financing of the renovations, Sami Vallinkoski, Hypo

Sami Vallinkoski gave a financing view to the renovation process. He gave good examples of the current challenges of the finance aspect and also some suggested solution. One main challenge is, that the value of the building is lower than needed amount of loan. Solution might be, that some seldom used spaces in the building will change to apartments and thus create some basic funding for the renovation.

Vallinkoski also presented the calculation tool in which it is possible to estimate the financing the renovations so, that cost of living and amount of the loan are in good balance.

Changing from old building to NZEB building, Sakari Pulakka, VTT

Sakari Pulakka presented several renovation cases with energy and finance aspects. He also presented the calculation tool for energy renovation. Using this e-pass tool it is possible to estimate the effects of the different renovations on the energy consumption and also to estimate the cost of the renovation.

Discussion about NZEB-cluster

In the workshop it was agreed, that co-operation between stakeholders of NZEB renovation is needed. When finding the ways to keep the cluster going after NeZeR-project it was proposed, that cluster can meet in event in building sector. VTT can also be one of the conveners and cluster meetings can be one part of the VTT's normal work among the stakeholders in renovation sector.

6.2 Netherlands

The sixth workshop in Netherlands was held in Utrecht the 13th of December 2016 with 6 participants from Municipalities, housing associations, building companies and the university. The title of the workshop was "From National Roadmap to implementation".

Minutes from this workshop is available in Dutch only.

6.3 Spain

The Spanish sixth cluster workshop took place 20th February 2017 in Errenteria (Spain), at an old building located in the old town of the Errenteria Municipality (Basque Country).

This workshop was celebrated together with the final seminar and was arranged in connection with the final workshop of the European research project CERTuS, which aims to facilitate EU Directives for increasing the number of nearly zero-energy buildings in the public sector by involving Municipalities, energy service companies and financing entities from all economically stricken Southern European countries.

It was attended by 63 people of different groups (Nezer project partners, Construction companies, Manufacturing companies, Architects, Municipal decision-makers).

Objectives and Agenda:

The main objective of this sixth workshop was to generate debate and to disseminate different aspects regarding the retrofitting of buildings towards near zero energy buildings rehabilitation (experiences, barriers, solutions, etc.).

In this way, after a short presentation of general aspects of the research projects (NeZeR and CERTuS), a seminar was arranged in which some referent key agents were invited to give short speeches regarding different aspects of the NZEBR.

- Invitation and agenda:

9:15 – 9:30h: Welcome speech from the major of Renteria (Julen Mendoza) and the Director of the Sustainable Construction Division of Tecnalia (Javier Urreta).

9:30 – 9:45h: Short overview of the European research projects NeZeR and CERTuS (Maidier Alzola, Tecnalia).

9:45 – 10:15h: Speech of Juan Rubio del Val (Municipal Company Zaragoza): Experience of NZEBR in Zaragoza (Spain).

10:15 – 10:45h: Speech of NASUVINSA (Navarra, Spain): Financing aspects of the NZEBR.

10:45 – 11:45h: Coffee.

11:15-12:15h: Speech of Angel Panero (Consorcio Santiago de Compostela): NZEBR on historic districts.

11:45 – 12:15h: Speech of Santi Murua (BERUALA): Experience of NZEBR in Bermeo (Basque Country).

12:15-12:45h: Speech of Josu Urriolabeitia (SURBISA): Experience of NZEBR in Bilbao (Basque Country).

13:00 – 14:30h: World lunch. Debate activity around lunch tables organized in order to talk with the different stakeholders about the identification of barriers and solutions for the NZEBR.

14:30 – 14:50h: Conclusions of the world lunch.

15h: End of the workshop.

Seminar

Workshop

Workshop plan (world – lunch)

After the seminar, a world lunch was celebrated. On this world lunch, attendees were placed on different tables with the aim of having different points of view. The speakers of the seminar participated on this seminar, in this way; the attendees had the opportunity to debate with the speakers of the seminar different aspects of their experiences about NZEBR. Attendees had the opportunity of share opinions with different agents in three steps. Attendees were placed in different tables with different attendees combinations on each step.

With the first course the attendees debated about identification of current barriers for NZEBR in residential sector.

With the second course they debated about their experiences (communication with other agents, relation with owners and users, regulation barriers, etc.).

With the dessert they debated about possible solutions for solve identified barriers.

After the lunch, conclusions resulted from of each table were shared among all the participants.

Main conclusions

Again was concluded that main barrier for the NZEBR in residential buildings is not technical but socio-economic.

- Nevertheless, also technical barriers exist. Some residential buildings in urban areas have an important architectural value, even though they are not historic buildings. Buildings with many decorative features, or singular balconies, etc. are not able to be retrofitted with an external integral solution.
- Actual payback periods of the interventions should be reduced.
- A main strategy should be defined including connexion and collaboration of the different agents of the construction value chain: Policy makers, subsidies, banks, construction companies, architects, social assistants, energy companies, etc.). This strategy should cover both technical and socio-economic aspects.
- When talking about energy retrofitting, we need to talk about healthy retrofitting, including not only about energy efficiency, but also about indoor environment quality, healthy, size of dwellings, accessibility, etc.
- As positive final conclusion, we have to note that a slowly but secure step by step way towards NZEBR is tangible. Years ago, in all seminars, the NZEBR was exposed as theoretical, but on this seminar, all the experiences shared were based on real cases executed.

6.4 Sweden

The sixth cluster workshop in Sweden was held in Stockholm the 8th of February 2017 with 47 participants such as property owners, national energy agency, architects and designers, technical consultants, contractors, professional and industrial organisations and interest groups etc.

Örjan Lönngren, Stockholm city, greeted welcome and opened the workshop. Then Maria Ahlm, IVL, continued by presenting the roadmap for Sweden and other participating countries (WP5). It constituted the introduction to a discussion about how we're working on with the energy-efficient renovation in Sweden. The audience was very interested to know what it looked like in the other countries and were surprised that despite our circumstances are as different as are the obstacles and gaps that need to be bridged the same in all countries.

Panel discussion 1; what does the authorities, politicians and organizations think of the possibility of achieving near zero energy efficient MFH?

Participant; Björn Hugosson (City of Stockholm), Johan Flyckt (Tenants' Association), Maria Brogren (Swedish Construction Federation), Petter Jurdell (SABO)

Panel discussion 2: How can the construction industry meet the needs – are they ready?

Participant; Olof Sjöberg (Stockholmskem), Helena Ulfsparré (Familjebostäder), Madeleine Nobs (NCC), Lotta Bångens (Energy efficiency organisation)

Roundtable; How do we take the next step?

Participant; all present at the workshop.

With the input from the presentations and panel discussions the participants were divided into small groups to discuss where to go from here and how to reach forward to achieve near-zero energy standard in our existing homes.

6.5 Romania

The final cluster workshop in Romania was held the 23rd of February 2017 in Timisoara with 31 participants. The central workshop point was to review the main NeZeR results focused on the examples of success cases and financing schemes for NZEBR. In the same time, it was underlined the next steps for implementation the NZEBR in Romania.

Presentations:

- Madalina Anastasiu, the representative of ISPE – project partner, presented the NZEBR success cases in EU countries.
- Adriana Milandru, representative of ISPE - project partner, presented the financing scheme for increasing the energy residential building performance using the ERDF (main eligible conditions and works)
- Adriana Milandru, representative of ISPE - project partner, presented the financing scheme for increasing the energy residential building performance the using national environmental fund (main eligible conditions and works)

Discussions:

This workshop was connected with the final seminar. In this way, there were covered all the NeZeR themes (technical, economical, social and financial) and the audience has had a complete image of the NeZeR project and a good perspective of NZEBR next actions.

Conclusion:

The audience has appreciated the presentations which created a base for next actions and meetings of NeZeR cluster to promote the NZEBR development.