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measures in the European renovation market
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General Guidelines for creation of action plans in all Europe

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1 INTRODUCTION

The NeZeR project promotes the implementation and smart integration of Nearly Zero Energy Building Renovation (NZEER) measures and the deployment of Renewable Energy Sources (RES) in the European renovation market.

In order to achieve Nearly Zero Energy Buildings in Renovation there is a need for Action Plans on a City level. The Action Plans will define targets for reduction of energy consumption and CO₂-emissions when renovating buildings and describe how the objectives shall be accomplished. This document presents General Guidelines to create Action Plans on a city level.

The idea is that these guidelines shall facilitate the work with performing your Action Plan. You are not obliged to use them literally, feel flexible to use them more like a checklist to assure that you have considered all the important parameters. If you already have started a work within your municipality and have results concerning the content in one or more of the blocks you shall of course use these results and continue the work from this basis.

If you have existing plans within your municipality you shall assure that your Action Plan for NeZeR renovation is in harmony with these plans. To make the work easier you could probably be able to use information from these documents into your Action Plan.

2 PURPOSE

The purpose with the General Guidelines is to help municipalities in creating Action Plans. The guidelines are developed in a general way so that all kind of municipalities in different countries in Europe shall find them useful in the work to produce an Action Plan for their city. The Action Plan will preferably be a part of the City's environmental or sustainability plan if there is one.

The energy we use is affecting the climate when the energy sources are based on fossil fuels, such as oil, coal and natural gas. It's important that we all make an effort in the work to household with the limited resources that exist on earth. In the building sector there are a lot of possibilities to contribute to this by energy efficient renovation. It can also lead to lower operating costs, better health conditions and more satisfied tenants.

In order to decrease the energy use the EU has stated in the Energy Efficiency Directive (EED) that the energy use shall decrease with 20 per cent until 2020. It's also set that all new buildings shall be nearly zero energy buildings 2020 and that all countries within the EU must take measures to motivate energy efficient renovation towards nearly zero energy buildings.

The main purpose with the Action Plan is that it shall make a basis to convince politicians and real estate owners and implement the process so that energy efficient renovations could be a reality in your city. The Action Plan will describe *one* possible solution to make this process successful. Economic, social and technical aspects shall be taken in account.

3 GENERAL GUIDELINES TO AN ACTION PLAN

When you prepare your Action Plan we suggest that you use the headlines 3.1 – 3.5 as a basis and follow the proposed process flow. Of course, you can choose other headlines that you find more suitable for you.

Performing an Action Plan includes different phases to each headline and we propose that you do it in a process where you involve different stakeholders in the discussions, as shown below in a process flow. Each square in light blue below the headlines represents a work to be done in workshops with proposed stakeholders as a suggestion.

Which stakeholders can be a part of the work in the Action Plan? To achieve an Action Plan that will be realistic and able to use for the municipality you need to assign all the groups of people that will be a part of the work. You need to define the responsibility and the possibility for each stakeholder to act and make an impact in the Action Plan.

The stakeholders are normally real estate owners, tenants, municipalities, suppliers, energy companies. The following can be interesting parameters to focus on for each stakeholder group:

- Real estate owners:
 - How to get a more sustainable housing stock
 - Decrease the cost of energy
 - Improve competitiveness compared to other real estate owners
 - Decrease operating costs
 - What type of renewable energy is available on the market
- Tenants:
 - Decrease energy costs (if they are not included in the rent)
 - Raise the value of apartment
 - Raise the wow-factor
 - Improve the indoor climate
 - What type of renewable energy is available on the market
- Suppliers and energy companies:
 - They get an opportunity to promote their products
 - They can promote themselves as a part in sustainable renovation of buildings
 - Is there a possibility for installing smart metering
 - How can renewable energy be produced
- Municipalities:
 - Get a more sustainable community – improve the popularity
 - Get happier inhabitants
 - Get a better looking city
 - How can renewable energy be produced

The process for performing the Action Plan:



3.1 Background

The first step to a successful Action Plan is to describe the actual situation in your community. This makes a good basis to the following works in performing the Action Plan.

Make a background analysis of why reduction of energy use in buildings is an important work to be done in your community. Describe how your community has been working with these questions earlier and try to describe the current situation in your city. The reason why your community is obliged to do this is due to the climate change which to a large extent depends on high exhaust levels from energy plants. In buildings there's a high potential to make profitable energy efficient renovations since there are a lot of possible measures to be done.

You need to find out what the atmosphere is like in your city; how high or low is the awareness of energy- and environmental issues? What are the trends in society and how do the decision makers think and react on questions concerning energy use and environmental issues? It can be a good driving factor when also other relevant aspects can be taken into account. Examples of these are energy poverty (indicator of high energy consumption in combination with a low income), badly maintained buildings, public space that has to be improved.

Describe shortly the project you are planning for. For instance; “We have a great need for renovation in a certain area and at the same time we want to reduce the energy consumption *or* We have a certain type of building in our community that has a great need for renovation and in the same time we will reduce the energy use in these buildings....or other examples from your community.”

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.

3.2 Conditions

When the background analysis is done you shall try to define the conditions for your Action Plan. There are many considerations to take in account such as economy, ownership of buildings and different kind of regulations in your city among others.

Economy is of course a very important subject to go over in an Action Plan. You must show the profitability of different investments and the preconditions for the calculations. It's also important to claim that profitability isn't always the most significant incentive for this kind of renovation. Aspects such as environmental targets can be a parameter that shall be taken in account instead of profitability.

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.

For instance; if there are mostly **private owned** buildings you can focus on the cost efficiency of the investments and the other positive effects of lower cost for energy consumption, better indoor climate and higher wow-factor.

If you have mostly **social housing, commercial or public owners** where the tenants would get a raised rent when performing energy efficient renovation in buildings you need to focus on economic business models where both the real estate owner and the tenants would get benefits of the renovation.

If you perform a renovation to raise the standard of the apartment you can also include energy efficient renovation and in that manner you can motivate a raised rent.

To make a better understanding among politicians, real estate owners and citizens in your community you must describe the picture both over Europe in general, the country and your community in specific concerning *energy regulations*.

This means that you shall inform that there are targets on EU-level for a decrease of energy use. You must reflect over which groups in society that needs knowledge of the different target levels.

Describe also the target levels you have in your country and if there are any specific levels of target in your community. Perhaps that in your community it's more important to describe the target levels on community level than EU-level; you must consider to whom you send the information.

It might also be interesting to describe how energy fares are regulated in your municipality. For instance; is there a ceiling price or is the price variable? Another matter to consider is the energy bill, if there is one central bill including all parts or if they are separated for each company involved. It might also be interesting to discuss the impact if the energy use is paid separately by the tenant or if it's included in the rent.

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.

3.3 Target Group

In order to find out what type of buildings or area in your city that will be the object for your Action Plan you need to invent the housing stock and the energy use for these buildings. Of course you can also choose a more general target level for energy reduction in your Action Plan. However, we recommend you to make a clear delimitation due to the fact that it makes it easier to follow up the result if the target group is distinctly defined. The chosen target group is a result of your inventory made out from statistics of the housing stock, the energy consumption and the need for renovation.

There can be different reasons that lead to the choice of target group for your Action Plan. Of course you must consider the energy use for the buildings but it can also play an important role if there are certain areas in your city or a certain type of buildings that are in a great need for renovation in your city. That can serve as a basis for the choice; if you need to renovate for other reasons, it's a good idea to make energy efficient renovations at the same time. It's highly recommended that you use measured energy consumption data instead of data derived from building type etc. This is because the energy consumption is for a big part dependent on user behaviour.

You must also take in account if there are any energy plants in certain areas that are environmental villains and from which you have a great need to decrease the use of, such as coal or oil plants.

Another issue that can be of a great importance is the social aspects. If there are several problems with a social character in a certain area, it can be a good reason to make a total renovation in order to improve the social situation.

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.

3.4 Objectives

The mandate that your community has to set goals for energy efficient renovation is important concerning how powerful the Action Plan will be. To arrive at a good result it's often helpful to analyze the situation in your community; have you had any goals for reduction of energy use earlier and have there been any projects with energy efficient renovation before? If so, this can be a good way towards the city council to get additional support or funding for energy efficient renovation projects. Perhaps there are some good examples that you can highlight. If the answer is no, you need to analyze why there hasn't been any focus on these questions earlier. The reason can be lack of investment money, insufficient knowledge or the community has prioritized other issues. How is it in your community?

If you can set goals and enforce real estate owners to perform measures you can be rather tough and clear; for instance you can say that there must be a decrease of x per cent in energy use when renovating buildings. If you cannot enforce real estate owners you can describe a goal as decrease in per cent as a direction and combine it with support actions from the community. Use the definition of Nearly Zero Energy Renovation that has been proposed for your country within the NeZeR-project.

You must also take in account to set other goals than energy related targets. For instance, you can have objectives concerning social health, better indoor climate and that certain areas in the community shall develop more harmoniously.

It's very important that you make a plan for the *follow up* of the activities in the beginning of the project in order to be sure that you measure the right parameters. The purpose with the follow up is to verify that your goals have been fulfilled and if they have not been fulfilled you must find the reasons why. You must follow up technical, economic, health and social aspects.

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 has been done. 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.

3.5 Strategy

The final part in your Action Plan is to describe the strategy how the goals and activities shall be performed. On the one hand, it's necessary to picture the general strategy where you describe the comprehensive goals and on the other hand you describe the activities that shall lead to a successful reduction of energy use in buildings. All results from the workshops you have performed in the previous phases (3.1 – 3.4) shall make a ground for the strategy.

You must point out one person or persons who will be in charge for the following work and see to that there will be an adequate team who can prosecute the work. This person should preferably be one who has been involved in the process to accomplish the Action Plan, but if not, it's important that there will be an appropriate handing over of the information in the Action Plan and that you ensure that all goals, ambitions and results that you have accomplished in this process is comprehended.

In order to achieve a successful result it's important to include stakeholders from top to bottom in the process. A good example is to assemble both the local community in the neighborhood and the energy cooperatives as well as real estate owners and municipal resources in a working group to discuss what measures that can be done and how you shall communicate the project to reach the best result. In this process you should also point out the different roles and responsibilities for each stakeholder, such as support, facilitate, coordinate etc.

In the Strategy of how to achieve your targets in the Action Plan you can point out measures and activities in the following areas:

- Behavior
- Technology
- Finance
- Collaboration
- Communication

The communication plan is one of the most important instruments to make the nearly zero energy renovations successful. You must reflect of the situation in your community and find out which ways that are the best to communicate the goals in the Action Plan and how to achieve them. The communication plan can be divided in two parts:

1. *Communication within the organization of the municipality*

Convince all departments within the municipality – not only the environmental department – of the importance of energy efficient renovation. It's important to have good understanding at all different stakeholders of the organization in order to achieve changes in regulations permits and so on. All departments need to have this information and understanding when they shall make decisions in other sectors such as housing social questions and economy for instance.

2. *Communication with other stakeholders in the city*

In this plan you shall describe actions how to convince all concerned stakeholders, such as:

- Social housing companies
- Public real estate owners
- Private real estate owners and associations

In this part you can show good examples to make people enthusiastic and how to avoid bottlenecks and negative media attention.

One reflection is the time when you need to perform information activities; for instance you need to inform rather early when it comes to tenants in a building that shall be renovated. If they get all the arguments they can have time to reflect and make questions to clarify certain aspects.

You must also reflect over which stakeholders you shall focus on. There can be different messages to different stakeholders. For instance the tenants are mostly interested in parameters such as lower cost, better indoor climate and higher wow-factor while the real estate owner is interested in long term results and lower maintenance cost.

It's important to involve all partners in a renovation project early in the planning. For instance you may think that an area is very broken down, but the inhabitants appreciate the ambiance and the surroundings; you must include them in the planning process so that they don't get disappointed after the renovation.

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 into account the results developed in IEE NeZeR-project including e.g. the technical solutions and feasibility studies for Nearly Zero Energy Building Renovation.
- 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.....