



mountEE: Energy efficient and sustainable building  
in European municipalities in mountain regions  
IEE/11/007/SI2.615937

## **D 3.3 : DESCRIPTION OF REGIONAL STRATEGY**

### **UPDATE**

**Region / local area considered: FRIULI VENEZIA GIULIA REGION**

**Regional strategy submitted by RCC AND ARES**

## **Project MountEE for our mountains. Towards MountEE 2.0**

Our mountains always greener ... a common commitment to a new sustainable building

The project "MountEE" was intended to give support to the municipalities, ATER (public social housing) and public bodies in general in three European mountain areas (Scandinavia, the Alps, the Pyrenees) in order to help them to change their way of designing and constructing (new constructions and renovations) and to guide them towards increased energy efficiency, towards greater use of renewable energy sources and also to sustainability in construction.

MountEE succeeded in attracting in RCC working group RCC a wide range of stakeholders: some politicians, local authorities, professionals and also economic institutions.

On February 28 pilot project of MountEE ended.

The time available to the technicians to carry out the task of the service package was the first element of verification and comparison especially with the slowness of response from public administration.

We first developed the regional criteria with the RCC members and start to find pilot projects.

It was very difficult in this economic period to find project of new public buildings or of renovations, due to stability pact.

Besides in Italy public construction is a very long process that last for more than 3 years from design to end of constructions...

So we focus on finding more pilot projects (10) than planned (6) and tested some modules of the service package on each projects, instead of testing all the modules in a few projects.

We offer module 5 of the service package also to existing buildings to understand how this kind of advice service can be much more widespread and also dedicated to all existing buildings and not only to a few "pilot" buildings.

We understand that this kind of advice service is really needed and sometimes it was seen as an own need by municipalities.

Testing the modules of the service package was an innovative experience and essential to improve the level of energy efficiency in the design phase, in the planning phase, in call of tenders and also in existing buildings for testing the real consumptions.

### **Problems and opportunities that emerged in pilot projects**

Taking a system studied in another european country, although with similar climate and conditions, and introducing it in a different country can produce critical situations to be overcome, but also positive aspects to highlight, evaluate and consolidate.

Some problems emerged:

- a low quality design, especially in cases of advices activated during the construction phase, can create difficulties in completing the testing of the various modules at optimum levels;
- lack of interest or lack of knowledge about the importance of a better management of consumption or about monitoring when the building is in use, is an element to focus on by capacity bulding activities and training;
- current building design often forget the installation of monitoring system for electrical and thermal consumptions, that is fundamental for implementing module 5;
- MountEE Criteria was very rigid and proposed only two value: "MountEE Value" and "Best Value"; regarding building different uses (residential, offices, schools) we can asset more value with a specific assessment tool like Protocollo ITACA.

Positive aspects:

- ARES was helped for carrying on pilot projects by two groups of professionals and some of them belonged also to RCC. This has allowed us to train new professionals and to have a wide participation of individual professionals testing of individual modules with different approaches that have enriched the pilot projects and this testing phase;
- We had two working groups in which we met different experiences and professional skills, but at the end we start also the big potential of working together;
- The consulting group had a technical third part role, apart from design and construction management;
- The availability of Protocollo ITACA, an assessment method for sustainable buildings (UNI / PDR 13.2015) allows us to have a great tool to define sustainable levels and assess the achievements of the expected results;
- As built documentation, the minutes of acceptance of materials on site and a complete photographic documentation are essential for the service package.

### **Towards MountEE 2.0**

- MountEE 2 should be structured as a network of multidisciplinary skills and knowledge to achieve the goal of the highest quality.
- Financial advice will have to be consolidated by professionals able to take advantage of opportunities provided by the market and opportunities granted by sector regulations.
- The RCC group and especially its activity does not have to end together with MountEE project but it will be a sort of case of knowledge and experience to give precise answers and support thank to group of professionals that will carry out directly the advice service.
- The consultancy is most effective when it is at the beginning of the design phase. This is very important for new building and especially for renovations.
- Models of check list, reports and documents realized during MountEE project for pilot projects will be very important for future activities.
- Testing of various modules of the service package highlighted the importance of the monitoring of buildings after their construction.
- We will develop strategies for an effective communication campaigns in support of the service package activities regarding Public Administrations.

MountEE 2.0 will be able to advice a lot of sustainable public projects helping them to reach “zero energy” and sustainability by means of the service package and Protocollo ITACA assessment tool.



## Uppdating Regional Strategy

In Dalarna a regional NZEB-strategy has been elaborated by actors of the building sector and ratified by Building Dialog Dalarna in 2013.

During 2014 several working groups within the building dialogue Dalarna such as "energy efficiency", "indoor climate" and "effective building process" have elaborated action plans to put the strategy into action. Below you find the measures that are proposed by the two groups "Energy Efficiency" and "Indoor Climate":

Added you find the proposal of the working group "Energy Efficiency" and the following activities are listed in order to reach the targets of energy consumption stated in the strategy:

- Use of BELOK – metod for renovation,
- Good examples and user-information for optimizing maintainance performance.
- Adapting evaluation systems such Sveby12
- Procurement network for experience exchange
- Use of social media to attract new participants

In another document the working goup on indoor climate is highlighting the need of strategies to choose materialstandards. It aimes among others to evaluate models used in Sweden such as BASTA and Miljöbyggnad, two of the methods introduced by MountEE.

All action plans emphasize the importance of training sessions for the whole building chain and several sessions are already planned for 2015 such as training on Miljöbyggnad.

Added an example of the action plan for Energy efficiency.



## **Handlingsplan 2014-2015 för temagruppen Energieffektivisering större fastigheter**

Handlingsplanen är ett verktyg för att planera, styra och följa upp verksamheten inom temaområdet. I arbetet med att ta fram handlingsplanen är det viktigt att alla delar i gruppen är delaktiga så att alla kan känna vikten av att arbeta utefter den. Planen fastställs och följs upp årligen av styrelsen i ByggDialog Dalarna.

### **Bakgrund**

Övergripande inriktning för ByggDialog Dalarna och gemensamma ambitioner inom viktiga temaområden har formats i dialog med sektorns aktörer. Grunden vid dessa dialoger har dels funnits i Dalarnas miljömål och länets klimat- och energistrategi samt dels i sektorns utmaningar avseende byggande med ökad kvalitet, effektivitet och till lägre kostnader baserat på ett hållbarhetsperspektiv.

Strategin för ByggDialog Dalarna har förankrats med föreningens medlemmar och utgör grunden för fortsatt samverkan. Strategin innefattar:

- Vision och mål för sektorn
- Temaområden och viktigare insatser inom varje tema
- Fortsatt samverkan i ByggDialog Dalarna – organisation, genomförande, ansvar

### **Syfte**

Syftet med handlingsplanen är bistå temagruppen Energieffektivisering i arbetet med att uppfylla den nationella och regionala utmaningen om halvering av energianvändningen i länets byggda miljö fram till 2050. Inom denna halvering inkluderas hela den byggda miljön inklusive lokaler, flerbostadshus och småhus.

### **Vision**

Den vision som finns inom temagruppen kan ses i de långsiktiga mål som gruppen har:

- 20 % reduktion av energianvändningen i länets byggda miljö till 2020
- 50 % reduktion till 2050
- 40 % reduktion av CO<sub>2</sub>-utsläpp från den byggda miljön till 2050
- NNE-standard tillämpas vid nybyggnation från 2021 (2019 för offentliga byggnader)

### **Mål**

För att nå fram till visionen har gruppen i arbetet med handlingsplanen tagit fram ett antal delmål på kortare sikt, vilka ska bearbetas under de kommande 1-3 åren.



## 1. Drift och skötsel / underhåll

- 1.1. Verka för gemensamma ingångsdata till energiuppföljning för att få jämförbara resultat.
- 1.2. Öka kunskapen om möjliga energibesparingar i driften och verka för tillämpning av besparingsåtgärder i länet.

### Aktiviteter

- Erfarenhetsöverföring från Energiwebb Dalarna
- Följa, informera och överföra vad som sker angående lagen om energikartläggning
- Goda exempel bör uppmuntras för att öka kunskapen i länet om energibesparingspotentialen och möjligheterna i driften.

## 2. Renovering och ombyggnad

- 2.1. Öka kunskapen om vilka aspekter som skall och kan värderas vid underlag för renovering och ombyggnad
- 2.2. Genomförandet av etablerade uppdrag från Lågan/STEM

### Aktiviteter

- Förmedla erfarenheter och praktisk nytta av inom genomförda och pågående projekt i länet där energieffektivisering ingått eller kunnat ingå.
- Följa, informera och överföra vad som sker nationellt inom området. Exempel är Lågan/STEM, BELOK projekt mm.
- Verka för ett upphandlings och inköpsnätverk där erfarenheter och samarbeten kan utbytas.

## 3. Nyproduktion

- 3.1. Verka för nyttjande av metoder och verktyg så att byggprocessens energieffektivitet kvalitetssäkras.
- 3.2. Genomföra etablerade projekt Mount EE.

### Aktiviteter

- Följa, informera och överföra vad som sker nationellt inom området. Exempel är nya regler såsom BBR, Mount EE, Branschstandard Sveby, Bygga-E mm

## Generella Aktiviteter



- Implementering av ny kunskap. Aktivt arbeta med att diskutera, sprida utveckling och utbildning inom temat energieffektivisering. Hitta ny informationsvägar som exempel sociala medier för att nå nya intressenter. Samverka med övriga grupper inom Byggdialogen vid gränsöverskridande frågor är en viktig del.
- Förlägga lämpliga studiebesök i samband med ordinarie möten.
- Utifrån intressegruppens specifika behov och erfarenheter erbjuds seminarier och/eller kurser inom verksamhetsområdet. Målsättningen skall vara att gruppen breddas med fler intressenter. Temagruppen bör erbjuda medlemmarna 2 seminarier och eller kurser per år.

## Organisation

Samverkan sker via representanter från Planering/Bygg/och Förvaltningsprocess

Arbetsgruppen för handlingsplanen:

|                   |                     |
|-------------------|---------------------|
| Jesper Mårtensson | Landstinget Dalarna |
| Lars Nilsson      | Leksands kommun     |
| Minna Glemme      | ÅF                  |
| Lars Imland       | HSB                 |



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## **D 3.3 : DESCRIPTION OF REGIONAL STRATEGIES**

**Region / local area considered: Dalarna, Sweden**

**Regional strategy submitted by: Åke Persson, Jakob Ebner**



## 1) Description of the context (1/2 page)

Close-to-zero energy strategy for Dalarna

The Byggdialog network together with the County Administrative Board's steering group for Energy Intelligent Dalarna and with other relevant stakeholders in the areas of construction and property management have written this strategy proposal to promote an increase in the number of low-energy buildings in Dalarna. The targets and other pre-conditions of the strategy are that low-energy building in Dalarna should fulfill the national targets for close-to-zero energy buildings proposed by the Swedish Energy Agency.

The strategy document as presented is intended to give support and guidelines for property owners in Dalarna in planning and construction projects throughout the county. It is proposed that the document be adapted and updated as required to keep up with national developments. The Swedish government has stated that 2015 will be a key year for additional demands in legislation and building standards.

The purpose of establishing a regional strategy for low-energy building is for Dalarna as a pilot county to move together in, as a minimum, fulfilling energy and sustainability targets set by the government. Experience from previous projects in low-energy building will be built on and form models for broader application, both in new construction and in refurbishment projects.

## 2) Description of the objectives (1/4 page)

The strategy provides a basis for:

- Guidelines for energy-efficient planning in municipalities.
- Targets for design and construction in different categories of buildings: dwellings, commercial and single-family homes.
- Action plan for energy-efficient management of buildings.
- Emphasis on the need for skills development in the sector.
- Areas of relevance for regional research.
- Opportunities for technology development

### Target levels

The Swedish Energy Agency presents in Task 13 the levels proposed for Close-to-zero energy building from 2019 (public buildings) and 2021 (other buildings) and it is proposed that these should also apply to Dalarna:

Specific energy consumption of building, new buildings

[kWh/m<sup>2</sup>, Atemp, yr], excluding operational power,

|                                 |    |
|---------------------------------|----|
| Dwellings, non-electric heating | 65 |
| Dwellings with electric heating | 40 |
| Premises, non-electric heating  | 60 |
| Premises, with electric heating | 40 |

Specific energy consumption of building, converted buildings

[kWh/m<sup>2</sup>, Atemp, yr], excluding operational power,

|                                 |    |
|---------------------------------|----|
| Dwellings, non-electric heating | 90 |
| Dwellings with electric heating | 40 |

|                                 |    |
|---------------------------------|----|
| Premises, non-electric heating  | 85 |
| Premises, with electric heating | 55 |

Table 4: Proposal for the specific energy consumption of Task 13, Zone 2 converted buildings.

The proposals adopted in this strategy are based on close-to-zero energy buildings but also on what is considered possible and reasonable with currently available technology. Consideration is also given to the slightly higher costs in the construction phase that more energy efficient building incurs.

Energy measures should be prioritized in the following order:

- Highly energy-efficient building shell
- Highly energy-efficient installations
- A high proportion of the energy needed should be renewable

By using this order of priority, three goals can be achieved: It ensures that the energy requirements of the buildings will be kept low. This in turn leads to the building's energy consumption being less affected by the choice of energy medium. This reduces the energy supply's importance for the building and thereby gives a greater degree of flexibility in the choice of technology employed. This also increases the flexibility and generality of future changes in the functions of a building and in energy system conversions. Finally, this order of priority results in an increase in the proportion of renewable energy.

#### Redevelopment

Gradually raising the standard of existing buildings is essential for a transition to a sustainable energy system. It is therefore proposed that target levels also be introduced for the renovation and rebuilding of existing property.

For existing buildings undergoing major reconstruction, a target can be formulated as energy consumption after renovation shall not exceed 90 kWh/sqm. A pragmatic target may otherwise be that energy consumption after rebuilding should be 50% of the level before rebuild. This is known as applying "Factor 2".

#### Property management

For property already being managed, there should also be a goal of reducing energy consumption by 2020, i.e. a reduction of 20 percent calculated from the current level (around 1.5-2% annually). This is already being done in some places in the country. For example, the "Skåne initiative" entails a reduction of 2 percent per year until 2016.

Experience shows that the systematic optimization of existing installations in premises can reduce energy consumption by 20-30% and by 10-20% in dwellings.

An action plan for this area should be developed that may include:

- Information about the goals and plans
- Training of property owners and property managers
- Incentives to inventory the energy status of buildings.
- Supporting / encouraging energy efficiency.
- Possibly an order to remedy proposals in energy assessments, particularly for properties with extremely high energy consumption.
- Tools for reporting and monitoring energy use in buildings.
- Good examples. Local authorities should lead by example in training their staff and fixing their own properties.

### **3) Means to reach the objectives (1 to 2 pages)**

#### **3.1 - Integration in Local politics/ climate plan/Sustainable Energy action plan**

The targets and other pre-conditions of this strategy are that low-energy building in Dalarna should fulfil the national targets for close-to-zero energy buildings as proposed by the Swedish Energy Agency. These will very probably be in line with the Government's future action plan.

- With this strategy Dalarna is ahead of national demands and focusing on the ambitions expressed by the Swedish government's plan of action for "A route towards close-to-zero energy buildings" that states that Sweden's implementation of the concept of close-to-zero energy buildings from the year 2021 should be the legally binding level for energy-lean consumption requirements in Sweden. These requirements, if enforced by law, would be stricter than those in current building regulations (BBR 19) applicable as of 2012. With this strategy the county of Dalarna is taking part in the discussion on proposed energy levels in the future and pushing the national level to higher ambitions.
- The strategy has been elaborated by the county's stakeholders in the building sector including municipalities, housing companies and construction companies. It gives signals to the construction sector which products and instruments that have to be elaborated and what energy standard should be considered "normal" in the future.
- The strategy is thought to be a guideline for municipalities and companies when elaborating internal documents, policies and working plans since it gives an indication on what levels are adapted by organisations and companies in the neighbourhood.
- The implementation of the strategy is done by the stakeholders of the Building Dialogue Dalarna who also elaborated the strategy. The mountEE project is supporting this process with workshops, seminars and best practice examples.

The following steps are needed to reach the objectives:

#### **Development and use of tools and methods:**

BELOK-methods: A toolbox of methods developed by the Swedish Energy Agency

-BELOK- totalmethod: Used in refurbishment of buildings.

-BELOK-LCC

-BELOK – effektiv operating systems

BeBo-experiences from national Housing company network on energy efficiency

SWEBY: Model on energy calculations and energy measurements

Västerås-model: System for municipalities to sell housing lots with energy requirements.

#### **Development of energy declarations:**

Suggested improvements to make energy declarations more accurate and building specific.

#### **Developing an action plan for property management**

- Information about the goals and plans
- Training of property owners and property managers
- Incentives to inventory the energy status of buildings.
- Supporting / encouraging energy efficiency.

- Possibly an order to remedy proposals in energy assessments, particularly for properties with extremely high energy consumption.
- Tools for reporting and monitoring energy use in buildings.
- Good examples. Local authorities should lead by example in training their staff and fixing their own properties.

### **Developing an action plan for the existing building stock**

1. Inventory of the energy status of the properties. Energy Assessments can be used for this, where available. The entire building stock must be included to get an overview of the current situation.
2. Targets are set for the properties, both overall targets for the entire stock and specific for each property. Each property is given a designated energy manager.
3. Based on the inventory, a selection is made of properties that should be addressed in the first instance. An evaluation is drawn up showing if there are properties in the portfolio for which the measures selected can be coordinated
4. An energy plan for the property portfolio is drawn up. This specifies the properties to be addressed, with schedules for action. The energy plan must also contain check-points to ensure that the systematic tuning of the installation systems is carried out with continuous monitoring of ventilation, heating and cooling systems.
5. The energy performance of buildings must be monitored and measured each year to ensure the achievement of the set targets and monitor changes for all properties. In this connection it may be appropriate to hold joint workshops for operating staff to showcase best practices and increase levels of commitment.

For an individual property owner, one option is to make a forecast for energy use in 2020, divided into new buildings, refurbished buildings and those that are only being managed. Based on the forecast, owners can judge how much should be spent on the various parts of the property portfolio in the years leading up to 2020.

### **Roadmap for energy in construction and refurbishment**

- In the proposal stage, the requirements applying to energy usage are to be specified, these are then monitored during all project phases.
- Customers and project managers control the project so that the targets are met by ensuring that the targets and guidelines of various subsystems are followed.
- Well-designed system solutions based on LCC analysis should be applied and reported in the proposal documents and tenders.
- Energy calculations should be carried out when selecting the system and at the appropriate project phases. The calculations should be adjusted during project design as a consequence of quality inspections and changes made.
- Verification of the building's performance is to be carried out using measurements when the building is completed. Normally 3-5 years are required to fine tune new systems.
- Handover to the management and operating organization should be done systematically during the warranty period, which is 2-5 years.
- Monitoring and feedback between property managers and the construction project organization should be done on a regular basis.

### **Training and competence development**

In accordance with Section 8.3, Competences, in the Swedish National Energy Agency's Task 13, training in close-to-zero energy construction should start in upper secondary schools and universities. For those already working, training should be aligned to groups of stakeholders as below:

- Architects, design engineers, HVAC designers, consultant electricians, site foremen, construction project managers.
- Planning administrators, climate and energy advisers.
- Construction workers and assembly workers.
- Operating and maintenance staff.
- Customers, Project Managers.
- Politicians / end users.

### **Cost reduction by larger amounts**

Gather material on costs and benefits, LCC calculations, information.

Mainstream NZEB will lower costs

## **3.2 - Means within MountEE**

*Assist mountain municipalities to build and renovate buildings with sustainable and efficient solutions and renewable energy use*

### a. Advise and assistance services

The MountEE project is going to offer a series of courses, workshops and training sessions on the most important tools proposed in the strategy, including: LCC, SWEBY, Västerås modellen, BELOK-totalsystem. Different tools available in the regions will be promoted to accomplish a service package close to the system used in Vorarlberg

#### **Step 1 Preliminary planning**

- First contact with the municipality by the Building Dialogue
- Develop and implement local Energy- and climate strategies
- Implement the regional NZEB
- Dialog with municipalities about exploring and renovation of residential areas.
- Formulation of an « eco-program ».
- Decision on which system to use for choice of material (Basta, Sunda Hus, Miljöbygge etc.)
- Develop local wood construction strategies and stimulate the use of wood constructions.
- Introduction of Sveby modell. Implementation of module 1: Energy standards and specifications
- Implement regional and local Energy- and climate strategies

#### **Step 2 Optimization, tendering**

- Development of a material-, construction and energy concept using LCC-calculations
- Energy calculations using Sveby modul 2-4
- Environmental check of all call for tender documents using Sveby module 3

#### **Step 3 Realization**

- Craftsmen Information by workshops on in the pilot projects
- Approval of product declaration list

#### **Step 4 Control of success**

- Controlling the products at the building site with help of Sveby module 3

- Diverse measurements: blower door test, indoor air quality
- Control of tendering criteria in accordance to recommendation of Miljöstyrningsrådet (MSR).

#### **Step 5 Management and maintenance**

- Implementation of Sweby modell.
- Workshops for exchange of experiences

#### b. Adapted funding policies (describe shortly)

Since no funding subsidies exist in our county, the MountEE project is helping municipalities to apply systems that make it easier for politicians and housing responsible to grasp the economic impact of energy saving measures. The project will use and improve the following models: LCC, BELOK, Västerås - modellen. Expert meetings on EPC will be held.

#### c. Cooperation committees to involve all actors of the building chain (describe shortly)

In continuing efforts to promote the number of low-energy buildings in Dalarna, the strategy proposes the Byggdialog Dalarna to function as the hub. The Byggdialog Dalarna is also the MountEE cooperation committee

The RCC will work for targets and sub-targets to be adopted and followed up, that targets are communicated to local authorities and other stakeholders in the construction and property sector, that tools to monitor work on improving energy efficiency are developed and that the strategy is reviewed annually and revised.

#### d. Pilot projects

5 pilot projects have been selected where the following methods and tools suggested in the strategy will be used and tested:

LCC, BELOK, SWEBY

### **3.3 – Time schedule and milestones**

The NZEB-strategy Dalarna is in a review process.

The strategy will be adopted in may 2012 by the Building Dialogue and will after that be used as a policy document in all activities arranged by MountEE-project and Building Dialogue.

The core content of the strategy will be presented in all activities arranged by MountEE and Building Dialogue

Time schedule:

Adopted spring 2013.

Communication of targets and tools: Autumn 2013

Test and development of tools: 2013-2015

Training and competence activities: start June 2013

Follow up and adjustment: spring 2015

#### **4) Medium and long term vision of the strategy (1/4 page)**

In the next years and after MountEE project, what would be expected: generalization of sustainable public buildings ? Extension of the strategy to social housing or to private buildings ...

The Swedish Government will elaborate a national strategy for new NZEB buildings in 2015. The national targets will probably have great similarity to our strategy. So the existing strategy for Dalarna will hold over time but will need to be revised annually. The strategy includes private, social and public buildings and can be used by the whole building sector.

The big work and challenge is to establish action plans and a good follow up work that can be communicated.

#### **5) Partnership, key actors**

The Building Dialogue Dalarna (MountEE RCC), a partnership of the whole building chain, authorities and municipalities that developed during the recent 7 years has taken initiative to this strategy and will be responsible for implementation and follow up together with the County Administrative Board.

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### Work Package 3: Regional Strategy

# D 3.3 DESCRIPTION OF REGIONAL STRATEGY - SUMMARY

**REGION / LOCAL AREA CONSIDERED:  
COUNTY OF VÄSTERBOTTEN AND NORRBOTTEN**

**REGIONAL STRATEGY SUBMITTED BY:  
NENET, NORRBOTTEN´S ENERGY AGENCY**

Nenet Norrbotten´s Energy Agency  
Silva Herrmann, Wolfgang Mehl  
May 2013, Update September 2013



## **1) Description of the context<sup>1</sup>**

According to the EPBD, all new buildings and existing buildings undergoing major renovation have to meet 'very high energy performance' standards. Member States are not obliged to set minimum requirements for energy performance of buildings which are not economic.

On 1 January 2012 the energy requirements in the building code for new buildings became tougher in Sweden. The change means increased requirements by about 20 % on the specific energy consumption (kWh per m<sup>2</sup> per year) and average thermal insulation (W/m<sup>2</sup>K) compared to the former building code.

In the Action Plan "Nearly zero-energy buildings (2012)," the Government concludes that an implementation of the concept of near-zero energy building demands stricter Swedish building code requirements on energy compared to now. But it also says that today there is insufficient evidence to indicate a quantified approach on how far-reaching tightening might be necessary. In January 2013, the National Board of Housing, Building and Planning delivered a report "Optimal costs for energy efficiency – Basic data for the implementation of the European Parliament and Council Directive 2010/31/EU on energy performance of buildings." In summary, it says, that the new building regulations meets in almost all cases the requirements of the Directive on the basis of what is technically and economically justified by Sweden's national conditions today. In terms of renewable energy supply for buildings, the Board refers to the high share of RES in the Swedish energy mix complemented with regulations promoting the use of RES in the building code. But the Board agrees that rules should be tightened when the conditions change and the changes are justified.

However, the Action Plan states that the Government needs to check conditions and status-quo again in 2015. Until then, several promoting activities will be implemented to increase knowledge and experience across Sweden and to reduce costs for a final implementation of the directive. This includes pilot and demonstration project in all parts of the country, incl. follow-up measurements and documentation. For Northern Sweden, the maximum energy demand is set to 106 kWh/m<sup>2</sup>. The government will provide 120 million SEK per year 2014-2016 for pilot and demonstration projects.

### **1.1 Counties of Norrbotten and Västerbotten: work on energy and climate strategies**

Since 2008 all county administrative boards in Sweden have been commissioned by the government to cooperate with other regional and local actors in order to produce regional strategies for climate and energy policies. The administrative boards have a key function in implementing the government policies on climate and energy in Sweden. In 2010 this role was further emphasized by the government when targeted

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<sup>1</sup> See also: Swedish Energy Agency: Energy Efficiency Policies and Measures in Sweden, ODYSSEE-MURE 2010, Monitoring of EU and national energy efficiency targets, 2012

funding for this activity was introduced as a part of a five-year programme for energy-efficiency.

In Norrbotten County, work with a regional energy and climate strategy started already 2006 and resulted in the Energy Strategy for the County of Norrbotten and the Climate and Energy Strategy for the County of Norrbotten, followed-up by an Action Plan in 2009. The first action period has ended and a new Action plan has been for the period 2013-2015. The three priorities are: Sustainable Growth, Sustainable Urban Planning and Sustainable Transport.

The County of Västerbotten presented its new action programme in 2012 with about 200 different measures targeting municipalities, government agencies, businesses, organizations and individuals who want to make a difference and contribute to a society in the next generation, where the main environmental problems are solved. The programme consists of six focus areas, including "Sustainable urban planning, construction and management

## **1.2 Municipal energy plans and climate strategies**

Local authorities have an important role in the energy and climate. Under Swedish law, each municipality to have an updated energy plan. Sustainable buildings are a natural part of an energy and climate strategy. Nowadays, more and more municipalities are joining the EU Covenant of Mayors and develop action plans for sustainable energy. At present, 7 municipalities in the counties have signed the Covenant of Mayors.

## **2) Description of the objectives**

In March 2009 the Swedish Government presented a coherent climate and energy policy which lay the foundation for the future efforts that need to be made in order to contribute to a stabilisation of the greenhouse gas concentration at a level that enable the 2 degrees Celsius target to be reached. Sweden's targets for climate and energy policy by 2020 are:

- 40 per cent reduction in greenhouse gas emissions
- at least 50 per cent renewable energy
- 20 per cent more efficient energy use
- at least 10 per cent renewable energy in the transport sector

The target of a 40 per cent reduction in greenhouse gas emissions relates to the non-trading sector, i.e. sectors not encompassed by the EU Emissions Trading Scheme.

Sweden has also set a national goal concerning energy use in buildings. The total energy use per unit of area in residential and commercial buildings should be reduced by 20 % to 2020 and by 50 % to 2050 compared to 1995.

### 3) Means to reach the objectives

#### 3.0 Level of ambition

New production

Energy efficiency (no direct electric heating)

|         | Standard | Pilot MountEE          | Best                   |
|---------|----------|------------------------|------------------------|
| Concept | BBR 19   | -30% compared to BBR19 | -50% compared to BBR19 |

Building materials

|          | Standard         | MountEE | Best      |
|----------|------------------|---------|-----------|
| Concept: | According to law | BASTA   | Sunda Hus |

Renewable Energy

|         | Standard          | MountEE  | Best  |
|---------|-------------------|--|---|
| Concept | According to law. | Heating more than 50% renewable, electricity more than 40% from renewable sources. | Energy demand covered by 100% renewable energy sources. |

Additional process and management criteria to take into account

- 1) Development and implementation of a quality and environmental programme for project
- 2) Integration of community planning aspects, e.g. regarding transport
- 3) Test of special methods (BELOK, LCC)
- 4) Integration of social dimension of sustainability
- 5) Integration of users, e.g. reg. trainings on energy

## Renovation of entire building

|                    | Standard | MountEE                        | Best                           |
|--------------------|----------|--------------------------------|--------------------------------|
| Energy             | BBR 19   | At least -30% of energy demand | At least -50% of energy demand |
| Building materials | BBR 19   | Basta                          | Sunda Hus                      |

## Renovation of parts of the building, criteria list

- 1) Development and implementation of energy and climate concept/programme
- 2) Test of special methods (BELOK, LCC)
- 3) Use of new renewable energy sources (e.g. solar)
- 4) Integration of users (change of behavior)

### **3.1 Integration in local politics/climate plan/Sustainable Energy action plan**

All Swedish municipalities are obliged to have an updated energy plan. More and more municipalities are also joining the Covenant of Mayors. However, specifically smaller municipalities often do not have know-how and capacity to work intensively with energy questions. Complex projects in terms of energy efficiency and renewable energy programs for public buildings are often affected by this.

Collaboration with ambitious municipalities to transfer experience and knowledge could be helpful to give more power to local energy plans and to realize pilot buildings.

Of certain importance is the cooperation with regional and local district heating companies, which very often are owned by municipalities. These companies work on energy efficiency programs but often there is an economic interest NOT to reduce energy consumptions of the main customers (municipality, public housing companies etc.). It is decisive that the public owner is securing clear orders that energy efficiency is a crucial task for the company.

### **3.2 Means within MountEE**

#### Advice and assistance services

- Transfer experience and know-how of international partner and regions within the project MountEE to municipalities and further stakeholders in Northern Sweden;
- Training and capacity building for building companies to ensure that qualified staff is available for building companies;
- Increase knowledge in terms of public procurement rules regarding building projects for building owner;

- Improve collaboration and understanding between public building owners and building companies to push for truly economic, social and environmental building projects.

#### Training activities

- Capacity building for regional and local public entities is of high priority. If public entities purchase sustainable buildings the building sector will step by step improve know how and capacity to deliver what is requested.
- Even architects should be included in training programs. Often design is prioritized compared to environmental and energy-related issues. This is crucial for the successful implementation of the strategy.

#### Adapted funding policies

- Not sufficient funding for ambitious NZEB projects is one of the major problems for Northern Sweden. There are no general subsidies or grants that are tailored for sustainable construction on low-energy or passive house standard in Sweden, neither is there political will to establish such general and comprehensive funding schemes for sustainable public buildings at the municipal level in the near future.
- According to the assessment of the Norrbotten and Västerbotten RCC, Nenet and the County Administration Board in Dalarna are the necessary changes within the existing instrument too big – it would be kind of a system change – to be realized. By contrast, the Swedish MountEE partner and the regional RCC see a much greater potential to promote the general use of tools like LCC, BELOK (for renovation), eco-compliance systems and similar instruments that are not mere subsidies.
- However, the Swedish government has allocated 120 Mio SEK for 2014-2016 for NZEB pilot projects. Nenet will in cooperation with the RCC support development of ambitious pilot projects in the region and will work for access of funding to ensure that results from realization and follow-up of these projects becomes a basis for further work on NZEB in Sweden.

#### Cooperation committees to involve all actors of the building chain

- The regional coordination committee which has been established within MountEE project is an important meeting point for the relevant stakeholders in the region. It is also an important pillar in the regional implementation of the MountEE activities and thereby the link between international experience and local action. The committee will be developed further, and shall continue working after the project duration including representatives of both counties.
- Nenet as regional energy agency is committed to actively build networks and collaborate with building stakeholders both in the private and the public sector. Nenet will also be the region's link to the national level with regard to sustainable building questions.
- The work done within MountEE has shown that cooperation with the regional research institutions and most of all the regional universities in Umeå and

Luleå (LTU) are of high importance for the regional implementation work. Both universities were active members of the RCC and have delivered high-level research results regarding sustainable building in cold climate.

#### Pilot projects

- In 2015, the Swedish government will evaluate the status-quo regarding NZEB buildings and the promotion activities implemented until then. Results from the 5 MountEE projects will be an important input to the government's revision and future strategy regarding NZEB.
- Nenet will in collaboration with the RCC support the development of ambitious NZEB projects that are qualified to get financial support from the government as part of the newly created funding programme;
- Nenet will in collaboration with the RCC promote experiences from the 5 MountEE pilot projects to further stakeholders in the region.

### **3.3 Time schedule and milestones**

#### Advice and assistance services

- Nenet has in collaboration with the RCC developed and implemented at least 5 regional and 1 national trainings for building companies and public building owners between 2013 and beginning of 2015.
- Nenet ensures counselling, experience exchange and information towards municipalities based on MountEE results and recommendations.

#### Adapted funding policies

- Nenet has in collaboration with the RCC worked further on promotion and dissemination of LCC, Belok etc instruments to regional stakeholders. This work is going to continue after the completion of MountEE project work.
- A seminar on Funding Instruments to which both municipalities and Funding Institutions were invited for intensive discussions was organized on 21 November 2013 in Luleå.

#### Cooperation committees to involve all actors of the building chain

- Nenet has met and will even in the future meet, discuss and collaborate with regional authorities to include sustainable buildings as well as results and experience from MountEE in regional planning and strategies:
- Nenet will even after the end of MountEE project activities work for integrating sustainable building as one major field of activities in local and regional energy and climate strategies.

#### Pilot projects

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the 5 MountEE projects will be an important input to the government's revision and future strategy regarding NZEB.

- Nenet will in collaboration with the RCC support the development of ambitious NZEB projects that are qualified to get financial support from the government as part of the newly created funding programme;
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#### **4) Medium and long term vision of the strategy**

The meaning of the regional strategy is to reach the agreed energy, climate and environmental targets and to push for NZEB by working together with the most important stakeholders in the both counties Norrbotten and Västerbotten.

In its Action Plan "Nearly zero-energy buildings" the Government confirms the need to check conditions and status-quo regarding sustainable NZEB buildings in Sweden in 2015. Until then, several promoting activities will be implemented to increase knowledge and experience across Sweden and to reduce costs for a final implementation of the directive. This includes pilot and demonstration project in all parts of the country, incl. follow-up measurements and documentation. The government will provide 120 million SEK for the period 2014-2016 for pilot and demonstration projects.

It will be decisive for the future of NZEB development in Sweden to transfer international experience also to Northern parts of Sweden, and even to implement sound pilot projects that will feed in into the next evaluation of the implementation of the building directive. The regional strategy will bundle efforts in the Counties of Norrbotten and Västerbotten and will thereby be a chance to give this regions a voice on the national level while at the same time create a momentum for regional energy transition.

The strategy will contribute to overcome barriers and problems mentioned above and thereby reduce also energy costs for the public sector. This opens up for spending money for developing the counties in a positive sense. The strategy is aiming at supporting SMEs and local authorities to collaborate and to develop the region to become leading in NZEB buildings, specifically when it comes to wood buildings.

The public sector is of high importance in Northern Sweden, and municipalities are also big players via their housing association on the housing market. If municipalities will go ahead with NZEB and will be forerunner, chances are good that even private house builders will follow. Both Gällivare and Kiruna are meeting big challenges due to the need to move big parts of the cities to other places due to mining, but this includes also big chances. The strategy will also support these municipalities in their work for a sustainable future.

## **5) Partnership, key actors**

Netet as regional energy agency is the regional energy competence centre owned by municipalities and the County Council Norrbotten. Further stakeholders are:

### **5.1 Regional authorities, contribution through**

- Strategy building
- Coordination between players
- Link to the national level
- Funding

Main regional players

- County Administration Board
- County Council
- Region Västerbotten
- Association of Local Authorities

### **5.2 Research institutions, contribution through**

- Research
- Link to international and to business contacts

Main regional players

- Luleå University of Technology
- Umeå University

### **5.3 Municipalities, contribution through**

- Being building owners
- Regulating authorities regarding land-use planning
- (Often) owner of energy production plants
- Offer counseling for SME on energy

### **5.4 Funding institutions, contributing through**

- Developing funding schemes
- Implementing funding schemes

Main regional players

- County Administration Board



- Banks

### **5.5 Building companies, networks of and for building companies, contributing through**

- Demanding trainings resp. implementing projects
- Realizing projects

MountEE: Energy efficient and sustainable building  
in European municipalities in mountain regions  
IEE/11/007/SI2.615937

# D 3.3 : DESCRIPTION OF REGIONAL STRATEGIES – UPDATE DECEMBER 2014

Partner : RhônAlpénergie-Environnement (in collaboration with ASDER et AGEDEN)

And

- Métropole Savoie,
- Communauté de communes du Grésivaudan,
- Communauté de communes de l'Oisans



## 1) Context

The municipal elections in March 2014 has generated important changes. 75% of the elected people has been changed.

On the other hand, the discussions concerning the national Energy Transition Law raise the power of local authorities on energy aspects.

So the last months of 2014 have been used to explain, share and discuss the stakes and the objectives of the local strategy regarding sustainable construction in public buildings.

## 2) Sustainable building objectives - Vision of medium and long-term strategy

The new Law on energy transition is still in discussion but it will bring two major points :

- Local authorities will have more responsibilities regarding buildings
- The national objectives concerning energy performance of the buildings will be shared at local level

Local authorities will have to set up local strategies to reduce drastically the building consumption especially on public buildings.

This was the MountEE objective and the involved territories are now in advance on this subject.

The strategy model elaborated in MountEE project gave good results and can now be promoted. It must include at least three dimensions:

- Simple set of technical objectives : at least low consumption, eco-materials and renewable energies
- Exchanges/share with all building chain actors : LCC and in project revues
- Give advises and accompany public project with a service package
- And if possible subsidies linked with the technical objectives

The new elective people have understood this and decided to continue the work initiated in the framework of the MountEE project.

## 3) The means to achieve the objectives

We are now working to find a way to include the strategy elements in the local activities and budgets:

- Information and coordination of the local actors
- Subsidies linked with the technical objectives
- Service package

Concerning the first point, we hope to include this coordination in the SEAP of the territories. For the second point, the FEDER and regional subsidies are now linked with energy efficiency criterias.

Concerning the service, we are working to include the sustainable building service package within the Energy service some territories already have for municipalities. The most important difficulties to overcome now are:

- to define the price of the service;

- to define the best organization to offer the service;
- to convince the municipalities that it is worth to pay such service and for the moment the assistance will be proposed for free;
- to ensure that the current energy adviser have sufficient skills to ensure such accompaniment and we will organise in the next month some exchanges and specific training for them.

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## D 3.3: DESCRIPTION OF REGIONAL STRATEGIES

**UPDATE APRIL 2015**

Partner : Natural regional park of Pyrénées Catalanes

Regional strategy submitted by: PNRPC



## **1) Context**

The municipal elections in March 2014 had implied several changes in the decision makers. These changes had partly jeopardized the implementation of the sustainable building strategy, since new elected representatives had to be convinced.

On the other hand, the discussions on the national Law for Energetic Transition raise the awareness of the local stakeholders concerning the stakes of sustainable building.

## **2) Sustainable building objectives - Vision of medium and long-term strategy**

The strategy defined within MountEE had proven its efficiency. The pilot-projects realized allowed a test of the strategy and the means to implement it.

To resume, the strategy should include 5 dimensions :

- raising awareness of the region with know-how transfer and capacity building activities, including exchanges between the several project owners and the other stakeholders of the building chain
- the definition of sustainable objectives : energy efficiency, use of eco-materials, renewable energies
- the development of the local economy (use of local materials, local craftsmen, etc.)
- the support of public projects with the service package
- subsidies to help public project owners to reach ambitious sustainable criteria.

Local stakeholders who were part of the Regional Cooperation Committee confirmed that these several points should be the core of the strategy.

## **3) The means to achieve the objectives**

With the new Law on Energetic Transition and with the capacity building activities carried out through MountEE, the importance of the stakes related to sustainable building has increased in the local awareness of decision makers. Besides, new financial tools are available : the regional natural Park of Pyrénées catalanes has won a national call for initiatives, and thus obtained a 500K€ subsidy to carry out actions for energetic transition. This subsidy will mainly be used for sustainable building in public and private sector. This will allow the maintain of the service package.