Intelligent Energy – Europe (IEE)

Annex I

Description of the Action

Full title of the project: **The Total Concept method for major reduction of energy use in non-residential buildings**

Acronym of the project: **TOTAL CONCEPT**

Contract N°: *(to be completed by EACI)*

Duration (in months): 36

Coordinator name/ organisation/ e-mail/ telephone number:
Åsa Wahlström
CIT Energy Management AB
asa.wahlstrom@cit.chalmers.se
telephone: +46 767 699366

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1. Summary

(a) Abstract

Improving energy efficiency and decreasing the total energy needs in the building sector has been on the agenda during the last decades in most of the European countries. The ambitious vision for energy performance of European buildings requires that all new buildings shall be "nearly zero-energy" buildings by the end of 2020. However, this means that the rate of increase of energy needs in the building sector will be lower, but the total energy needs will not be less. Consequently, in order to reach the 20-20-20 EU-targets it will be essential to dramatically lower the energy needs in a large proportion of existing buildings. To increase the ambitions by the building owner´s to make refurbishment towards nearly zero-energy buildings.

Previously completed energy retrofitting projects in existing non–residential buildings in Sweden have shown that it is relatively easy to identify a number of individual measures each of which can reduce energy needs in a building. Although some of these can be carried out at little cost, the measures that significantly reduce energy needs often entail considerable investments. In practice, this means that if the measures are to be carried out then they would have to comply with the property owner's or client's terms and conditions for long–term investments.

Up till now, there is very little support provided to the building owners regarding how to make the best investment decisions in order to improve the energy performance of their buildings and save running costs. The decisions are often based on profitability of single measures, whereas the feasibility is often evaluated by simple economical methods which do not take account the life time of the total investment/technical systems nor often even the changes in energy prices. With this approach only the very profitable measures are commonly considered and carried out, leading to rather modest energy performance improvements in existing buildings.

In order to overcome this obvious risk a new and innovative working method, called the Total Concept, has been developed and successfully applied on a limited number of non-residential buildings in Sweden. The results from these pilot projects show that it is possible to achieve energy savings up to 50-70 % in the existing building which in some cases are down to nearly zero-energy buildings and in some cases are a large step towards nearly zero-energy buildings. This is done within the profitability frames, expressed as expected internal rate of return for the investment, set by the building owner. The basic idea with the Total Concept method is to form and implement a package of energy saving measures that together fulfil the profitability frames set by the building owner, who takes the investment and carries out the measures. The Total Concept method includes the economic realities a building owner has to take into account, while at the same time increase the ambitions and make it possible to come much further with the energy savings than with traditional methods.

The TOTAL CONCEPT project aims to test, adopt and promote the Total Concept method in the participating countries by taking into account each countries local condition and the possible non-technical barriers. Additionally the project aims to show that larger energy performance improvement projects in existing non-residential buildings can meet the demands of profitability set by the building owner and thereby become a market driver for larger energy saving project in the participating countries. Information about the methodology of Total Concept will be spread through practical experience, good examples, relevant trainings and workshops to the different key actors and stakeholders including property owners/investors both in the public and private sector, property managers, energy consultants, architects, contractors and product suppliers, local and national authorities, etc.

The proposed action responds to EU objectives, and particularly IEE 2013 Call priorities, to support the major refurbishment of existing buildings towards Nearly Zero-Energy Buildings. The action thereby will tackle one of the major non-technical barriers aiming building owners both in the public and private sector to take decisions, to increase their ambitions and go forward with performing profitable packages of energy saving measures which will lead to nearly zero-energy buildings. The

action also responds to the need of professional training both on technical and management level by providing relevant support and knowledge transfer to different stakeholders.

The proposed action is focusing on countries in northern Europe since they have similar needs in terms of climate conditions, technical solutions and policy strategies to adopt energy efficiency measures in existing non-residential buildings. The potential for implementing profitable packages of energy saving measures in the non-residential sector is high and working together with a common approach will lead to major repeatable results over this region than acting locally. Thereby a reliable market driver for renovation will be established. The results of the proposed action will also have a high value for countries beyond the target regions as it will set relevant and good examples for major retrofitting projects and preparation for further uptake over European will be planned within this project.

(b) Major outputs & expected results

The strategic objective of this action is to considerably reduce the energy demand in the sector of existing non-residential buildings and thus contribute to European 20/20/20- target by 2020. Through the activities undertaken in this project more building owners/investors, in public and private sector, are active in realising major energy performance improvement in non-residential buildings.

The main outputs of this project are:

- Detailed information, guidelines and a tool-kit available for the Total Concept method implementation, targeting the different stakeholders and key actors in the participating countries. Recommendations for Total Concept method implementation on European scale are made.

- Demonstration of refurbishment with cost efficient larger energy performance improvement in existing non-residential buildings based on Total Concept method. These pilot studies respond to the market barriers of the stakeholders (e.g. finding cost efficient solutions for major decrease in energy use). Action packages based on Total Concept method are developed for about 15-18 existing non-residential buildings. A practical implementation of developed action packages will be carried out in about 6-8 demonstration buildings.

- Practical know-how is transferred to the stakeholders and key actors, new knowledge is made available and replication is stimulated. National training courses are carried out and at least 500 stakeholders and key actors will be trained within the project. After the project, these training courses are expected to continue as self-financed events organized by the trade associations and local institutes.

- High level dissemination activities, including promotion, seminars and Total Concept workshops/meetings for the stakeholders and key actors for implementing the Total Concept in the participating countries. Within the project a participation of at least 700 stakeholders to these events are expected.

- A plan for further dissemination on national and European level beyond the project frames.

The expected results are:

- Implementing Total Concept method opens up new opportunities for property owners to carry out major energy performance improvement retrofitting in a profitable way and thus create a market driver for major refurbishment of existing buildings towards Nearly Zero-Energy Buildings.

- Resolving one of the main non technical barriers for finding economically profitable solutions for investments for energy performance improvements in the non-residential building sector.

- Increased awareness and competence among the different stakeholders to continuously work with the energy issues related to the building performance on both short and long term scale.

2. Overview of the Starting Point of the Proposed Action

(a) Common important user needs and market barriers

In order to reach the 20-20-20 EU-target and to decrease the total energy use in the building sector it is a fact that the existing European building stock must make energy performance improvements. A number of measures need to be carried out in order to accelerate the refurbishment of existing buildings towards Nearly Zero-Energy Buildings. Additionally, awareness and know-how need to be raised among the different stakeholders involved in the process chain of improving energy performance of the building so that the desired results and expected energy savings are achieved. The important stakeholders involved include property owners/investors both in the public and private sector, property managers and maintenance staff, energy consultants and design engineers, architects, contractors and product suppliers, building users, etc.

In the newly recast directive on the energy performance of buildings (Directive 2010/31/EU), there is a demand that the member states are to undertake the measures needed to ensure that when buildings undergo a major renovation, the energy performance of the building, or the renovated part of the building, is improved so that it meets the minimum requirements regarding energy performance to the extent that this is technically, functionally and economically feasible. The requirement is to be applied to the renovated building, or the renovated unit, as a whole. However, today no appropriate tools are available for the building owner to make the evaluation of the economically feasibility. Often simple economical methods, e.g. simple payback method, are used resulting in that only limited improvements of the energy performance will be feasible. There is a need for a method that consider both the changes in price levels and the economic lifetime of the investment and that can show that the investment will give reasonable return.

The directive (Directive 2010/31/EU) also requires that the member states are to stimulate the transformation of buildings that are being renovated into nearly zero-energy buildings. However, in order to stimulate renovation down to nearly zero-energy levels new calculation models and tools are needed to show that the complete renovation will be economically feasible within the building owner´s profitability frames. This can be done with a method that considers packages of measures instead of evaluation of every single measure.

Furthermore, in order to accelerate the refurbishment of existing buildings towards Nearly Zero-Energy Buildings a method is needed that shows the profitability advantages with the energy improvements as such. The directive requirements states that major energy improvements need to be done when the building need to be renovated due to other specific reasons. However, in many cases the profitability advantages with improved energy performance are the main reason to perform a refurbishment and this need to be shown with new methods or tools. Only in this way the refurbishment rate can be increased due to advantages of improving the building's energy performance towards nearly zero-energy as a market driver.

There are a number of non technical market barriers influencing the renovation rate in non-residential building sector. These include for example lack of financial support and good business models supporting the investments, difficulties to find profitable measures to be carried out, fear among investors of carrying out long-term investments, etc. Some of these barriers differ from country to country and need to be analysed in detail as well as finding methods to overcome them.

Up till now, there is very little support provided to the building owners regarding how to make the best investment decisions in order to improve the energy performance of their buildings and save on running costs. The decisions are often based on profitability of single measures, whereas the feasibility is often evaluated by simple economical methods, e.g. simple payback method, which does not take account the life time of the total investment and technical systems nor often even the future changes in energy prices. With this approach there is a great risk that only the easy measures, “the low hanging fruits”, will be carried out while a number of possible measures with great energy saving potential will be overlooked. Furthermore, this way of working leads often to energy savings no more than twenty

percent as maximum. In order to reach the target of 20% energy reduction until 2020 it is necessity that each building, when carrying out measures, makes an energy performance improvement of 50 % and more.

In order to overcome this obvious risk and motivate real estate owners to make major investments for energy performance improvements in their buildings a new method, called the Total Concept, has been developed and successfully applied on a limited number of non-residential buildings in Sweden. The Total Concept is an energy efficiency improvement method based on an action plan comprising a package of measures which meets the profitability conditions stipulated by the property owner. The prerequisite for attaining profitability is that the whole action package is implemented in its entirety. With the Total Concept profitability options is highlighted which will increase the building owners ambition in order to reach energy improvement levels of 50% or more towards nearly zero-energy buildings.

The method focuses on achieving maximum energy saving in the building within the profitability frames set by the building owner, who carries out the investment. The basic idea with the Total Concept method is to have a holistic approach in the process of improving buildings energy performance and that there is good knowledge and awareness among the different stakeholders and key actors about their roles and responsibilities. The basis of the procedure is a comprehensive audit carried out in the building, whereas the building's energy certificate contributes to the identification of possible energy saving measures. It is not a question of only the apparently most cost-efficient measures, but all measures that may have a reasonable energy saving potential. The cost of every measure and its energy saving is estimated and a "package" of measures is formed, that *as a whole* fulfils the profitability criteria of the building owner. The profitability is decided by the internal rate of return of the *whole* package of measures that must be higher than the required minimum internal rate of return set by the building owner. The economical methods applied to evaluate the profitability of the investments needed take into account both the changes in price levels and the economic lifetime of the investment. In this way the ambition levels of the building owners aims to be improved as it is shown that it is economically feasible to reach nearly zero-energy buildings. This will not be possible for example with simple pay back methods.

With this way of working, where the "package" of measures is carried out instead of just making the first very profitable measures provides the major benefit in terms of achieving much more energy savings within the profitability requirements of the real estate owner. The most economically profitable measures will assist the less profitable measures. In this way it will be possible to show that a major reduction in energy use towards nearly zero-energy buildings will be economically feasible, which will help to improve the ambition of the building owner.

Furthermore the national definitions of nearly zero-energy buildings in several countries do not include tenant´s electricity use. With the total concept all energy improvements are considered which means that profitable measures for reduction in energy use for tenant´s activity purposes may be used in order to cover for less profitable measures that are needed for example in the building envelope. By considering the whole package it will be possible to reach nearly zero-energy buildings levels that otherwise would not be possible.

The evaluation of the profitability according to the Total Concept method is illustrated in Figure 1. The diagram gives the *Investment- Annual savings* diagram. In such a diagram an energy saving measure that implies a certain cost *€* and results in a certain decrease in the annual operation cost *€/a*, can be represented by a line with a certain length and slope. A package is formed, by arranging the different energy saving measures after profitability. The number of energy saving measures that will be included to the "package" is defined by the investment requirements set by the building owner in terms of required internal rate of return for the investments.

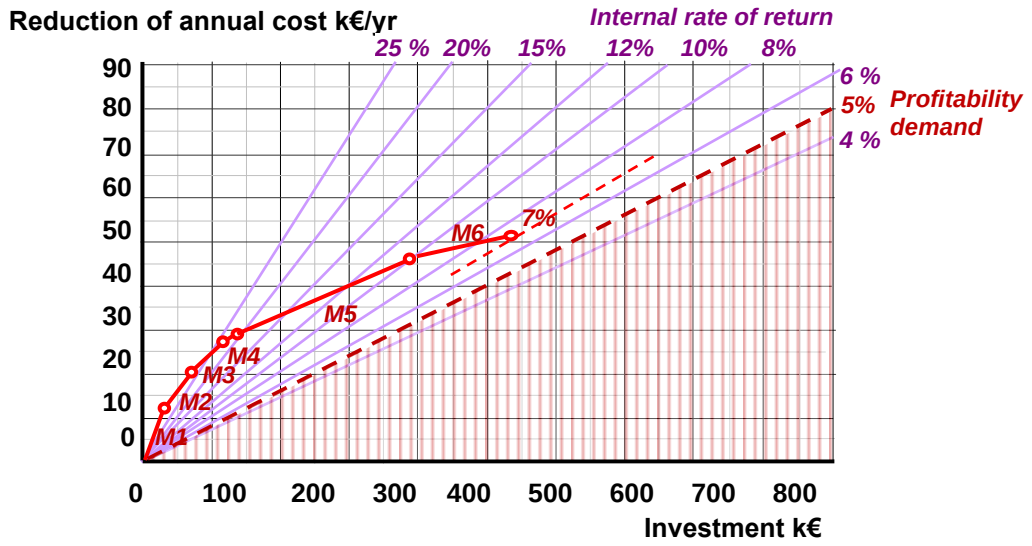


Figure 1 Energy saving measures in the *Investment - Reduced annual cost* diagram, with six plotted measures (M1-M6). The property owners' profitability requirement for the investment is an internal rate of return of 5%. The whole package of measures in the example gives an internal rate of return of 7% which means that the whole package will be carried through with a saving of up to 70% of the building's energy use. When considering the profitability of single measures only the first three measures would have been performed and the savings would only have been up to 30% decrease of the building's energy use.

The development of this working method has been carried out within the BELOK group. BELOK is a network between 17 dominating Swedish non-residential real estate owners who in total manage about 25 percent of the Swedish non-residential building stock. The initial project to apply and develop the Total Concept was started up in five office buildings six years ago by BELOK. It has now extended to a number of other types of non-residential buildings, i.e. school buildings, hospitals, museums. In addition, a number of municipalities have begun, or intend, to test it. So far, comprehensive action packages of energy efficiency measures have been drawn up for 18 properties. In a number of these, the packages are still being implemented. In others, the packages have been carried out and energy use is now being followed up.

The results from the demonstration buildings in Sweden indicate that with the Total Concept method, it seems to be possible to obtain a cost efficient decrease of energy end-use by 40-70%, which in some cases is improvement down to nearly zero-energy buildings and in some cases are a large step towards nearly zero-energy buildings. For example in the first Total Concept project that has been completed the energy use was cut from 180 kWh/m^2 per year to 80 kWh/m^2 per year and the energy costs for the more than 8000 m^2 building were reduced by 58 000 € per year. The follow-up work that was carried out during the first year after handover confirmed that the action package had been profitable, providing an internal rate of return of around 13 %. Furthermore, the main benefit according to the technical departments in the real estate companies is that with the Total Concept method they got means making it possible to convince the economical department and the top management in the company to take the decisions of larger investments and improve the company´s ambitions to strive towards nearly zero-energy buildings.

Based on the reference projects in Sweden the investments needed for carrying through a package of measures that can lead to the 40-70% decrease in energy use, are relatively high, often 60 – 80 €/m^2. For a 10 000 square meter building it is a question of an investment of 600 000 € to 800 000 €. A prerequisite for a decision by the building owner to carry through such an investment is that the estimated costs and energy savings are reliable. The Total Concept method requires, as does any energy project, a systematic approach and professional execution. For attaining the desired results it is

essential that careful consideration and implementation is given to all of the working moments needed and that the roles and responsibilities of different actors are well defined.

Testing the Total Concept method in Sweden has shown that it is very important to establish a good cooperation and know-how transfer between the different stakeholders involved. Good insight into, and understanding of, the method is required of property owners and their consultants, suppliers and contractors. One way to assure this is by creating suitable training material for the application of the method, with a part containing accessible information for all stakeholders and another part that goes deeper into the technical aspects concerning the practical application of the method, including calculations and financial assessment.

The proposed action responds to EU objectives, and particularly IEE 2013 Call priorities under 10.4.1 *Energy efficiency and renewable energy use in buildings*. The action supports the major refurbishment of existing buildings towards Nearly Zero-Energy Buildings by tackling the non-technical barriers aiming building owners both in the public and private sector to take decisions, to increase their ambitions and go forward with performing profitable packages of energy saving measures. The action also responds to the need of professional training both on technical and management level by providing relevant support and knowledge transfer to different stakeholders. The action aims to develop the tools needed for the successful implementation of Total Concept method so that the desired results in the process of improving energy performance in the building can be achieved.

(b) Current situation <u>in the target countries/regions</u>:

In **Sweden** the non-residential sector in Sweden annually use about 24 TWh of heating energy and 15 TWh of electricity. Non-residential buildings accounts for 25 % of all buildings in Sweden and are about 145 millions square meters. About 56 % are public owned while 44 % are private owned. Many of the buildings have saving potentials of over 50 %. Only a few energy saving measures are done within the private sector without consideration of a possibilities of a larger energy saving with packages of measures. In the public sector the pressure to actually save energy is larger resulting in that the "low hanging fruits" will be performed that will ruin the economical conditions of performing larger energy saving measures in the future. There is an immediate need to have a method that can show the economical benefits of performing packages of measures such as the Total Concept method.

In **Denmark** energy efficiency is one of the central objectives for non-residential sector. The challenge lies in constructing sustainable and low-energy buildings and at the same time achieving healthy, comfortable, accessible and safe indoor environment. The existing stock is however, far from the currently discussed low-energy standards. Therefore, the non-residential building sector is facing major renovation projects in the coming years. These renovation projects will include renovation of both the building envelopes and the technical installations.

Characteristics of the non-residential buildings sector in Denmark shows that the non-residential buildings represent 26.6 % of total building stock and 46.3 % of the total floor area (EPA-NR, 2007). Despite the fact, that the new Danish Building Regulations, BR10, contains more strict energy requirements for both new buildings and buildings that are undergoing renovation, there are still a number of challenges in order to meet the requirements of energy in the Danish Building Regulation (BR 10).

Previous study found that the lack of measuring, monitoring and benchmarking of important sustainable indicators is one of the main challenges to achieve the goal of a sustainable building[1]. A guideline developed in order to help the client to plan how to implement these indicators into the project and also how to check the indicators both during planning, building and operation phase. There is a need for a tool that minimizes energy use in the building by using different renovation measures while keeping good indoor environment.

The situation in **Norway** is, like in Sweden, influenced by the Energy Certificate procedure. The non-residential sector annually use about 37 TWh in total of which 26 TWh is electricity. Electrical heating

is common in existing buildings due to low electricity prices in the past. The potential for energy saving estimated to 6,5 TWh by 2020, 15,8 TWh by 2030 and 26,2 by 2040 based on a retrofitting rate 1,2 % of the total non-residential building stock. *(Kommunal- og Regionaldepartementet, 2012, Stortingsmelding 28- Gode bygg for eit betre samfunn).*However, several on-going retrofitting projects do not include economically beneficial energy saving measures, showing the need for improved tools for decision-makers.

In **Finland,** the non residential property sector consumes approximately 40 TWh, of which industrial property consumes approximately 14 TWh energy per annum. There are some sectoral energy saving framework contracts, including one for office buildings. Industry and retail buildings belong to the respective energy saving framework contracts. Property owners who have participated in energy saving framework contracts or otherwise aim to reduce energy consumption in a structured way struggle in two aspects: achieving the required scale of savings, and identifying the savings in the portfolio in an efficient manner. Utilizing a tool such as the Total Concept is a welcome opportunity that allows "squeezing until the lemon is dry", so that once a property has been truly optimized it can be left to operational management whose responsibility is to maintain the achieved consumption.

In **Estonia** the non-residential sector in Estonia has the final energy use annually about 8 TWh. Many of the buildings have saving potentials of over 50 %. Only a few energy saving measures are done within the private sector without consideration of a possibilities of a larger energy saving with packages of measures. The energy certificates are useful for the building owners to get an overview of the energy performance of their building stock. Besides the information about the energy performance of the building, the energy certificate also gives a suggestion of profitable energy saving measures. However, most of the energy saving measures suggested in the energy certificates represent only the most cost-efficient measures, while measures that may have a reasonable energy saving potential are not mentioned. Furthermore the energy saving measures are only given as single measures. Packages of measures are seldom considered. Since most of the non-residential buildings are owner-occupied there should be much more interest in more detailed information about the energy saving potential of their buildings.

(c) Link to relevant actions <u>beyond the target countries/regions</u>:
The basic idea with the Total Concept method has been developed in Sweden and has so far not been used in other countries. Several countries like Norway, Denmark, Finland and Estonia have however showed interest in the Total Concept method and several requested dissemination activities, e.g. speeches at conferences and bilateral discussions have been performed during the last years. An EU-project will be the mean for the countries to actually take one step further and to test out and implement the working method. Therefore, at this stage, very close relevant actions have not been performed beyond the target countries. However, several other projects include different energy performance improvement methods in non-residential buildings from which important knowledge can be learned and the current Total Concept project can be an important complementation to them. Therefore, the following list of projects and related outputs only focus on the most relevant tasks and most recent ones in which project partners are involved:

The overall objectives of ***the "SURE - SUstainable REfurbishment – life-cycle procurement and management by public clients"*** were to build a Nordic network among industry, authorities and researchers to improve knowledge exchange on sustainable procurement, summarize state-of-the-art on the interplay between lifecycle costing, environmental assessment of buildings and sustainable procurement, assess and classify various sustainable procurement strategies already being deployed by public clients on refurbishment of existing public buildings, analyse the experiences of public clients acting as sustainable change agents on the implementation of sustainable refurbishment in construction and real estate, develop guidelines for sustainable refurbishment of existing buildings by public clients and finally develop a Nordic guideline on sustainable refurbishment based on the case studies and different client-specific and internal workshops/discussions[1].

The ***EU GreenBuilding Programme (GBP) - Improved Energy Efficiency for Non-Residential Buildings*** has made major impacts in several European counties and considerable in Sweden. This

counts especially for the part that deals with 25% energy improvement of existing buildings. This has been for several building owners the starting point of performing energy efficiency measures. The Total Concept project will study the driving forces activated within the GBP-project and use them for a more widespread information strategy.

HOPE: Health Optimisation Protocol for Energy-efficient Buildings Pre-normative and socio-economic research to create healthy and energy efficient buildings was a collaborative European project, which aimed to demonstrate that energy efficient buildings can be both healthy and comfortable for their occupants. The final goal of the project was to provide the means to increase the number of energy efficient buildings that at the same time provide good indoor climate. The Total Concept project will learn from this project how energy saving measures influence the indoor environment and how we can assure that buildings are healthy and energy efficient at the same time.

SHC Task 47 Renovation of Non-Residential Buildings towards Sustainable Standards has the objectives to develop a solid knowledge base on how to renovate non-residential buildings towards the NZEB standards (Net-Zero Energy Buildings) in a sustainable and cost efficient way and to identify the most important market and policy issues as well as marketing strategies for such renovations. The experience from the developed innovative concepts will be useful in the Total Concept project.

The **Re-Commissioning – Raising Energy Performance in Existing Non-Residential Buildings (Hospitals, Universities, Office Buildings) (RE-CO)** project has recently started and is focusing on developing, testing and promoting a systematic Re-Commissioning approach to improve the operation and maintenance of non residential complex buildings with no- or low-cost measures. The Total Concept project will use this information about operation and maintenance measures, which are also considered as an important part of the whole package of measures.

BPIE- Europe's buildings under the microscope is a survey that provides an EU-wide picture of the energy performance of the building stock and how existing policies influence the situation. ***School of The Future ENER/FP7-project*** has the main objective to make a comprehensive survey of existing knowledge with regard to energy efficient solutions and indoor climate that are appropriate for schools. The knowledge will be important for implementation plans of the Total Concept method and common energy saving measures.

The ***Property valuation, Linking energy efficiency of buildings and property valuation practice (IMMOVALUE)*** studies a practical valuation approaches that ensure the integration of energy efficiency and LCCA into property valuation i.e. in the income approach, in the sales comparison approach and in the cost approach. The Total Concept project will learn from this project on how to consider property valuation due to energy efficiency and to motivate the building owner to accept a lower return of interest for their investments related to energy performance improvements.

SUSREF Sustainable Refurbishment of Building Facades and External Walls (FP 7-project) have the main objectives to develop a systemized theory and technologies for the refurbishment of building facades and external walls in order to ensure the function of solutions while considering building physics, comfort and energy efficiency. Since refurbishment of building facades is an excellent opportunity to consider also improving energy performance the knowledge will be useful for the Total Concept project.

NorthPass IEE/08-project has the objectives to identify the market products and actors for an accelerated identification of suitable solutions in order to improve Passive House concepts in the North European housing market. The Total Concept project will study the market situation, its barriers and its drivers in order to strengthen a larger market also for renovation concepts within Northern Europe.

Reference

1. *Almås, Anders-Johan; Bjørberg, Svein; Haugbølle, Kim; Vogelius, Peter; Huovila, Pekka; Nieminen, Jyri; Marteinsson, Björn. 2011. A Nordic Guideline on Sustainable Refurbishment of Buildings. I: CIB Proceedings, 2011, s. 174-181.*

3. Objectives of the proposed action

(a) Your specific objectives (during the action):

The objective of the project is contribute to the increase in major refurbishment of existing non-residential buildings in Northern Europe as well as in other European countries. The project aims to demonstrate that large scale energy performance improvements in existing non-residential buildings can satisfy profitability demands set by the building owner/investor and thus become a market driver for major refurbishment of existing buildings towards Nearly Zero-Energy Buildings.

This will be realised by introduction and development of the Total Concept method with the specific objectives:

- to promote the cost-efficient energy retrofitting in existing non-residential buildings based on the Total Concept method so that it will be implemented both in the public and private sector in the participating countries;
- to further develop the Total Concept method and tools needed for adapting it to national conditions. The Total Concept method will be customised to fit the needs of a participating country in particular;
- to apply and demonstrate the Total Concept method with pilot projects in participating countries;
- to develop materials and tools needed for know-how transfer and carrying out trainings and workshops for implementing the Total Concept method in the participating countries on a broader scale;
- to improve awareness of and know-how about cost-efficient energy retrofitting in existing buildings together with necessary associated education and training. These activities are targeted at local authorities, financing institutions, property owners, developers, architects, consultants and construction companies.
- to provide general recommendation for the Total Concept method future implementation on an European scale.

(b) Your strategic objectives (for the longer term - to 2020):

The strategic objective of this action is to considerably reduce the energy demand in the sector of existing non-residential buildings in the participating countries and beyond the target countries. With this project it will be possible to support:

- Resolving the barriers for finding economically profitable solutions for investments for energy performance improvements in the non-residential building sector.
- Accelerate the refurbishment of existing non-residential buildings towards Nearly Zero-Energy Buildings in Several European countries.

- Increased cooperation between the different stakeholders in the energy performance improvement process, i.e. public and private property owners, property managers, maintenance staff, tenants, architects, consultants, construction companies for gaining the best results in energy savings.

- Continuous knowledge transfer and training for the important stakeholders and key actors in the building energy performance improvement process.

- Spread the outcomes from the TOTAL CONCEPT project in order to give uptake in large part of European countries.

4. Target Groups and Key Actors / Letters of Support

(a) Target Group(s):

Real estate companies, building owners and companies investing in the energy performance improvements: The main target group of this action are real estate companies, building owners and companies investing in the energy performance improvements, e.g. ESCO companies. It can also be a tenant company who is the decision makers of all investments concerning energy saving measures. Here building owners/investors both in public and private sector are important and focus is on building owners that have long term ownership and have interest and can do long term investments. In order to also convince the short term building owners to carry out energy saving measures it is necessary to show the benefits regarding higher property value of energy efficient buildings. The main target group will be directly involved with the project via the pilot projects and will directly learn about the Total Concept method and be a part of its improvements and adoption to national conditions. They are also represented within the project through their trade associations that will not only learn and be part of the development of the Total Concept method but also have the responsibility to assure more widespread dissemination among all their members.

Consultants and engineers working with energy performance improvements: The second target group is engineers and consultants performing energy audits and providing consultancy in improving energy performance in non-residential buildings. This target group is not only important as being the key actor for carrying out projects based on the Total Concept method in practice and therefore need high knowledge about the details of this working method. This group is also important in order to get the method widespread among building owners and will be the target group for the training and dissemination activities. The representatives of this target group will also be directly involved with the Total Concept project via the pilot projects.

Representatives from local and national authorities: The third target group is representatives from municipalities and national authorities who will have an interest in the outcomes of the project. This target group is important in order to improve awareness of cost-efficient energy retrofitting in existing non-residential building sector and can support the development of legislation, guidelines and subsidy schemes for major retrofitting projects.

Contractors and technology providers involved in retrofitting of non-residential buildings: The fourth target group is contractors and supplies who will participate in carrying out the cost-effective package of energy saving measures based on the Total Concept method. This target group is also important what comes to developing and providing energy efficient technical solutions and products for existing non-residential buildings.

(b) Key Actors:

Key actors are primarily the same as the target groups together with:

Institutes: Organisations with technical skills working with dissemination of energy efficiency in buildings. These organisations are very important for making improvements of the Total Concept method and adoption to national conditions, to develop the training and dissemination material and to perform the trainings. They will also beyond the project be an important key actor with continuing dissemination and training.

Trade associations: Trade associations of property owners, construction clients and HVAC engineers are crucial for a widespread implementation of the results from the Total Concept project, both within and beyond the Total Concept project.

(c) Letters of support:

In the TOTAL CONCEPT project we have several large real estate owners both participating as partners (like RKAS) but also seven companies participating with a letter of support. They will not only support the project but will also actively participate with at least one pilot study building for Step 1 evaluation according to the Total Concept application and will thereafter contribute to the implementation of Step 2 and 3 under the condition it fulfils their investment requirements. They will also be active in dissemination activities and work as reference groups for Total Concept method development and implementation:

The following building owners will participate:

- Vasakronan - real estate owner of 2,6 million m^2 premises in Sweden;
- City of Malmö- public facility management of 1,6 million m^2, Sweden;
- Specialfastigheter- own and manage everything from correctional facilities and courts of law to police properties and juvenile care homes, Specialfastigheter are state owned and administered through the Ministry of Finance with a building stock of 1,1 million m^2, Sweden;
- Jernhusen- real estate company in the transport business which can be found in growth towns and at important railway junctions (685 000 m^2), Sweden;
- Harry Sjögren - real estate owner of 109 properties of totally 554 000 m^2. the properties are commercial buildings in expansive areas in Sweden.
- Statsbygg- is real estate owner of 2.7 million m^2 which acts on the behalf of the Norwegian Government, Norway;
- Forsvarsbygg- The Norwegian Defence Estates Agency is a real estate owner of 4.3 million m^2 of premises with responsibility to manage the diverse defence estates and properties.
- City of Tampere- property owner of 700 000 m^2, Finland.

It is expected that it will be possible to identify additional pilot studies for demonstrating the implementation of the Total Concept method in the participating countries.

Furthermore the BELOK group and Swegon will participate with dissemination activities and work as reference groups for Total Concept method development and implementation. The BELOK group will participate with further knowledge transformation between the BELOK network and the TOTAL CONCEPT project. BELOK is a network between 17 dominating Swedish non-residential real estate owners who in total manage about 35 million m^2 of real estate, corresponding to about 25 percent of the Swedish non-residential building stock.

Swegon is a company that sells products and solutions for ventilation and indoor climate systems. The Swegon company group has 1350 employees and the turnover is 280 MEUR. Swegon also has an advanced dissemination organisation through Swegon Air Academy that supports the TOTAL CONCEPT project with dissemination activities.

Overview Table: Engagement of Target Groups and Key Actors

(a) Target Group(s)	How will the target group(s) benefit from this action?	Key task(s) number from your work programme	Name of organisation(s) providing a Letter of Support
Real estate companies, building owners and companies investing in energy performance improvements	They will by direct experience learn about the benefits of the Total Concept method and receive know-how about how to reduce the energy use in a building in a profitable way. They will also receive support and know-how on how to find economically profitable solutions for investments of energy improvements and how to work with and implement major energy retrofitting projects. They will also learn how to facilitate the communication between the technical and economical departments in the organisations as well as between the other stakeholders involved with the energy performance improvement project.	WP 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 3.4, 3.5, 4.1, 4.2, 4.3, 5.2, 5.3, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7	• Vasakronan(Sweden) • City of Malmö (Sweden) • Specialfastigheter (Sweden) • Jernhusen (Sweden) • Harry Sjögren (Sweden) • Statsbygg (Norway) • The Norwegian Defence Estates Agency (Norway) • BELOK (Sweden) • RKAS (Estonia) will directly participate in the project. • Rambøll (Denmark) will directly participate in the project (ESCO company). • City of Tampere (Finland)
Consultants working with energy performance improvements	This group will benefit from training and advice on how to apply the Total Concept method and how to find the best solutions for their clients with maximum energy improvements. Additionally this group will directly benefit when the implementation of Total Concept method becomes a market driver for major refurbishment of existing buildings towards Nearly Zero-Energy Building.	WP 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 3.4, 3.5, 4.1, 4.2, 4.3, 5.2, 5.3, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7	Rambøll will directly participate in the project. EKVÛ will directly participate in the project. CIT Energy Management will directly participate in the project. Bionova will directly participate in the project.
Municipalities and national authorities	This group will benefit from outcomes of the project, which supports the national goals in the decrease of energy use in the building sector. They will also receive support and know-how on how to support further dissemination activities on a local and national level which can lead to major refurbishment of existing buildings towards Nearly Zero-Energy Building.	WP 2.2, 2.3, 4.1, 4.2, 5.3, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7	The target group will be involved via relevant dissemination activities part of this project. Dissemination activities will be aimed to influence this target group.
Contractors and technology providers	This group will directly benefit from the implementation of Total Concept working method by being involved with the process of refurbishing of existing buildings towards Nearly Zero-Energy Building. Additionally this group will get raised awareness on what are the market needs for technology and construction, supporting the future development.	WP 2.4, 3.4, 3.5, 4.1, 4.2, 4.3, 5.2, 5.3, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7	Swegon (Sweden)
(b) Key Actor(s)	**How will the key actor(s) contribute to this action?**	**Key task(s) number from your work programme**	**Name of organisation(s) providing a Letter of Support**
Trade associations	The trade associations are crucial for an effective and targeted dissemination to the target group. They will contribute with support and knowledge increase of their members. They will also quality assure that the material and tools developed are the one requested by their members and that they will be in such a way that it will be easy to use them by their members.	WP 2.2, 2.3, 2.4, 3.4, 3.5, 4.1, 4.2, 4.3, 5.2, 5.3, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8	SCC, DACC and EKVÛ will directly participate in the project.
Institutes	These organisations will contribute with knowledge that is needed to: -make improvements of the Total Concept method and adoption to national conditions -develop the training and dissemination materials -to perform the trainings and workshops	WP 2.2, 2.3, 2.4, 3.3, 3.4, 3.5, 4.1, 4.2, 4.3, 5.2, 5.3, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8	SINTEF and SBI/AAU will directly participate in the project.

	They will also beyond the project be an important key actor with continuing dissemination and training.		

5. Work Programme

5.1 Introduction to the Work Programme

(a) Rationale and structure of your work programme

The structure of the work programme is designed in a way that it would be coherent with the specific and strategic objectives of the project. As the overall aim of the TOTAL CONCEPT project is to promote and initiate larger energy performance improvement projects in existing buildings and resolve the barriers for finding economically profitable solutions for investments for energy performance improvements in the non-residential building sector then special emphasises is in the dissemination activities and the work needed to be done in order to promote the Total Concept on a broader scale. This is achieved trough practical experience and good examples as well as relevant trainings and workshops to the different stakeholders and key actors in each participating country. In specific, the results from the pilot studies will be used for developing country specific and general guidelines for successful Total Concept implementation.

The work will be organized into the following work packages:

WP1(Management) ensures the coordination and the management of the project in order to obtain successful implementation of the present work program with respect to different tasks, outcomes and deliverables according to the project goals.

WP2 (Development of the tool-kit for the Total Concept method application) assures that applying the Total Concept method in participating countries has the necessary prerequisites such as necessary information and know-how how to apply the Total Concept method among the project participants as well as taking into account the non technical barriers and local conditions that influence the application of the Total Concept method. A specific tool-kit for applying the Total Concept method in the participating countries will be developed considering the local conditions.

WP3 (National pilot projects) aims to demonstrate the Total Concept method implementation in the participating countries via 2-4 pilot studies in each country. The different working moments in the Total Concept method will be implemented in the selected existing non-residential buildings chosen according to the decided selection criteria by the project consortium.

In **WP4 (Evaluation and recommendations)** experiences from the theoretical and practical pilot studies carried out in WP 3 will be evaluated and further recommendations for the applications of the Total Concept method on the national and European scale will be given. In addition, improvements in the developed Total Concept method information materials and tool-kit will be made.

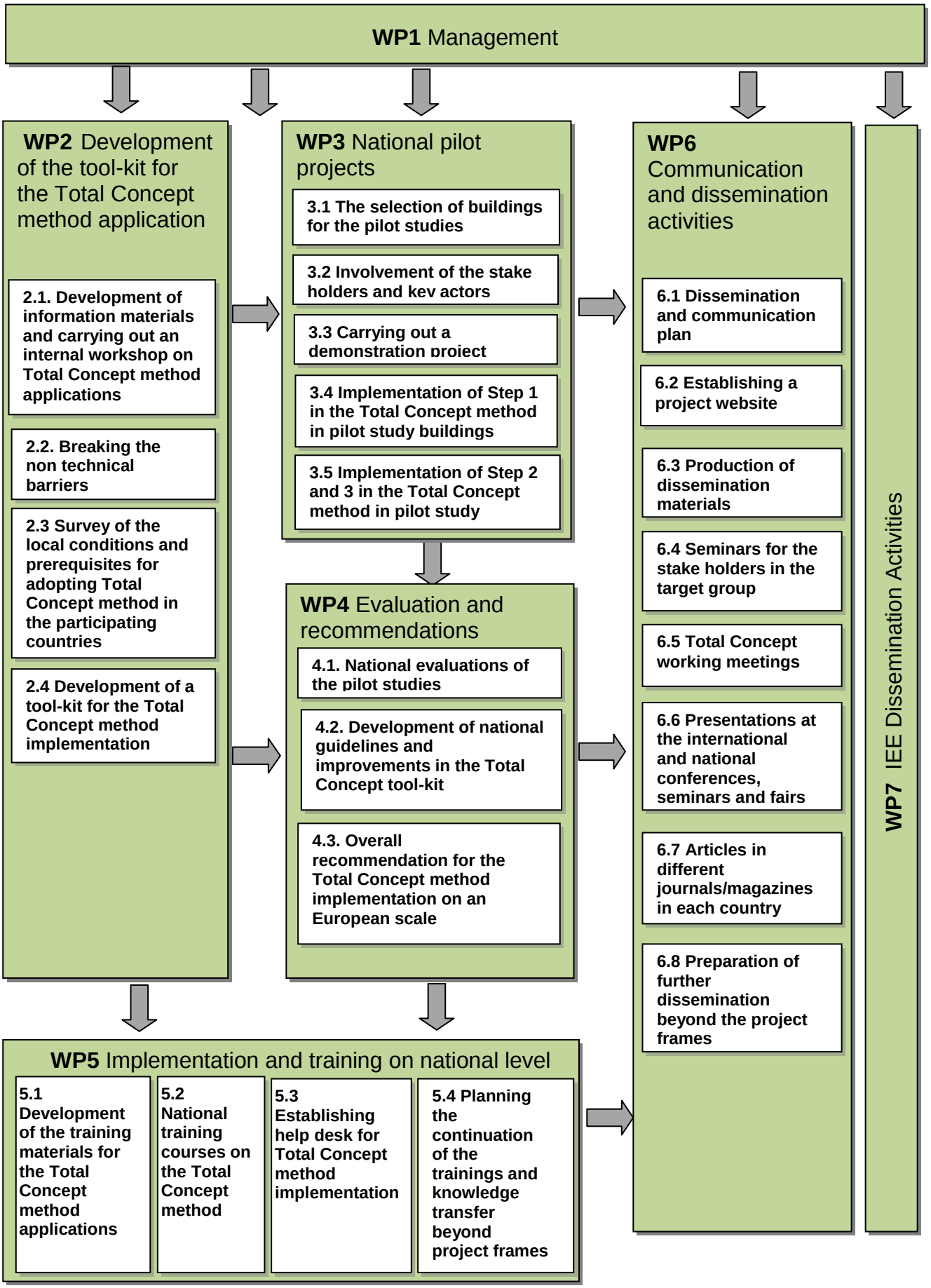
WP5 (Implementation and training on national level) provides relevant training to the different stakeholders and key actors on how to carry out a project based on the Total Concept method. The overall aim is to spread the concept of Total Concept on a broader scale and to assure that the applications will be in accordance to the developed concept and that good quality of the results can be assured. Additionally, this work package aims to form the relevant support needed for the successful replication of the Total Concept method on broader scale.

WP6 (Communication and dissemination activities) aims to promote the Total Concept method applications and results from the TOTAL CONCEPT project both on national and international level towards the identified target groups. The dissemination and communication activities will be realized by using various forms and tools, such as website, information materials and professional publications, trainings, workshops, seminars, conferences and other events. The success of the dissemination activities and good communication will be assured by internal communication, distribution of tasks, status reporting and administration within the project consortium.

WP7 (IEE Common Dissemination Activities) aims to contribute, upon request by the EACI, to common dissemination activities in order to increase synergies between, and the visibility of the IEE-supported actions.

None of the activities covered by this work programme are funded by any other EU programme.

(b) Flow chart of your work programme



5.2 Work Packages

5.2.1 Work package 1

N° of work package: 1	**Management**
Duration in months: 36	**CIT**

I. Description of the work:

a) Overview of the Work package:
The objectives of the WP1 activities are the coordination and the management of the project in order to obtain successful implementation of the present work program with respect to different tasks, outcomes and deliverables according to the project goals. This work package includes managing the overall activities, the overall communication with the partners and other relevant parties, the progress, the distribution of finances, the production of deliverables and reporting to EU.

All of the tasks of the WP1 start at the beginning of the project, month 1, and last until the end, month 36.

b) Description of the tasks:

Task 1.1. Management structure of the project and responsibilities
The management of the project is performed by the Coordinator, Project Management group, WP leaders and the Project Consortium. In order to deal with the complexity of the work carried out, a precise definition of tasks have been performed and will be managed and coordinated more in detail by the WP leaders. In order to guarantee further in-depth cooperation in specific tasks, staff exchanges might be considered.

Each partner provides certain contribution to the project through different work packages. The contribution of each partner to each work package and its leader is defined in detail in the description of each work package. Based on the detailed description of task distribution within each work package a consortium agreement will be set up clearly defining the responsibilities of each partner.

Project consortium
Project consortium consists of all of the partners in this project. The project consortium has the responsibility and right to make decisions in order to manage the entire project. The project consortium has the following assignments:

- Secure that the project is conducted and run according to the plan stated in the project
- Make sure that the outputs of the project correspond to the targets
- Make sure that the time schedules and budget is followed
- Manage and redistribute resources if needed

Coordinator
The project coordinator is fully responsible to ensure that the entire project will managed and results accomplished according to the project application. In addition, the coordinator is in charge of the internal communication of the project, guaranteeing a successful communication within the consortium and external stakeholders and key actors and coordinating all technical and administrative activities between the partners and work packages. The coordinator is also responsible to coordinate the project with other ongoing related projects.

The Coordinator is responsible for coordinating and supervising all legal contractual, financial and administrative issues within the project. The Coordinator will also coordinate the required contribution from the partners to the periodic reports and final report.

Work package leader
For every work package (WP) one project leader is assigned, who has the responsibilities to:

- Being responsible for the specific work package.
- Assure that the tasks of the work packages are carried out and the outputs and deliverables achieved.
- Involve and assure the required cooperation with the supporters and external key actors of this project.
- Assure good communication with the external stakeholders related to the work package.
- Keep the time schedule and budget.
- Regularly carry out internal cross-checks within the WP and report to overall project coordinator about the progress of the activities.
- Report the progress and results of the activities to the project consortium.

Project Management group
In order to better coordinate the activities within the project the Coordinator and the Work package leaders will build a Project Management Group, which will be the main decision making body of the project. The responsibility of the Project Management group is to:

- Evaluate the project progress and the progress within each country.
- Ensure that real trans-national cooperation takes place.
- Take actions if the project progress deviates from the plan.

The Project Management group is defined at the first project meeting. The Project Management group shall include all WP leaders. Additional project partners will be assigned or invited when needed or considered as useful.

Task 1.2. Communication within the consortium and with external stakeholders
In order to ensure quality in the progress of the work and to allow all of the exchange of knowledge between the project partners an intensive communication is required within the consortium and with the project supporters. The communication is managed by the use of e-mail services, by electronic meetings via online tools (e.g. via Skype) or telephone conferences and by organized regular project meetings and internal workshops.

The Coordinator is responsible to establish information exchange within the project consortium and guarantee close contact and effective cooperation. Furthermore, the Coordinator is responsible setting up and managing an online collaborative solution/tool for enabling the members to share all project documents. Electronic meetings will be held in between the project meetings in order to assure continuous information sharing and progress in the project. The work package coordinators will additionally set up regular personal, electronic or telephone meetings with the main involved partners, supporters, external stakeholders and key actors with this project.

A homepage of the project will be established providing the overview of the project aims, progress and outputs. The homepage will also have a specific application suitable for status reporting and sharing the documentations between the partners. This action is described in more detail in the work package 6.

Task 1.3. Project coordination and administration
The Coordinator is responsible for coordinating all technical and administrative activities between the partners and work packages and to ensure that the entire project will managed and results accomplished according to the project application. A precise definition of tasks is formed in this application which will be further refined by the WP leaders directly after the start of the project. Based

on the detailed description of task distribution within each work package a consortium agreement will be set up clearly defining the responsibilities of each partner.

The task leaders are responsible to assure that the tasks of the work package are carried out and the outputs and deliverables achieved. Furthermore, the task leaders will regularly carry out internal cross-checks within the WP and report to overall project coordinator about the progress of the activities. This aims to provide further quality assurance of the work carried out and the results.

The consortium has the responsibility to carry out continuous evaluation of the project process and to which extent the outputs and deliverables of each work package have been achieved. The results of this continuous evaluation will be presented and reported during each project meeting and each project partner needs to provide input to this evaluation.

Quality Management
For assuring a good quality of deliverables the development process of deliverables will undergo the following main steps: 1) definition of concept and draft index; 2) development of a draft version; 3) consultations; 4) development of a final version. The partner responsible for the specific deliverable will ask for feedback from the consortium partners, according to their specific skills and competences. The most relevant deliverables will be commented, reviewed and approved in one or more of the steps described above, by project partners and relevant stakeholders outside of the consortium (see letter of support).

The deliverables will be developed in a compact and concise format as well as written in a language suitable to the target groups.

Reporting to EACI will be done as defined in the main part of the Grant Agreement. Progress and Interim reports shall include a monitoring of performance indicators.

Evaluation of the impact
The consortium will carry out continuous evaluation of the Total Concept method implementation impact in the participating countries. The basis of this analysis and monitoring will be the results from the work packages, its outputs and deliverables. In the end of the project the reach impact will be documented and plan for continuing dissemination after the project will be settled.

Risk management
The project management group will evaluate the project progress and make an action plan for required measures that needs to be undertaken when the project progress deviates from the plan. The required actions will be coordinated by the Coordinator and involved work responsibilities delegated to the specific partners.

A critical aspect of the project tis the progress on the case studies. This is not only one of the key elements of the project, but it is also directly related to the delivery of WP4.

In order to facilitate early identification of issues, a specific risk assessment related to the progress of the case studies will be prepared by the Kick-off meeting. This risk assessment will include, at least, information on the following areas:

- Building details (name, location, function, gross floor area)
- Building owner
- Current schedule of respective phase (step 1, step 2, step3 including an estimate of the % of completion).
- Chance of complete project stop
- Risk of serious delay
- Threats to the project

Task 1.4. Organization of meetings and internal project workshops
Seven project meetings will be organized within the framework of this project, including the kick-off meeting. The meetings will be held every 4-7 months in 6 different countries, involving all of the participating countries to the meeting organization. The overview of the 7 coordination meetings is given in the table below.

Overview of the TOTAL CONCEPT project meetings

Meeting	**Location**	**Organizer**	**Month**
Kick-off meeting	Belgium	CIT	1
Meeting #2	Sweden	SCC	4
Meeting #3	Denmark	SBI/AAU	9
Meeting #4	Norway	SINTEF	15
Meeting #5	Estonia	EKVÜ	21
Meeting #6	Finland	Bionova	27
Meeting #7	Sweden	CIT	34

The project Coordinator moderates the meetings, prepares the documentation and makes the minute reports and together with the organizing partner plans the meeting in detail. The partner(s) who is responsible for hosting the meeting will take care of all of the practical organizational details. The work package leaders will support and contribute to the project meetings organization, preparations, information sharing and reporting. Every meeting will include the reporting of the overall progress of the project, plan for the next steps, detailed reports from each work package leader about the work package planning and progress, etc.

Special attention will be given to the kick-off meeting with a careful preliminary work for ensuring that the partners in the project consortium are aware of the work to be done and of expected outcomes of the project.

At the end of the project a special meeting will be organized for presenting the results to EACI.

The project management meetings will be held every three months via online meeting tools (e.g. Skype) or via phone conference except the ones overlapping with project meetings (see above). The project management meetings will be organized, prepared, chaired and documented by the project Coordinator.

One internal workshop (Task 2.1 in WP2) for knowledge transfer and information sharing among the project consortium and its partners will be carried out in connection to one project meeting at the beginning of the TOTAL CONCEPT project.

Additionally 5-6 Total Concept working meetings will be held in connection to the regular TOTAL CONCEPT project meetings (Task 6.4 in WP6) aiming to gather the stakeholders and key actors involved in the current project (identified in WP3) and to discuss the relevant issues related to practical implementation of the Total Concept method as well as the different aspects related to the major energy retrofitting in non-residential buildings.

IIa. Outputs of this work package (apart from deliverables):
O 1. Clear definition of responsibilities and task distribution between the project partners
O 2. Effective coordination of the project ensuring delivery of proposed outputs with high quality and within the timeframe of the project
O 3. Clear communication channels resulting in intense and efficient communication between the partners and ensuring that all documents and information connected to the project is available to the project partners
O 4. Progress regarding performance indicators is constantly monitored

O 5. 7 project meetings

IIb. Deliverable of this work package:

Deliverable	**Delivery Month**
D1.1 Consortium agreement	1
D1.2 Minutes and documents of the coordination meetings	2,5,10,16,22,28,35
D1.3 Risk Assessment on the progress of the case studies (step 1, step 2 and step 3)	At all project meetings

III. Distribution of tasks of each partner in this work package (Award criterion 5):

Partner	Task(s) for this partner organisation	Related to Task N°
CIT *Coordinator, WP leader*	– overall coordination and all tasks related to project management – submitting consortium agreement – organizes the project meetings (agenda, facilitation, minutes) – Coordinates the internal project workshops – preparation of reports – preparation of minutes of project meetings – project administration, daily follow-up of the project and supporting the management of the online workspace – quality management	1.1, 1.2, 1.3, 1.4
CIT, SBI/AAU, SINTEF, EKVÜ, DACC, Bionova *Project management group*	– evaluates the project progress and the progress within each country; – ensures that real trans-national cooperation takes place; – take actions if the project progress deviates from the plan; – assurance of proper information flow within and between the WP-s – Coordinates and prepares the Total Concept working meetings	1.1, 1.2, 1.3, 1.4
CIT, SBI/AAU, SINTEF, EKVÜ, SCC, Bionova, DACC	– preparation of project meetings – Administrates the Total Concept working meetings	1.4
All partners	– participation in project meetings and the self-evaluation process and other project management tasks upon Coordinator request (meetings, reporting, etc)	1.1, 1.2, 1.3, 1.4

Major other specific costs:

Apart from the travel and subsistence (detailed in the Part C) and meeting expenditures no major other specific costs have been identified

Major subcontracts:

None

The subcontractors identified / to be identified were / will be selected following the provisions of Article II.9 of the Grant Agreement on competitive grounds on the basis of best value for money.

5.2.2 Work Package 2

N° of work package: 2	Development of the tool-kit for the Total Concept method application
Duration in months: 7	**SCC**

I. Description of the work:

a) Overview of the Work package:

The Total Concept is a working method for cost efficient energy savings in non-residential buildings. The method is to realize carefully prepared package of energy saving measures that as whole fulfils the profitability demands of the real estate owner. The criterion for the profitability is the internal rate of return for the package of energy saving measures, which must be higher than the required internal rate of return by the real estate owner. A package of measures is formed through careful energy auditing in the building. In order to achieve the evaluated savings within the profitability requirements set, it is required that all of the measures are carried out as a package.

The Total Concept working method comprises three main steps:

- **Step 1: Creating the action package.** This step includes an analysis of the building to identify all the possible measures that can lead to reasonable energy savings. Energy calculations are made for the identified measures and their investment cost and their economic life times are evaluated. A package of measures is formed which provides maximum energy savings and is presented in its entirety in an *Internal rate of return* diagram. The presentation is made by considering profitability of the package of measures based on that very profitable measure will help to cover for less profitable measures. The *Internal rate of return* diagram considers the economic life time of the different measures and shows the investment return from year one compared to simple pay-back methods that will show profit first after the year the investment has been paid back. In the *Internal rate of return* diagram it is possible to take into account also increase in future energy prices. The presentation is used to show that when including larger investment, larger energy savings can be achieved and the action package in its entirety will meet the profitability requirements stipulated by the property owner/client. The presentation is used as a basis for the decision whether or not to carry out large scale refurbishment but will also be used to convince the building owner to even increase their ambition in order to reach nearly zero-energy buildings.
- **Step 2: Carrying out the measures**. The formed action package is carried out in its entirety. A number of these measures will be simple and can be carried out without any special preparations being made. Others must be designed and planned in detail and carried out by contractors. The work is finalized by carrying out a thorough functional performance checks. Among other things, this is important in order to make sure that all the measures function correctly.
- **Step 3: Following up.** This step includes following up the results of carrying out the improvement measures by registering energy use at least on a monthly basis. The follow up, which forms an important part of the Total Concept method, should be carried out for at least one year period of time after handover and checked against the calculated figures presented in Step 1.

The Total Concept method has been initially developed within the BELOK network in Sweden and several stakeholders and key actors have been involved in the first Total Concept projects which aimed to test and develop the method. These stakeholders and key actors include public and private property owners, energy consultants, contractors, building management and maintenance personnel. Some tools and materials have been developed within the BELOK group for supporting the application of the Total Concept method. However, more explicit guidelines about Total Concept method application are needed for the participating countries in order for the partners to be able to apply the Total Concept method in their pilot projects and transfer the concept on a broader scale. It is necessary that the

information and knowledge based on the previous experiences is available and that this knowledge is transferred within the consortium.

This work package aims to gather the necessary information and know-how needed to be able to apply the Total Concept method in pilot studies and to assure relevant knowledge transfer within the project consortium before pilot implementation. In addition survey of national conditions will be made as well as analysis on how to break the non-technical barriers influencing the renovation rate in non-residential building sector on national level. A tool-kit for applying the Total Concept method in the participating countries will be developed, considering the local conditions.

b) Description of the tasks:

The proposed work within this WP is structured into 4 tasks, which are outlined in detailed below.

Task 2.1. Development of information materials and carrying out an internal workshop on Total Concept method applications

To guarantee that the savings and profitability of the investments is really achieved special consideration is needed to a number of the working moments included to the 3 steps of the Total Concept method. Good insight, and understanding of, the method is required from the different stakeholders involved in the energy performance improvement process, e.g. property owners/investors, their consultants, design engineers, contractors and maintenance staff, etc. Experiences show that a successful energy performance improvement retrofit will be permanent only if also the managing of the building will be guided with effective routines and increase of competence of all actors. This means that the energy target and project goals must be administrated during the whole retrofit project by different actors involved in the different working moments and procedures. Therefore it is very important with communication between different actors in different stages of the retrofit process. Applying the Total Concept method requires that the responsibilities and roles of the different stakeholders in the whole project process are clearly defined and set.

More detailed information materials need to be developed in order to introduce the Total Concept method in the participating countries, including:

- General information about the Total Concept method and the economical model used for the profitability analysis in this method.
- Guidelines on how to carry out different steps: energy auditing, cost estimations, energy calculations, forming a package of measures, profitability analysis, increase of ambition levels, carrying out the package of identified energy saving measures, follow up, etc.
- Definition of roles and responsibilities of different stakeholders in different steps of the methodology, e.g. building owners, consultants, entrepreneurs, maintenance personnel, building users.

This tasks aims to develop the information materials needed for introducing the Total concept method application within the project consortium. Furthermore this task also aims to analyse the need of digital help tools, such as computer programs, for the Total Concept method applications and develop the tools needed. The currently available feasibility calculation tool used by a BELOK group will be further developed for easy applications of Total Concept in the participating countries. The materials and tools will be free of use. The general information materials and tools should be initially developed in English and will be in a digital form. The materials developed in the current task will be used as basis for developing the materials needed for the national implementation: the tool-kit for Total Concept method at national applications.

One internal workshop within the project consortium will be carried out for the knowledge transfer of Total Concept method implementation. The different project partners should also include their subcontractors to this training. Different stakeholders and key actors that pervious have applied the Total Concept method within the BELOK group will be invited to the internal workshops as external experts. They will share their experiences from the previous projects as well as provide specific input

to practical aspects of the different working moments in the Step 1 in the Total Concept method. This task aims to prepare all the materials needed for the internal knowledge transfer. In the internal training also other national and EU projects (listed in chapter 2) that are considered to provide useful input to the current project will be introduced by the project partners. For example cost models used in the projects SURE and the ***Property valuation***, definitions and measures to reach Net-Zero Energy Buildings in project SHC Task 47 will be analysed for useful input. The internal training will be a one day event and will be carried out in connection to one project meeting at the beginning of the TOTAL CONCEPT project.

Task 2.2 Breaking the non technical barriers
There are many non technical market barriers influencing the renovation rate in non-residential building sector, e.g. finding profitable investments, fear among investors of carrying out long-term investments, poor reliability of assessments on necessary investments and future yearly savings, lack of financial support and good business models supporting the investments. It is highly relevant to analyse non-technical barriers as well as find methods to overcome them in order to increase the number of energy performance improvement retrofitting projects in non-residential building sector.

This task aims to identify non technical barriers among the different stakeholders in the participating countries and to investigate the possible methods for overcoming these barriers. This information can be gathered by carrying out interviews and questionnaires among the different stakeholders as well as forming discussion groups in the Total Concept working meetings in WP6 (Task 6.5). Also a number of the national and EU projects (listed in chapter 2) provide valuable input. For example here experiences of breaking barriers from the EU GreenBuilding Programme (GBP) and NorthPass will be analysed for useful input.

Task 2.3 Survey of the local conditions and prerequisites for adopting the Total Concept method in the participating countries
The Total Concept method is carried out in different steps, involving a number of different working moments, e.g. energy auditing, cost estimations, energy calculations, profitability analysis, energy saving package realisation, follow up, etc. The prerequisite conditions for carrying out these working moments and for adopting the Total Concept method can be somewhat different in the participating countries due to difference in building codes, existing guidelines for example air exchange rates and indoor climate and other building renovation requirements. It is essential to evaluate the local conditions and prerequisites for adopting Total Concept method in the participating countries in order to guarantee the reliability and comparability of the results.

In this work package the local conditions are analysed, including evaluation of the specific information in the building codes and other requirements in order to identify important input parameters for adapting the Total Concept method on the national level. The results of this task provide also an input on what competence requirements and trainings are needed for the Total Concept method national applications in the future.

Task 2.4 Development of a tool-kit for the Total Concept method implementation
For the national applications of Total Concept method in the pilot study buildings it is necessary for the participating countries to have required information and tools to plan and carry out projects based on the Total Concept method. Guidelines for the practical applications are needed considering the local conditions of the participating countries.

This work package aims to prepare a tool-kit for the Total Concept method implementation on national level. The content of these guidelines will be based on the information materials developed in Task 2.1 and output from Tasks 2.2 and 2.3, but the guidelines will also include practical information and checklists addressed to different stakeholders in participating countries. The tool-kit should include:

- Required information, guidelines and tools needed for carrying out the different steps in the Total Concept method considering local conditions.
- Common check-lists for consultants and property owners for practical applications.

- Guidelines in preparation of the tender documents, procurements within the different steps of the Total Concept, etc.
- Layouts for reporting.

The detailed content of the tool-kit will be decided upon during the working process of this project. Also outcomes from the other relevant national and EU projects (listed in chapter 2) will be used as input when compiling the relevant information. For example effective energy efficiency measures while considering indoor climate from the project HOPE, BPIE, SUSREF and School of The Future as well as commissioning experiences from the project Re-Commissioning will be analysed for useful input.

A common tool-kit will be first developed which is then adapted to the national conditions by each participating country. The common tool-kit will be available in English. Each participating country will then adapt and translate the developed materials into their own language and national specific conditions. The developed materials will be also used in the Help Desk activities (WP5).

IIa. Outputs of this work package (apart from deliverables):

O 1. Detailed information available about the Total Concept method and its application;

O 2. One internal workshop for the project partners and their subcontractors on how to apply the Total Concept method;

O 3. Overview of the non technical barriers in participating countries and suggested methods for overcoming them;

O 4. Overview of the local conditions and prerequisites for adopting Total Concept method in the participating countries;

O 5. Detailed guidelines and tools available to support the Total Concept method implementation on a national level in each participating country.**IIb. Deliverable of this work package:**

Deliverable	**Delivery Month**
D2.1 Information materials on the Total Concept method and its application. Available in English language at the project website.	4
D2.2 Digital help tools needed for supporting the Total Concept method applications. Available in English language at the project website.	6
D2.3 Materials needed for carrying out an internal workshop within the project consortium.	4
D2.4 Minutes and documents of the internal workshop	5
D2.5 A publishable report describing existing non technical barriers and suggestions for overcoming them, available in English.	6
D2.6 A publishable report on the local conditions and prerequisites for adopting Total Concept method in the participating countries, available in English.	6
D2.7 One common Tool-kit for the Total Concept method applications, available in English.	6
D2.8 A Tool-kit for the Total Concept method application on a national level in each participating country.	7

III. Distribution of tasks of each partner in this work package (Award criterion 5):

Partner	Task(s) for this partner organization	Related to Task N°
SCC *WP leader*	- Leader of this work package - Supervises and coordinates all tasks managed by the project partners and coordinates the deliveries of the work package - Manages all the reporting to the project coordinator based on	2.1, 2.2, 2.3, 2.4

	the deliverables of this work package - Leader of task 2.2 and 2.3, coordinates input from the project partners - Organization and documentation of internal workshop (Task 2.1, D2.4) - Assists with the information gathering from the different stake holders of the initial BELOK projects (Task 2.1) - Assists in the development of the general information materials needed for applying the Total Concept method (Task 2.1) - Report on identified on technical barriers and methodologies to overcome these barriers in the participating countries (Task 2.2, D2.5) - Report on the local conditions and prerequisites for adopting the Total Concept method in the participating countries (Task 2.3, D2.6) - Assists in the development of the tool-kit for the Total Concept method applications (Task 2.4)	
CIT	- Leader of task 2.1 and task 2.4 - Review of the existing information and materials available regarding the Total Concept method - Information gathering from the different stake holders of the initial BELOK projects - Development of the general information materials needed for applying the Total Concept method (Task 2.1, D2.1) - Survey and development of the digital help tools needed for Total Concept method applications (Task 2.1, D2.2) - Preparing the materials needed for the internal workshop (Task 2.1, D2.3) - Organizes and carries out the internal workshop (Task 2.1) - Providing input about national non technical barriers among stakeholders in Sweden and supporting in development of methodologies to overcome these barriers (Task 2.2) - Contribution with the information to the evaluation of the local conditions and prerequisites for adopting Total Concept method in Sweden on a broader scale (Task 2.3) - Developing the common tool-kit for the Total Concept method applications (Task 2.4, D2.7) - Adapting the developed tool-kit for the Total Concept method to Swedish conditions (Task 2.4, D2.8)	2.1, 2.2, 2.3, 2.4
SBI/AAU, SINTEF, EKVÜ, Bionova	- Participating in the internal workshop (Task 2.1) - Providing input about national non technical barriers among different stakeholders in their country and supporting in development of methodologies to overcome these barriers (Task 2.2) - Contribution with the information to the evaluation of the local conditions and prerequisites for adopting Total Concept method in their country (Task 2.3) - Support in developing the common tool-kit for the Total Concept method applications (Task 2.4) - Adapting the developed tool-kit for the Total Concept method to their national conditions (Task 2.4, D2.8)	2.1, 2.2, 2.3, 2.4
Rambøll, RKAS, DACC	- Participating in the internal workshop (Task 2.1) - Providing input about national non technical barriers among different stakeholders in their country and supporting in	2.1, 2.2, 2.3, 2.4

	development of methodologies to overcome these barriers (Task 2.2) - Contribution with the information to the evaluation of the local conditions and prerequisites for adopting Total Concept method in their country (Task 2.3) - Support in developing the common tool-kit for the Total Concept method applications and supporting in adapting the tool kit to their national conditions (Task 2.4)	

Major other specific costs:

Partner	Task(s)	Description	Foreseen amount (Euro)
CB8, SCC	2.4	Translation of the information materials in the tool-kit	1000
CB2, SBI/AAU	2.4	Translation of the information materials in the tool-kit	1000
CB4, SINTEF	2.4	Translation of the information materials in the tool-kit	1000
CB7, EKVÛ	2.4	Translation of the information materials in the tool-kit	1000
CB9, Bionova	2.4	Translation of the information materials in the tool-kit	1000
CB8, SCC	2.1	Expenditures for the internal workshop: room rent, catering, logistics	1300

Major subcontracts:

Subcontract for knowledge transfer in the internal training, external invited experts

Partner	Task(s)	Subcontractor	Foreseen amount
CB8, SCC	2.1	External experts, such as property owners and consultants, who have been engaged with the Total Concept projects within BELOK group, will be involved in the knowledge transfer. The experts engaged will depend on their availability and will be decided when the training is planned. The cost for subcontractors covers their travel and accommodation costs as well as time during the workshop.	4800 Euro

The subcontractors identified / to be identified were / will be selected following the provisions of Article II.9 of the Grant Agreement on competitive grounds on the basis of best value for money.

5.2.3 Work Package 3

N° of work package: 3	National pilot projects
Duration in months: 35	**SINTEF**

I. Description of the work:

a) Overview of the Work package:

The objectives of WP 3 are to carry out pilot studies for demonstrating the implementation of the Total Concept method in the participating countries. In 2-4 buildings in each participating country Step 1 of the Total Concept method will be carried out, including detailed energy audit, identification of energy saving measures, cost estimates and energy saving calculations of the identified measures and forming a package of measures that will comply with the investment requirements of the building owner. The investment requirements of the building owners are reasonable and in line with their expectations in long term investments. In the requirements even an estimation of increase in energy prices will be stipulated. However, in order to reach requirements of nearly zero-energy buildings the ambitions can be improved even more. In previous experience of using the Total Concept method the building owners have set a demand on the internal rate of return of 5-6% which has led to energy improvements by 40-70%.

Additionally from the selected pilot study buildings in 1-2 buildings in each participating country the formed action package will be implemented in practice. This means that both the Step 2 and 3 of the Total Concept method will be carried out, including planning and detailed design of the identified measures, realization of the measures as a package, functional performance checks, energy use monitoring after the action package has been carried out and checking the profitability results.

The output from the WP2, the developed tool-kit for the Total Concept method implementation, will be used for the pilot studies.

b) Description of the tasks:
The proposed work within this work package is structured into 5 tasks, which are outlined in detailed below.

Task 3.1 The selection of buildings for the pilot studies
This project aims to promote the Total Concept method as the cost efficient energy performance improvement method in non-residential buildings. The main target group for the application of the Total Concept method are property owners of non-residential buildings both in public and private sector as well as companies investing in energy performance improvements, i.e. ESCO companies, tenants' companies.

The buildings for the pilot studies will be provided by the property owners who are directly part of this project as partners or cooperating with the partners via letter of support. 2-4 existing non-residential buildings will be selected in each participating country. According to this task the selection criteria for the pilot study buildings will be decided and then the selection done accordingly. The selection criteria will be based on:

- The property owners' portfolio of buildings.
- The possibilities of the building owner to provide the pilot study buildings where the energy audits and renovations can be carried out within the timeframe of this project.
- The possibility to show high ambitions of reaching nearly zero energy-buildings.
- The type of the building. If possible, there should be different types of non-residential buildings added to this project, e.g. office buildings, schools, university buildings, health care, department stores, etc.
- The complexity of the building and its technical systems. Very big buildings with complex systems will require more time for energy audits, whereas the time input should be estimated with the pre-study specifying the resources required to audit the building. **In order to keep the time frames and budget of this project it will be an advantage to include buildings with average complexity.**

- The existing energy performance of the building. It is recommended to choose the buildings from the building owners' portfolio which do not have the worst performance in terms of energy efficiency. It is an advantage to have a building with average status compared to the other buildings in the same type of buildings and building groups. This because the building is more representative for the owners building stock. Furthermore, to be able to show that it will be economically feasible to reach towards nearly zero-energy building levels the starting point must be reasonable.
- The existing functional performance of the building. It is recommended to choose the buildings from the building owners' portfolio which in general fulfil the minimal functional requirements set on the building, e.g. fulfils the minimal requirements on indoor climate. Furthermore, it is recommended that the use of the building is planned to be the same during the whole monitoring and evaluation period.
-

Task 3.2 Involvement of the stakeholder and key actors

The implementation of a Total Concept method involves a number of stakeholders and key actors, who directly or indirectly influence the results. These stakeholders and key actors are:

- **Property owners/clients** who will initiate future projects based on the Total Concept method. In this project proposal, the term *client* can refer to both a property owner and another investor or decision maker, who is motivated to invest in energy saving measures in the building, for example a tenant company that pays for its own energy costs, an ESCO company, etc.
- **Property managers** who are responsible for the buildings in question, might play important roles when it comes to investment decisions.
- **Energy consultants** who are to carry out the work in practice in Step 1 in the Total Concept method and who will present proposals for the action package.
- **Design engineers** who carry out the detailed design for the action package in Step 2 in the Total Concept method.
- **Contractors and technology providers** who participate in carrying out the cost-effective package of energy saving measures according to the consultants' proposals.
- **Maintenance staff** who are responsible for all the systems in a building and who can directly control the use of energy in the building and influence in long term.

All these groups, each in their own particular way, play important roles in the energy performance improvement process as a whole. As end users, the **tenants** have a significant influence on the energy used in the building and it is therefore essential for the client to keep them well–informed and to be responsive to their needs.

The common stakeholders and key actors in the Total Concept method applications are given in the schem[illegible] between the different stakeholders and key actors

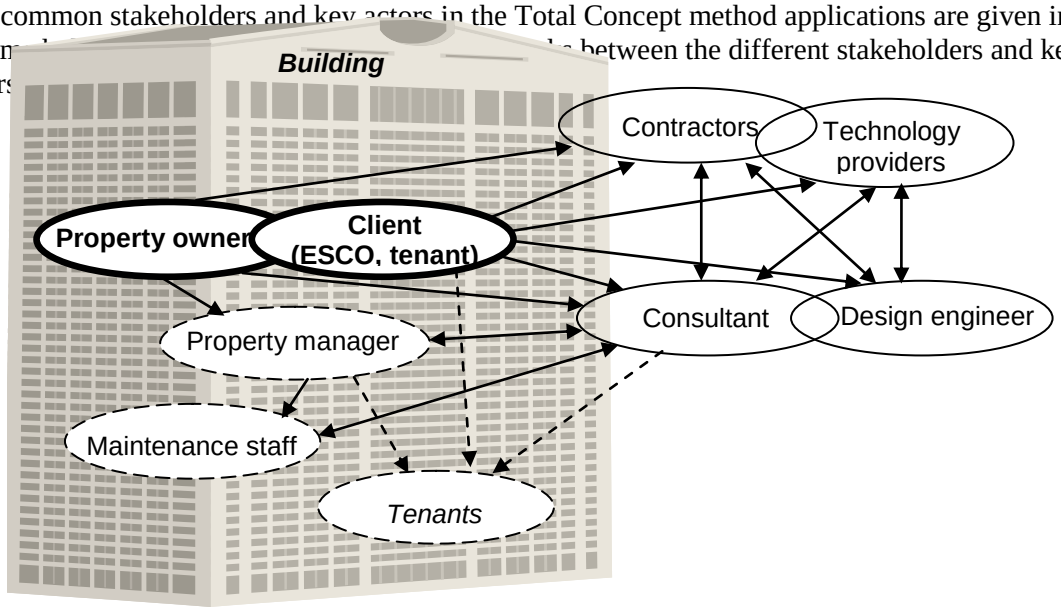


Figure 2 How the different parties involved in a Total Concept project interact.

The project consortium includes participants who directly or indirectly represent or cooperate with the different stakeholders and key actors in the Total Concept method applications shown in the scheme above. Each project partner has the responsibility to choose who the key actors are who will carry out practical work included to the different working moments of the different stages in the Total Concept method. The work will be carried out under the management and supervision of the project participants in the specific country. However, it can be needed to involve external key actors to the project, who have the responsibility to practically implement certain steps and working moments included to method applications. Knowledge transfer from project participants to the selected external key actors is required and this should be done at the early stage of the project in order to assure the quality of the results.

According to this task the external key actors, who will be involved in the pilot studies of this project will be decided and chosen by the specific project partner. This task aims to involve all the relevant stake holders and key actors in the pilot implementation at the beginning of this project so that all relevant knowledge transfer can be made in the early stage of the project. Some of the key actors may be involved as subcontractors. The selected stakeholders and key actors will also have an important role in the later dissemination phase of the TOTAL CONCEPT project and can be involved in the training and dissemination activities (Work package 5 and 6).

Task 3.3 Carrying out a demonstration project
In WP2 of the TOTAL CONCEPT project all the relevant information materials are developed for the knowledge transfer between the project partners and internal workshops are carried out. It is necessary that the information and knowledge based on the previous experiences of Total Concept method implementation is available and that this knowledge is transferred within the consortium.

However, in order to assure a successful practical implementation of the Total Concept method in the pilot study buildings, one building from the selected pilot study buildings (Task 3.1) will be chosen where the implementation of the Step 1 in the Total Concept method is demonstrated in detail to the project partners. This task aims to carry out a demonstration implementation of Step 1 in the Total Concept method in one of the pilot study buildings, including step-by-step demonstration of the different working moments. The developed tool-kit for Total Concept method implementation (Task 2.4) will be used for this demonstration. The demonstration will be lead by a more experienced partner, who will involve the experts and key actors needed for the demonstration work.

Task 3.4 Implementation of Step 1 in the Total Concept method in pilot study buildings
This task aims to carry out Step1 in the Total Concept method in 2-4 pilot study buildings in each participating country. Each participating country provides 2-4 existing buildings chosen according to the selection criteria decided within the consortium (Task 3.1).

In the Step 1 in the Total Concept method the specific building is analysed in detail in order to find as many energy saving measures as possible that can result in reasonable energy savings. The energy saving measures can include measures in the building services systems, lighting, building envelope, etc. The energy use of the identified measures is calculated and investment costs evaluated. A package of measures will be formed based on the profitability requirements of the property owner/client.

Step 1 is divided into the following tasks:

- Gathering of basic information about the building and compiling technical data.
- Energy audit and identification of energy saving measures.
- Energy calculations.

- Investment cost estimations.
- Profitability calculations and the creation of an action package.
- Reporting and presentation of proposals for measures to be carried out.

Carrying out the profitability calculations provides a basis for a decision whether or not to invest in the action package. A prerequisite for being able to make such a decision is that the data is easy to interpret from both a financial and a technical point of view. Another condition is that it is possible to rely on that the calculated annual savings will be reached and that the actual cost of the action package will be as shown in the investment cost calculations. It is also important that the building owner sets reasonable requirements of profitability for long term investments and that ambitions to reach zero energy-buildings are high. This is stated by the participants in this project.

Careful analysis is vital if the project is to be a success. It is therefore important that the consultant who is engaged is specialized in carrying out energy assessments of non-residential buildings. The consultant must also be able to use energy simulation programs and have access to experienced cost accountants to carry out the investment cost calculations. The consultants involved with this task in each participating country were selected in Task 3.2. The output from the WP2, the tool-kit for the Total Concept implementation, will be used for carrying out Step 1 in the selected pilot study buildings.

In order to keep the time frames of this project is essential to start with this task as soon as possible after suitable buildings selected (task 3.1), relevant key actors involved (task 3.2.), internal training and knowledge transfer carried out and relevant materials made available for the Step 1 implementation.

Task 3.5 Implementation of Step 2 and 3 in pilot study buildings
This task aims to carry out the formed packages of energy saving measures that were identified in Task 3.4. Each participating country provides 1-2 buildings out of the chosen pilot study buildings in Task 3.1, where Step 2 and 3 according to the Total Concept working method will be carried out. The selection of buildings is made according to the recommendations and investment requirements set by the building owner. The selection is decided within each building owner's organisation by close cooperation and communication between the technical and economical department.

Step 2 in the Total Concept working methodology includes the following main working moments:

- Planning and designing the measures
- Construction work and installations
- Functional performance checks

Step 2 is based on careful procurement, design work and construction work. Basically, these stages are the same as in any normal reconstruction project. However, mistakes must be avoided at all costs as the expected energy savings, and the whole point of carrying out a project based on Total Concept method, could otherwise be lost. Also, reaching the forecast energy savings is, in practice, dependent on the building and the technical systems functioning correctly. Before the effect of the action package can be evaluated, it is very important that functional performance checks are performed so that any faults can be rectified.

The purpose of Step 3 is to follow-up the energy use after the action package has been carried out and to check the profitability of the action package. Energy use in the building is followed up by taking readings every month for a whole year. The results are used in a final profitability analysis.

Step 3 is divided into the following tasks:

- Measuring energy use
- Checking profitability results

The output from the WP2, the tool-kit for the Total Concept method implementation, will be used for carrying out Step 2 and Step 3 in the selected pilot study buildings.

According to the project plans Step 1 will be carried out in 2-4 pilot buildings in each participating country and Step 2 and 3 in 1-2 selected pilot buildings. Timeframes of carrying out the different steps of the Total Concept method is strongly dependent of the size and complexity of the building and should be considered when the buildings are selected for the pilot studies. However, in order to keep the time frames of this project it is essential to start with Step 2 in selected pilot study buildings as soon as possible after Step 1 has been finished. Also, Step 3 can be started only after the renovation process has been completed and should last for one year. Since the outcomes from this task will provide input to the national evaluations of pilot studies (WP4) then detailed project planning and follow-up is essential and should be explicitly addressed during the entire project process. It is expected that the Step 1 will be finished in those demonstration buildings, where Step 2 and 3 will be implemented, latest by month 14; Step 2 latest by month 22; and Step 3 latest by month 34.

IIa. Outputs of this work package (apart from deliverables):

O 1.Overview of the pilot study buildings where the Total Concept method will be implemented on the national level in the participating countries
O 2. Identification of the stakeholders and key actors in each participating country for pilot implementation
O 3. Consultation of the external stakeholders and key actors included to the pilot implementation by each participating country
O 4. One demonstration building, where the working moments of Step 1 in the Total Concept method will be demonstrated step-by-step
O 5.Cost efficient packages of energy saving measures (Step 1 in the Total Concept method) for 2-4 selected pilot study buildings in each participating country
O 6.Cost efficient packages of energy saving measures carried out and followed up in practice (Step 2 and Step 3 in Total Concept method) in 1-2 selected pilot study buildings in each participating country

IIb. Deliverable of this work package:

Deliverable	**Delivery Month**
D3.1 Internal report on the selected buildings for the pilot studies and identified stakeholders and key actors for the Total Concept pilot implementation.	6
D3.2 Reports on the results of implementation of Step 1 in the Total Concept working method in the pilot buildings. 1 publishable fact sheet for each pilot study building in English and native language and 1 detailed report in native languages of each participating country.	15
D3.3 Internal report on the results of implementation of Step 2 in the Total Concept working method in the pilot buildings. In English	25
D3.4 Reports on the results of the implementation of the Total Concept working method in the pilot study buildings. 1 publishable fact sheet for each pilot study building in English and native language and 1 detailed report in native languages of each participating country.	34

III. Distribution of tasks of each partner in this work package (Award criterion 5):

Partner	Task(s) for this partner organization	Related to Task N°
SINTEF *WP leader*	- Leader of this work package - Supervises and coordinates all tasks managed by the project partners and coordinates the deliveries of the work package - Manages all the reporting to the project coordinator based on the deliverables of this work package	3.1, 3.2, 3.3, 3.4, 3.5

	- Leader of the tasks 3.1, 3.2, 3.4, 3.5 - Reports the summary of the pilot study buildings (Task 3.1 D3.1.) - Selects 2-4 existing non-residential buildings for Step 1 implementation of Total Concept method in Norway (Task 3.1) - Selects 1-2 existing non-residential buildings for the Step 2 and 3 implementation in Norway (Task 3.1) - Involves the external stakeholders on national level that are needed for practical work included to the different moments in the Total Concept method (Task 3.2) - Implements the step 1 in the Total Concept method in the selected pilot study buildings in Norway, reports the results (Task 3.4, D3.2) - Coordinates the implementation of step 2 and 3 of the Total Concept method in the selected pilot study buildings in Norway, reports the results (Task 3.5, D.3.4) - Reports the results of step 1 of the Total Concept method application in the pilot study buildings in Norway (Task 3.4 D3.2) - Reports the results of Step 2 of the Total Concept method application in the pilot study buildings in Norway (Task 3.4 D3.2.) - Reports the overall results of the implementation of Step 2 in the pilot study buildings in participating countries (Task 3.5 D3.3) - Reports the overall results of the Total Concept method application in the pilot study buildings in participating countries (Task 3.5 D3.4)	
CIT	- Leader of the task 3.3 - Supports the selection of 2-4 existing non-residential buildings for Step 1 implementation of Total Concept method in Sweden and provides input to the WP leader for D3.1 (Task 3.1) - Supports the selection of 1-2 existing non-residential buildings for the Step 2 and 3 implementation in Sweden (Task 3.1) - Involves the external stakeholders on national level that are needed for practical work included to the different moments in the Total Concept method (Task 3.2) - Selects 1 existing non-residential building for the demonstration project of Step 1 implementation of Total Concept method (Task 3.3) - Coordinates the demonstration project and knowledge transfer (Task 3.3) - Implements the Step 1 of the Total Concept method in the selected demonstration project in Sweden (Task 3.3) - Implements the Step 1 of the Total Concept method in the selected other pilot study buildings in Sweden (Task 3.4) - Coordinates the implementation of the step 2 and 3 in the Total Concept method in the selected 1-2 pilot study buildings in Sweden (Task 3.5) - Reports the results of step 1 of the Total Concept method application in the pilot study buildings in Sweden (Task 3.4 D3.2)	3.1, 3.2, 3.3, 3.4, 3.5

	- Reports the results of Step 2 of the Total Concept method application in the pilot study buildings in Sweden, provides input to the WP leader for D3.3 (Task 3.4) - Reports the overall results of the Total Concept method application in the pilot study buildings in Sweden (Task 3.5 D3.4)	
SBI/AAU, EKVÜ, RAMBØLL, Bionova	- Supports the selection of 2-4 existing non-residential buildings for Step 1 implementation of Total Concept method and provides input to the WP leader for D3.1 (Task 3.1) - Supports the selection of 1-2 existing non-residential buildings for the Step 2 and 3 implementation in their country and provides input to the WP leader for D3.1 (Task 3.1) - Involves the external stakeholders in their country that are needed for practical work included to the different moments in the Total Concept method and provides input to the WP leader for D3.1 (Task 3.2) - Implements the Step 1 in the Total Concept method in the selected pilot study buildings in their country (Task 3.4) - Coordinates the implementation of Step 2 and 3 in the Total Concept method in the selected 1-2 pilot study buildings in their country (Task 3.5) - Reports the results of step 1 in the Total Concept method application in the pilot study buildings in Sweden (Task 3.4 D3.2) - Reports the results of Step 2 in the Total Concept method application in the pilot study buildings in their country, provides input to the WP leader for D3.3, Task 3.4. - Reports the overall results of the Total Concept method application in the pilot study buildings in their country (Task 3.5 D3.4)	3.1, 3.2, 3.4, 3.5
RAMBØLL, RKAS	- Selects 2-4 existing non-residential buildings for the Step 1 implementation of Total Concept method in their country and provides input to the WP leader for D3.1 (Task 3.1) - Selects 1-2 existing non-residential buildings for the Step 2 and 3 implementation in their country and provides input to the WP leader for D3.1 (Task 3.1) - Involves the relevant stakeholders and key actors that are needed for practical work included to the different moments in the Total Concept method and provides input to the WP leader for D3.1 (Task 3.2) - Supports the implementation of Step 1 in the Total Concept method in the selected pilot study buildings in their country (Task 3.4) - Implements the Step 2 and 3 in the Total Concept method in the selected 1-2 pilot study buildings in their country (Task 3.5) - Supports reporting the results of the Total Concept method application in the pilot study buildings in their country (Tasks 3.4 and 3.5 D3.3, D3.4, D3.4)	3.1, 3.2, 3.4, 3.5
SCC, DACC	- Provides input for the selection of 2-4 existing non-residential buildings for the Step 1 implementation of Total Concept method (Task 3.1) - Provides input for the selection of 1-2 existing non-residential buildings for the Step 2 and 3 implementation (Task 3.1)	3.1, 3.2

	- Assists in involving the external stakeholders needed for practical work included to the different moments in the Total Concept method (Task 3.2)	

Major other specific costs:

Partner	Task(s)	Description	Foreseen amount
CB5, RKAS	3.5	Measurement equipment needed to carry out energy use measurements for follow-up in Step 3. This are additional energy meters besides the ordinary debiting meters (that already exists) and they are needed, only in this project, for detailed mapping of energy use . The costs includes installation of the additional meters and data collecting system.	9 000 Euro

Major subcontracts:

Partner	Task(s)	Subcontractor	Foreseen amount
CB9, Bionova	3.4	Subcontractors are needed for carrying out an energy audit, cost and energy calculations of identified measures in the selected pilot building. The subcontractor will be decided after tendering has been carried out.	8 000 Euro

The subcontractors identified / to be identified were / will be selected following the provisions of Article II.9 of the Grant Agreement on competitive grounds on the basis of best value for money.

5.2.4 Work Package 4

N° of work package: 4	Evaluation and recommendations
Duration in months: 24	**EKVÜ**

I. Description of the work:

a) Overview of the Work package:

This work package aims to evaluate the experiences from the pilot studies carried out in WP3 and provide further recommendations for the implementation of the Total Concept method on the national and European scale. In addition, improvements in the developed Total Concept method information materials and tool-kit will be made.

b) Description of the tasks:

Task 4.1. National evaluations of the pilot studies

According to this task the results from the pilot studies carried out in WP3 will be analysed in order to provide further guidelines about the implementation of the Total Concept working method in each participating country. The evaluation will include the analysis on the following:

- Summary of the results from all pilot projects in the different participating countries, analysis of the prerequisite conditions, energy savings, cost effectiveness;

- Carrying out the different working moments in different steps in the Total Concept method in pilot study buildings, experiences from the pilot studies, success factors and complications faced;
- The impact of the building type and its performance characteristics on the results of cost efficient energy savings. Analysis on the main influencing factors on the results;
- The impact of the country conditions and climate conditions on the results of cost efficient energy savings. Analysis on the main influencing factors on the results;
- Involvement of the different stakeholders and key actors to the working process of carrying out a project based on the Total Concept method. Cooperation and communication between the technical and economical departments in real estate companies. Success factors for the project implementation.
- Overall success factors and major risks involved in carrying out energy retrofitting based on Total Concept method.

The task forms the basis for the national guidelines for the implementation of the Total Concept method, Task 4.2. Continuous follow-up is needed during the process of implementing the Total Concept in pilot studies on national level.

Since the timeframes of finishing the different steps of the Total Concept method in the pilot studies is strongly dependent of the size and complexity of the building then this task can be started when Step 1 in the first pilot building is finished and continues throughout the entire project until the Step 3 is finished in last selected buildings.

Task 4.2. Development of national guidelines and improvements in the Total Concept tool-kit
The pilot studies carried out in the TOTAL CONCEPT project will provide a great input on how the Total Concept working method can further be developed for the successful implementations in different countries. Experiences from adopting the Total Concept working method to national conditions give input to both general as well as country specific recommendations.

This task aims to develop national guidelines and tools needed for Total Concept method implementation on a national scale. The information materials and the tool-kit of the Total Concept method developed in WP2 will be improved and further developed. Results from the analysis in Task 4.1 provide a valuable input to the updates and changes needed. An interim and final updates will be made to the Total Concept information materials and the tool-kit for their application and promotion outside the project consortium.

Each participating country will adapt and translate the updates and developed materials into their national specific conditions and national language.

Task 4.3. Overall recommendations for the general Total Concept method implementation on an European scale
The aim of the current project is to to initiate larger energy performance improvement projects in existing buildings and resolve the barriers for finding economically profitable solutions for investments for energy performance improvements in the non-residential building sector. The pilot studies provide a great input on method implementation and valuable references for promoting the working method of Total Concept on a broader scale in the participating countries. Furthermore, from the different national experiences it is possible to develop general recommendation for the implementation of the Total Concept method in Europe.

This task aims to provide the general recommendations for the implementation of the Total Concept method in European based on the results from the pilot studies. The analysis and recommendations for Total Concept method implementation on a European scale should include:

- Prerequisites and guidelines for successful implementation of Total Concept method in different countries.

- Roles and involvement of different stakeholders and key actors within the Total Concept method implementation.
- Guidelines for the use of Total Concept method tool-kit and its adaption to the specific national conditions.

The detailed content of the recommendations for the implementation of the Total Concept method on European scale will be decided upon during the working process of this project and will be influenced by the results from tasks 4.1 and 4.2.

IIa. Outputs of this work package (apart from deliverables):

O1. Overview of the results of applying the Total Concept method on the national level among the participating countries

O2. Detailed guidelines and tools available to support the Total Concept method implementation on a national level

O3. Overall recommendations for the general European applications of the Total Concept method

IIb. Deliverable of this work package:

Deliverable	**Delivery Month**
D4.1 An internal report on the preliminary results of the implementation of the Total Concept in the different participating countries.	20
D4.2 A publishable report on the evaluation of the results of the national pilot projects in the different participating countries. Available in English language.	35
D4.3 Updated information materials on the Total Concept method and its application. Available in English language and participating countries native languages at the project website.	23,35
D4.4 Updated common tool-kit for the Total Concept method implementation. Available in English language at the project website.	23,35
D4.5 Updated tool-kit for the Total Concept method implementation on a national level in each participating country. Available in participating countries native languages at the project website.	24,35
D4.6 Report on the Total Concept working method applications on an European scale. Available in English language at the project website.	35

III. Distribution of tasks of each partner in this work package (Award criterion 5):

Partner	Task(s) for this partner organization	Related to Task N°
EKVÜ *WP leader*	- Leader of this work package - Supervises and coordinates all tasks managed by the project partners and coordinates the deliveries of the work package - Manages all the reporting to the project coordinator based on the deliverables of this work package - Leader of the tasks 4.1 and 4.3 - Provides input to the results on the evaluation of the results of the national pilot projects (Task 4.1) - Provides input to the recommendations for the Total Concept working method applications on an European scale (Task 4.3) - Coordinates the input from the project partners and reports on the evaluation of the preliminary results of the national pilot projects (Task 4.1 D4.1.) - Coordinates the input from the project partners and reports	4.1, 4.2, 4.3

	the evaluation of the results of the national pilot projects (Task 4.1 D4.2) - Coordinates the input from the project partners and reports on the recommendations for Total Concept working method applications on an European scale (Task 4.3 D4.6) - Provides input to the needed updates in the information materials on the Total Concept method and its application (Task 4.2) - Provides input to the needed updates in the common tool-kit for the Total Concept method implementation (Task 4.2) - Develops national guidelines and updates the tool-kit for the Total Concept method implementation in Estonia (Task 4.2, D4.3 and D4.5)	
CIT	- Leader of the Task 4.2 - Provides input to the report on the evaluation of the results of the national pilot projects (Task 4.1) - Updates the information materials on the Total Concept method and its application (Task 4.2 D4.3) - Updates the common tool-kit for the Total Concept method implementation (Task 4.2 D4.4) - Develops national guidelines and updates the tool-kit for the Total Concept method implementation in Sweden (Task 4.2, D4.3 and D4.5) - Provides input to recommendations on the Total Concept working method applications on an European scale (Task 4.3)	4.1, 4.2, 4.3
SINTEF, SBI/AAU, Bionova	- Provides input to the report on the evaluation of the results of the national pilot projects (Task 4.1) - Provides input to recommendations on the Total Concept working method applications on an European scale (Task 4.3) - Provides input to the needed updates in the information materials on the Total Concept method and its application (Task 4.2) - Provides input to the needed updates in the common tool-kit for the Total Concept method implementation (Task 4.2) - Develops national guidelines and updates the tool-kit for the Total Concept method implementation in their country (Task 4.2, D4.3 and D4.5)	4.1, 4.2, 4.3
RAMBØLL, RKAS, DACC, SCC	- Provides input to the report on the evaluation of the results of the national pilot projects (Task 4.1) - Provides input to the recommendations on the Total Concept working method applications on an European scale (Task 4.3) - Provides input to the needed updates in the information materials on the Total Concept method and its application (Task 4.2) - Provides input to the needed updates in the common tool-kit for the Total Concept method application (Task 4.2) - Provides input to the needed updates in the information materials and the tool-kit for the Total Concept method implementation in their country (Task 4.2)	4.1, 4.2, 4.3

Major other specific costs:

Partner	Task(s)	Description	Foreseen amount (Euro)
CB2, SBI/AAU	4.2	Translation of the updates in the Total Concept method tool-kit	600
CB4, SINTEF	4.2	Translation of the updates in the Total Concept method tool-kit	600
CB7, EKVÛ	4.2	Translation of the updates in the Total Concept method tool-kit	600
CB8, SCC	4.2	Translation of the updates in the Total Concept method tool-kit	600
CB8, Bionova	4.2	Translation of the updates in the Total Concept method tool-kit	600

Major subcontracts:
None

The subcontractors identified / to be identified were / will be selected following the provisions of Article II.9 of the Grant Agreement on competitive grounds on the basis of best value for money.

5.2.5 Work Package 5

N° of work package: 5	Implementation and training on national level
Duration in months: 18	**SBI/AAU**

I. Description of the work:

a) Overview of the Work package:
In order to transfer the concept of Total Concept method on a broader scale and assure that the concept will be successfully replicated outside the project consortium it is necessary that the different stakeholders and key actors in Total Concept implementation have sufficient knowledge on how to carry out a project based on the Total Concept method. It is highly relevant that the future applications will be in accordance to the developed concept and that good quality of the results can be assured.

This work package aims to prepare and carry out the relevant knowledge transfer to the different stakeholders and key actors involved with the future Total Concept method implementation in participating countries. Additionally, this work package aims to form the relevant support needed for the successful replication of the Total Concept method on broader scale.

b) Description of the tasks:

Task 5.1 Development of the training materials for the Total Concept method applications
This task aims to develop training materials needed to train the different stakeholders and key actors in the Total Concept method implementation outside the project consortium. The common stakeholders and key actors in the Total Concept method implementation are:

- Property owners/clients
- Property managers
- Energy consultants
- Design engineers, architects
- Contractors and technology providers
- Maintenance staff working managing the buildings

The content of the training materials should address the different stakeholders and key actors of the Total Concept method. The prepared materials should include all the necessary information for

knowledge transfer so that the Total Concept method will be successfully replicated outside the project consortium. In the training sessions following topics should be discussed:

- The fundamentals of the Total Concept method
- The Economic principles of the Total Concept method
- The roles and responsibilities of the property owner´s/clients and energy consultant in Step 1
- Guidelines for the energy consultants when carrying out different working moments in Step 1, quality assurance in Step 1
- The roles and responsibilities of the property owner´s/clients, design engineer and contractors/technology providers in Step 2
- The design work, implementation of the measures, functional performance checks and quality assurance in Step 2
- Energy monitoring and follow up in Step 3

The detailed content of the training materials will be decided upon during the working process of the TOTAL CONCEPT project. The main contents of the training materials are the results of WP4.
The training materials will include the materials needed for the trainers to carry out the trainings, e.g. Power Point slides, practical exercises, guidelines, in addition to the materials given to the course participants (e.g. course compendium, presentation slides). Common training materials will be first prepared in English and thereafter each participating country will then adapt and translate the developed materials into their own language and national specific conditions.

Task 5.2 National training courses on the Total Concept method
According to this task national training courses will be carried out for the different stakeholders and key actors on how to apply the Total Concept method. The national trainings will be addressing the following target groups:

a) Private and public real estate companies and building owners, companies investing in the energy performance improvements, property managers, property maintenance personnel
b) Consultants and engineers working with energy performance improvements
c) Contractors, technology providers

The course is proposed to extend over two days (6-8 hours per day), preferably in succession. It is proposes that the first day would be targeting all stakeholders and key actors listed above. The second day would be planned for the consultants and energy experts who will be carrying out the Step 1, forming an action package, in the BTC method. The national training courses target 50-100 participants representing the different stakeholder groups. The detailed outline of the national training sessions will be decided upon during the working process of the TOTAL CONCEPT project, since the need for in depth information and training can be somewhat different in the participating countries.

The materials developed in Task 5.1 will be used in the national trainings. Course materials (e.g. course compendium, presentation slides), will be made available to the course participants both in paper form and in a digital form, which will be uploaded to the project webpage.

The national courses will be given by the partner organizations, who are participating in the current project. The practical details of the trainings on the national level, e.g. location, time schedule, will be decided by the participating countries considering the local conditions.

Task 5.3 Establishing help desks for Total Concept method implementation
In order to assure sufficient support for the Total Concept replicators outside the project consortium online national help desks will be established in connection to the project website (Task 6.2). The help desk will be created for giving advice to interested stakeholders and key actors in the Total Concept method implementation on a national level, providing available information materials, expert consultancy regarding technical issues and support to the process of project realization and guiding

the interested persons to qualified organizations or experts, e.g. members of the project consortium, their partners, members of the trade associations, etc.

The help desk will be organized by the availability an e-mail service during working days. The help desks are organized in national language by the specified project partners. The help desk activities are evaluated through feedback requests of "customers". A face-to-face training is organized during the training events of Task 5.2.

It is planned that the local institutes and trade associations take the ownership of the national help desks, in order to continue the support for the Total Concept method implementation also beyond the project end on a self-financed base. The details of the continuation of the dissemination activities after the project finalization will be decided as part of the Task 6.8.

Task 5.4 Planning the continuation of the trainings and knowledge transfer beyond the project frames

This task aims to study the different options for continuing the training beyond the EU funding in order to continue the support for the Total Concept method implementation also beyond the project end on a self-financed base.

It is proposed that the local institutes (i.e. Denmark, Norway), trade associations (i.e. Sweden, Estonia) and consultancy companies (i.e. Finland) take the ownership of the national trainings. However options for engaging the national training schemes for professionals (e.g. property managers, energy consultants, designers, etc.) should also be investigated. It should be also studied how quality assurance for future trainings can be assured and if any type of certification process should be developed and how this can be managed.

The outcomes of this task will be included to the report about the dissemination activities after the project finalization (Task 6.8, D 6.12).

IIa. Outputs of this work package (apart from deliverables):

O1. 2 national training courses in each participating country with at least 50-100 participants in each course. In total at least 500 people will be trained.
O2. National help desks in participating countries, which provide valuable information and support for interested stakeholders.
O3. Continuation of the Total Concept method trainings beyond the project finalization and quality assurance of the implementation.

IIb. Deliverable of this work package:

Deliverable	**Delivery Month**
D5.1 Training materials for training the stakeholders in the target groups of the Total Concept method. In English and native languages of the participating countries.	25
D5.2 Collection of course materials given in the trainings to the specific target groups in the Total Concept method applications. In English and native languages of the participating countries.	25
D5.3 Evaluation reports of the training courses held in each participating country, including a list of participants, minutes of the training sessions and summary of the feedback. One report per country and in English.	35
D5.4 Evaluation reports on the Total Concept method help desk activities. One report per country and in English.	36

III. Distribution of tasks of each partner in this work package (Award criterion 5):

Partner	Task(s) for this partner organisation	Related to Task N°
SBI/AAU *WP leader*	- Leader of this work package - Supervises and coordinates all tasks managed by the project partners and coordinates the deliveries of the work package - Manages all the reporting to the project coordinator based on the deliverables of this work package - Leader of the tasks 5.1, 5.2 and 5.3 - Develops the training materials for the trainers in English (Task 5.1 D5.1) - Develops the collection of course materials for the course participants in English (Task 5.1 D5.2) - Adapts the training materials and the collection of course materials for the course participants to Danish conditions (Task 5.1, D5.1 and D5.2) - Carries out the trainings in Denmark, documentation of the results (Task 5.2 D5.3) - Supports the national help desk service in Denmark (Task 5.3) - Planning the continuation of the trainings and knowledge transfer in Denmark beyond the project frames (Task 5.4)	5.1, 5.2, 5.3, 5.4
CIT	- provides input to the training materials prepared for the trainers (Task 5.1) - provides input to the collection of course materials for the course participants (Task 5.1) - Adapts the training materials and the collection of course materials for the course participants to Swedish conditions (Task 5.1, D5.1 and D5.2) - Carries out the trainings, documentation of the results (Task 5.2 D5.3) - Supports the national help desk service in Sweden (Task 5.3) - Planning the continuation of the trainings and knowledge transfer in Sweden beyond the project frames (Task 5.4)	5.1, 5.2, 5.3, 5.4
SINTEF, EKVÜ Bionova	- provides input to the training materials prepared for the trainers (Task 5.1) - provides input to the collection of course materials for the course participants (Task 5.1) - Adapts the training materials and the collection of course materials for the course participants to local conditions, makes the translations (Task 5.1, D5.1 and D5.2) - Coordinates and organizes the local training seminars (Task 5.2) - Carries out the trainings in their country, documentation of the results (Task 5.2 D5.3) - Creates and operates the national help desk service, reporting (Task 5.3, D5.4) - Planning the continuation of the trainings and knowledge transfer in their country beyond the project frames (Task 5.4)	5.1, 5.2, 5.3, 5.4
DAAC, SCC	- Translates the training materials for the trainers to the native language when needed (Task 5.1 D5.1) - Translates the collection of course materials for the course participants to the native language when needed (Task 5.2 D5.2) - Coordinates and organizes the local seminars (Task 5.2)	5.1, 5.2, 5.3

	- Creates and operates the national help desk service, reporting (Task 5.3, D5.4)	
RKAS Rambøll	- provides input to the training materials prepared for the trainers (Task 5.1) - provides input to the collection of course materials for the course participants (Task 5.1) - Provides support and contribution to the national trainings (Task 5.2) - Supports the national help desk service (Task 5.3)	5.1, 5.2, 5.3

Major other specific costs:

Partner	Task(s)	Description	Foreseen amount (Euro)
CB4, SINTEF	5.1	Translation, layout and printing of course material	2400
CB6, DACC	5.1	Translation, layout and printing of course material	2400
CB7, EKVÛ	5.1	Translation, layout and printing of course material	2200
CB8, SCC	5.1	Translation, layout and printing of course material	2400
CB9, Bionova	5.1	Translation, layout and printing of course material	2400
CB4, SINTEF	5.2	Training expenditures: room rent, catering, logistics	1500
CB6, DACC	5.2	Training expenditures: room rent, catering, logistics	1500
CB7, EKVÛ	5.2	Training expenditures: room rent, catering, logistics	1200
CB8, SCC	5.2	Training expenditures: room rent, catering, logistics	1500
CB9, Bionova	5.2	Training expenditures: room rent, catering, logistics	1500

Major subcontracts:

None

The subcontractors identified / to be identified were / will be selected following the provisions of Article II.9 of the Grant Agreement on competitive grounds on the basis of best value for money.

5.2.6 Work Package 6

N° of work package: 6	Communication and Dissemination

Duration in months: 36	**DACC**

I. Description of the work:

a) Overview of the Work package:
In the TOTAL CONCEPT project special attention will be given to the dissemination and communication activities using various forms and tools, such as website, information materials and professional publications, trainings, workshops, seminars, conferences and other events. The success of the dissemination activities and good communication will be assured by internal communication, distribution of tasks, status reporting and administration within the project consortium.

Both the Work package 5 and Work package 6 include relevant actions for spreading the concept of Total Concept method on a broader scale and assure that the concept will be successfully replicated outside the project consortium both on national and international level. The WP 5 aims to prepare and carry out the relevant knowledge transfer to the different stakeholders and key actors involved with the future Total Concept method implementation on national level. The WP6 aims to promote the Total Concept method applications and results from this project both on national and international level. The activities in this work package aim at communicating to and involving the following target groups:

- Public and private property owners of non-residential buildings;
- Public and private financers connected to energy performance improvement projects, e.g. ESCO companies, tenants 'companies, etc.
- Building owners trade associations;
- Key actors in the building industry: energy consultants and design engineers, construction companies, technology providers, facility management companies, etc.;
- Local and national authorities.

The main contents of communication and dissemination activities are the results of WP2-4, in particular the pilot studies of WP3 as well as developed national and international guidelines and recommendations in WP4. In dedicated activities the different target groups will be addressed with the results from WP3 and WP4.

The dissemination plan of this project will benefit from the large networks of the different project partners both on national and international level. Promotion addressed to the national public and private property owners of non-residential buildings and financers connected to energy performance improvement projects will be performed continuously during the project. Here the trade associations play a major part with direct communication with their members. They will analyze target groups, the objectives and define communication plans in order to reach the most effective communication.

The dissemination activities will be carried out in 8 different subtasks.

b) Description of the tasks:

Task 6.1 Dissemination and communication planning
In order to perform target and impact oriented dissemination and communication activities a detailed plan for the dissemination and communication actions will be prepared for each participating country and on European level. The strategic goal of the communication plan is to assure effective communication with external stakeholders and key actors and successful dissemination outcomes. The dissemination and communication plan will include targets set on national and European level, detailed activity plan, allocation of responsibilities, specification of the planned communication channels and guidance on how to use them in a best way, specification of performance indicators. The dissemination and communication plan should also specify how the outcomes will be forwarded to the national authorities and policy makers and how the local trade associations can be best involved for spreading the information and involving their members for dissemination activities.

The dissemination and communication plan are elaborated for month 3 and presented with the first progress report. The dissemination plan will be continuously updated and completed for each reporting period of the project.

Different countries may require different approaches when engaging the relevant stakeholders of the target group. The national dissemination plan shall consider and show suitable concept that address this. The dissemination activities aimed at national target groups may need to be in the country's language and the development of a communication network will therefore be required.

The dissemination and communication plan will define individually for each country the targets and the activities carried out, with their timing and implementation details, e.g. type of e-activities, planned publications, names of the events, objective of the activity and target groups, expected target audience, number of persons to be reached and expected impact. The means to reach the different target groups shall be specifically described. The format and language in which the information is presented shall be chosen differently depending on the target group.

The planning of dissemination and communication activities at European level shall consider suitable methods for general European applications of the Total Concept method.

The result and evaluation report for each dissemination activity, a feed-back analysis as well as clippings from the presentations, articles, etc., will be included to the reporting part. The reporting covers dissemination activities of Tasks 5.2, 5.3, 6.3, 6.4, 6.5, 6.6, 6.7 and 6.8.

Task 6.2 Establishing a project website

During the 5 months from the project start a website will be launched with the aim to create awareness and interest in the project, increase the visibility of the deliverables and provide a dissemination channel for the project results and activities. The website is shaped to directly address the target groups of the project. All completed reports and other information materials will be uploaded to the website as well as news and updates about ongoing activities. Furthermore, the website can also include interesting news in the field of EPBD as wells as links to other important websites. The project website will also be promoted in other relevant websites, e.g. project partners and external stakeholders.

The website will be programmed in a way to allow content uploading by all partners. The website includes a work space reserved for the project partners. The main website is in English language. Most relevant pages are available in the national languages of participating countries for national dissemination.

Task 6.3 Production of dissemination materials

Following dissemination materials will be produced for the national and international promotion of the Total Concept method implementation:

- **A leaflet** promoting the Total Concept method and targeted to the main stakeholders: public and private property owners of non-residential buildings and financers connected to energy performance improvement projects. A common leaflet is produced in English language and adapted to the local conditions and to local language by each partner. The information leaflet will both in digital form as well as in printed form.
- **A brochure** promoting the Total Concept method by presenting general information about the Total Concept method, information about the current project and overview of the national references, information about the Total Concept method tool-kit, help desk details, etc. A common information brochure will be 8-10 pages and made in English and adapted to the local conditions and to local language by each partner. The information brochures will both in digital form as well as in printed form. About 3000 copies will be printed and in color.
- **Four Project e-newsletters** informing about the TOTAL CONCEPT project, recent developments, results, international and national events and news related to Total Concept method implementation outside the project consortium. The newsletter promotes also all tools

and information materials developed in the TOTAL CONCEPT project as well as its events. The newsletter is distributed to all target groups through national and international networks of the project partners. A common newsletter will be in made in English and translated to the national languages of the project partners.

The deliverables from WP 3 and WP4 will be used as basis for the dissemination materials. Here specifically the results from Step 1 in the pilot buildings will be used as basis, since Step 2 and 3 may not be ready for the time than the brochures are needed.

Task 6.4 Seminars for the stakeholders in the target group
To promote the Total Concept method applications and outcomes from the current project seminars will held in each participating country inviting the different stakeholders from the project dissemination target group to participate. This includes trade associations, public and private financers, public and private real estate owners of non-residential buildings, local authorities and policy makers, energy consultants, architects, design engineers, construction companies and technology providers, etc. The aim of the event is to promote cost efficient energy retrofitting of existing non-residential buildings, inform about the Total Concept method and its application possibilities, give information about the TOTAL CONCEPT project and its outcomes, inform about the national Total Concept method coaching and training activities and create a network among possible replicators and stakeholders of the Total Concept method implementation. These seminars also aim to share the existing experiences from the major energy retrofitting in non-residential buildings among participants, e.g. technical solutions, financing models, project management, etc. Special sessions for information sharing can be made in the seminar program.

The Total Concept method seminar is a half day or one day event and can also include a study visit to the pilot study building(s) part of the WP3 or other reference building, where the practical implementation of the Total Concept method can be demonstrated. The detailed outline of the national seminars will be decided upon during the working process of the Total Concept project, since the need for in depth information can be somewhat different in the participating countries. The deliverables from work package 4 will be used as basis for the presentation materials in the seminars.

Each participating country will organize 1-2 national seminars. The seminars are financed partly by the national partners and by the contribution from IEE. Introducing a small fee is optional. The practical details of the seminars, e.g. location, time schedule, seminar promotion, will be decided by the participating countries considering the local conditions. Feedback from the seminar participants will be gathered.

It is planned that the local institutes (i.e. Denmark, Norway), trade associations (i.e. Sweden, Estonia) and consultancy companies (i.e. Finland) take the ownership of these seminars, in order to continue these seminars beyond the project end on a self-financed base. The details of the continuation of the dissemination activities after the project finalization will be decided as part of the Task 6.8.

Task 6.5 Total Concept working meetings
Total Concept working meetings are workshops of half day and are integrated into or combined with regular TOTAL CONCEPT project meetings. The workshops aim to discuss the different aspects related to the major energy retrofitting in non-residential buildings as well as the relevant issues related to practical implementation of the Total Concept method. The working meetings should include discussions on the following:

- Technical and non-technical barriers for major energy retrofitting in non-residential building sector
- Financing models for major energy retrofitting
- Technical solutions for energy performance improvements in non-residential buildings
- Management aspects in major energy retrofitting projects, etc.
- Issues related to practical implementation of the Total Concept method.

The workshops aim to gather the stakeholders and key actors involved in the current project (identified in WP3) as well as other relevant parties on national level outside the TOTAL CONCEPT project consortium, e.g. financers, local authorities, technology providers, consultants, representatives from the trade associations, etc. The working meetings have a working character and aim at the involvement of the different stakeholders and parties relevant to the successful and efficient implementation and dissemination of the current project.

In total 5-6 Total Concept working meetings will be held. The detailed content and outline of these working meetings will be decided upon during the working process of the TOTAL CONCEPT project. The planning of content of the Total Concept working meetings will be made by the participating country who holds the TOTAL CONCEPT project meeting together with the project coordinator and work package leaders. The practical details of the working, e.g. location, time schedule, invitations will be decided by the participating countries. Feedback from the working meeting participants will be gathered.

Task 6.6 Presentations at international and national conferences, seminars or fairs
The implementation of the Total Concept method and the results of the TOTAL CONCEPT project will be presented at conferences, seminars, fairs and other events addressing the different stakeholders in the target groups on the national level. The presentations are specific on the project results, e.g. pilot studies, guidelines and recommendations for the Total Concept implementation, the support services of the TOTAL CONCEPT project, etc. The deliverables from work package 2, 3, 4 and 5 will be used as basis for the presentation materials.

Each participating country will make 2-3 presentations at national events targeting the different stakeholders (e.g. seminars and conferences specifically organized for property owners and property managers; energy consultants and design engineers; contractors).- Additionally 2-3 presentations will be made at international conferences, seminars or fairs in order to promote the cost-efficient energy retrofitting in existing non-residential buildings based on Total Concept method as well as present the results of the TOTAL CONCEPT project.

Task 6.7 Articles in different journals/magazines on national and international level
Articles to different journals/magazines in each participating country will be written about the implementation of the Total Concept method and outcomes of the TOTAL CONCEPT project. At least 2 articles will be written in each participating country for the papers/trade journals addressing the target groups. Articles are also launched in magazines/papers targeted at the policy makers and public sector. At least 2-3 articles will be written in international newspapers/trade journals.

Possible magazines and journals: magazines targeting non-residential real estate owners, trade journals, national magazines about HVAC-systems, journals targeting key actors in the building process, magazines with the focus on policy and general developments in the field of energy efficiency, etc.

Task 6.8 Preparation of further dissemination beyond the project frames
In order to continue with spreading the concept of Total Concept method on a broader scale and assure that the concept will be successfully replicated outside this project frames a future dissemination plans will be made. Before the project ends the project management group will prepare a continuing dissemination plan after the project finalization. This plan will include the details of the continuation of the Total Concept seminars and trainings for the different stakeholders, continuation of the helpdesk activities, etc. Additionally, detailed planning will be made for further dissemination to other European countries and possibilities to adopt the Total Concept method to the residential sector.

IIa. Outputs of this work package (apart from deliverables):

O1. A project website that will be updated regularly with activity up-dates, intermediate and final results of the project
O2. Direct stakeholder involvement in 5 participating countries. Dissemination of the results on European level.
O3. Communication at a professional level including:

- 10 000 leaflets distributed within the participating countries and to other interested countries beyond the project group
- 3000 brochures distributed within the participating countries and to other interested countries beyond the project group
- 4 e-newsletters

O4. A presentation and promotion for different target groups on national and international level;
O5. 5-6 Total Concept working meetings for stakeholders and key actors involved in the current project as well as other relevant parties on national level, e.g. financers, local authorities, technology providers, consultants, representatives from the trade associations, etc. At least 30 participants in each working meeting;
O6. 1-2 national seminars for local authorities and other important stakeholders in each participating country with at least 50-100 participants in each seminar, in total the aim is to reach at least 500 participants in 5 different countries.
O7. Presentations at least in 2-3 national conferences, seminars or fairs in each participating country and at least in 2-3 international conferences;
O8. At least 2 articles in important news papers/trade journals about the Total Concept project and method in each participating country. At least 2-3 articles in international newspapers/trade journals.
O9. The Total Concept method implementation on a broader scale and concept replications after the project finalization.

IIb. Deliverable of this work package:

Deliverable	**Delivery Month**
D6.1 Dissemination plan	3
D6.2 Reports for dissemination planning, reporting, evaluation, documentation in each participating country. One report per country and in English.	3,10,18,27,36
D6.3 Project website with online workspace. The main website is in English language. Most relevant pages are available in the national languages of participating countries for national dissemination.	5
D6.4 A leaflet promoting the Total Concept method and targeted to the main stakeholders in each participating country. The leaflet will be in native languages of each participating country and in English	9
D6.5 An information brochures promoting the Total Concept method and project outcomes. The brochures will be in native languages of each participating country and in English	21
D6.6 E-newsletters in four editions in English and national languages	14,22,28,35
D6.7 Presentation materials at seminars targeting local authorities and other important stakeholders in each participating country. In native languages	22
D6.8 Evaluation reports of national seminars held in each participating country, including a list of participants, minutes of the seminars and summary of the feedback. One report per country and in English.	35
D6.9 Presentation materials at Total Concept working meetings, in English.	5,10,16,22,28
D6.10 Evaluation reports of Total Concept working meetings, including a list of participants, minutes of the training sessions and summary of the feedback. One report per meeting and in English.	35

D6.11 Presentation materials at national and international conferences, seminars or fairs. In native languages and in English	25
D6.12 Articles in journals and magazines in each country and in international magazines/conference proceedings	35
D 6.13 Report about the dissemination plan and the continuation of the trainings beyond the project lifetime.	36

III. Distribution of tasks of each partner in this work package (Award criterion 5):

Partner	Task(s) for this partner organisation	Related to Task N°
DACC *WP leader*	- Leader of this work package - Supervises and coordinates all tasks managed by the project partners and coordinates the deliveries of the work package - Manages all the reporting to the project coordinator based on the deliverables of this work package - Coordinates the development of the dissemination plans and follow-up in each country (Task 6.1) - Administrates the Danish sites of the project web-page (Task 6.2, D.6.2) - Develops of the layout to the information brochures and leaflets (Task 6.3 D6.3, D6.4) - Develops of national information brochures and leaflets in Denmark (Task 6.3 D6.3, D6.4) - Develops the e-Newsletters in Danish (Task 6.3, D.6.5) - Administrates the organization of national seminars, documentation of the results (Task 6.4, D6.7) - provides input by approaching and inviting the target groups for the training courses in Denmark - promotes the project outcomes in their networks - Writes an article in 1-2 journal(s) targeting the stakeholders or key actors in Denmark (Task 6.7 D6.11) - Coordinate the development of the dissemination plan beyond the project frames (Task 6.8, D6.12)	6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8
SCC	- Leader of task 6.2 - Develops, manages and updates the project website (D6.2) - Administrates the Swedish sites of the project web-page (Task 6.2, D.6.2) - Develops of national information brochures and leaflets in Sweden (Task 6.3 D6.3, D6.4) - Develops the e-Newsletters in English and in Swedish (Task 6.3, D.6.5) - Administrates the organization of national seminars, documentation of the results (Task 6.4, D6.7) - Administrates the organization of one Total Concept working meeting, documentation of the results (Task 6.5, D6.9) - Writes an article in 1-2 journal(s) targeting the stakeholders or key actors in Sweden (Task 6.7 D6.11) - provides input by approaching and inviting the target groups for the training courses in Sweden - promotes the project outcomes in their networks	6.1, 6.2, 6.3, 6.4, 6.5, 6.7
RKAS,	- provides input by approaching and inviting the target groups	6.3, 6.4, 6.5,

Rambøll	for the training courses in their country - promotes the project outcomes in their networks - Contributes to the e-Newsletter (Task 6.3) - Supports the national seminars and Total Concept working meetings (Tasks 6.4 and 6.5) - Writes an article in 1 journal targeting the stakeholders or key actors in their country (Task 6.7 D6.11)	6.7
CIT, SBI/AAU	- Develops the dissemination and communication plan and reports the results in their country (task 6.1, D6.1) - Assist in the external dissemination of the project results in their country (i.e. information brochures, articles and presentations) - Contributes to the e-Newsletter (Task 6.3) - Develops the presentation materials and carries out the national seminars (Task 6.4 D6.6) - Develops the presentation materials for the Total Concept working meetings (Task 6.5 D6.8) - Administrates the organization of one Total Concept working meetings, documentation of the results (Task 6.5, D6.9) - presentation of the project results at different national conferences, seminars, fairs (Task 6.6, D6.10) - presentation of the project results at different international conferences, seminars, fairs (Task 6.6, D6.10) - Writes articles in 1-2 journals targeting the stakeholders or key actors in their country (Task 6.7 D6.11) - promotes the project outcomes in their networks - Prepares the dissemination plan beyond the project frames (Task 6.8, D6.12)	6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8
SINTEF	- Develops the dissemination and communication plan and reports the results in their country (task 6.1, D6.1) - Coordinate the external dissemination of the project results in their country (i.e. information brochures, articles and presentations) - Administrates the Norwegian sites of the project web-page (Task 6.2, D.6.2) - Develops the national information brochures and leaflets in Norway (Task 6.3 D6.3, D6.4) - Develops the e-Newsletters in Norwegian (Task 6.3, D.6.5) - Develops the presentation materials for the national seminars (Task 6.4 D6.6) - Administrates the organization of national seminars, documentation of the results (Task 6.4, D6.7) - Develops the presentation materials for the Total Concept working meetings (Task 6.5 D6.8) - Administrates the organization of one Total Concept working meetings, documentation of the results (Task 6.5, D6.9) - presentation of the project results at different national and international conferences, seminars, fairs (Task 6.6, D6.10) - Writes articles in 2-3 journals targeting the stakeholders or key actors in Norway (Task 6.7 D6.11) - Writes articles in 1-2 international journals (Task 6.7 D6.11) - promotes the project outcomes in their networks - Prepares the dissemination plan beyond the project frames	6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8

	(Task 6.8, D6.12)	
Bionova	- Develops the dissemination and communication plan and reports the results in their country (task 6.1 D6.1) - Coordinate the external dissemination of the project results in their country (i.e. information brochures, articles and presentations) - Administrates the Finnish sites of the project web-page (Task 6.2, D.6.2) - Develops the national information brochures and leaflets in Finland (Task 6.3 D6.3, D6.4) - Develops the e-Newsletters in Finnish (Task 6.3, D.6.5) - Develops the presentation materials for the national seminars (Task 6.4 D6.6) - Administrates the organization of national seminars, documentation of the results (Task 6.4, D6.7) - Develops the presentation materials for the Total Concept working meetings (Task 6.5 D6.8) - Administrates the organization of one Total Concept working meetings, documentation of the results (Task 6.5, D6.9) - Presentation of the project results at different national conferences, seminars, fairs (Task 6.6, D6.10) - Writes articles in 2-3 journals targeting the stakeholders or key actors in Finland (Task 6.7 D6.11) - promotes the project outcomes in their networks - Prepares the dissemination plan beyond the project frames (Task 6.8, D6.12)	6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8
EKVÜ	- Develops the dissemination and communication plan and reports the results in their country (task 6.1, D6.1) - Coordinates the external dissemination of the project results in their country (i.e. information brochures, articles and presentations) - Administrates the Estonian sites of the project web-page (Task 6.2, D.6.2) - Develops of national information brochures and leaflets in Estonia (Task 6.3 D6.3, D6.4) - Develops the e-Newsletters in Estonian (Task 6.3, D.6.5) - Develops the presentation materials for the national seminars (Task 6.4 D6.6) - Administrates the organization of national seminars, documentation of the results (Task 6.4, D6.7) - Develops the presentation materials for the Total Concept working meetings (Task 6.5 D6.8) - Administrates the organization of one Total Concept working meetings, documentation of the results (Task 6.5, D6.9) - presentation of the project results at different national conferences, seminars, fairs (Task 6.6, D6.10) - Writes articles in 1-2 journals targeting the stakeholders or key actors in Estonia (Task 6.7 D6.11) - promotes the project outcomes in their networks - Prepares the dissemination plan beyond the project frames (Task 6.8, D6.12)	6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8

Major other specific costs:

Partner	Task(s)	Description	Foreseen amount (Euro)
CB8, SCC	6.2	Web site expenditure	3000
CB4, SINTEF	6.3	Translation, layout and printing of brochures and leaflets	3000
CB6, DACC	6.3	Translation, layout and printing of brochures and leaflets	3000
CB7, EKVÛ	6.3	Translation, layout and printing of brochures and leaflets	3000
CB8, SCC	6.3	Translation, layout and printing of brochures and leaflets	3000
CB9, Bionova	6.3	Translation, layout and printing of brochures and leaflets	3000
CB3, SINTEF	6.4	National seminaries expenditures: room rent, catering, logistics	2000
CB6, DACC	6.4	National seminaries expenditures: room rent, catering, logistics	2000
CB7, EKVÛ	6.4	National seminaries expenditures: room rent, catering, logistics	2000
CB8, SCC	6.4	National seminaries expenditures: room rent, catering, logistics	2000
CB9, Bionova	6.4	National seminaries expenditures: room rent, catering, logistics	2000
CO1, CIT	6.5	Total Concept working meeting expenditures: room rent, logistics	600
CB2, SBI/AAU	6.5	Total Concept working meeting expenditures: room rent, logistics	600
CB4, SINTEF	6.5	Total Concept working meeting expenditures: room rent, logistics	600
CB7, EKVÛ	6.5	Total Concept working meeting expenditures: room rent, logistics	600
CB8, SCC	6.5	Total Concept working meeting expenditures: room rent, logistics	600
CB9, Bionova	6.5	Total Concept working meeting expenditures: room rent, logistics	600
CO1, CIT	6.6	Conference fee and travel expenditure	1400
CB2, SBI/AAU	6.6	Conference fee and travel expenditure	1400
CB4, SINTEF	6.6	Conference fee and travel expenditure	1400

Major subcontracts:

None

The subcontractors identified / to be identified were / will be selected following the provisions of Article II.9 of the Grant Agreement on competitive grounds on the basis of best value for money.

5.2.7. Work Package 7

N° of work package: 7	**IEE Common Dissemination Activities**
Duration in months: 36	**CIT**

I. Description of the work:

a) Overview of the work package:

The work package covers resources to contribute, upon request by the EACI, to common dissemination activities to increase synergies between, and the visibility of IEE-supported actions.

b) Tasks

1. Contribution, upon request by the EACI, to the development of information material (Intelligent Energy Europe Magazine, videos, images etc.), as well as inputs to European portals and databases in the quality and form specified.
2. Participation and/or contribution, upon request by the EACI, to information, training and dissemination events such as contractors' workshops, conferences, briefing days, exhibitions, etc) related to IEE or other relevant EU programmes.
3. Delivery, upon request by the EACI, of an update/further input of the action's contribution to the "IEE Common performance indicators"

II.a. Outputs of this work package:

- Delivery of agreed presentation materials and media tools
- Participation in events, such as contractor's workshops, conferences etc.

II.b. Deliverable(s) of this work package:

- To be agreed specifically at the time of the request.

Deliverable	**Delivery Month**
D7.1 Set of updated IEE Common Performance indicators including their baseline and assumptions for extrapolation	4

III. Role and contribution (tasks) of each partner in this work package:

Partner	Task(s) of this partner organisation	Related to Task N°
CIT	Participant/contribution in events	1, 2, 3
SCC	Contribution to information material	1

Major other specific costs:

Partner	Task(s)	Description	Foreseen amount (Euro)
CO1, CIT	2	Travel expenditure	2700

5.3 Overview of Deliverables

Work Package	Deliverable N°	Deliverable name a)	Type of deliverable b)	Format c	Language(s) d)	Target group e)	Lead participant f)	Dissemi-nation level g)	Month of completion h)
WP1	D1.1	Consortium agreement	Contract	Printed	EN	Project Consortium	CIT (CO1)	CO	M1
	D1.2	Minutes and documents of the coordination meetings	Paper	Electronic	EN	Project Consortium+ EACI	CIT (CO1)	CO	M2; M5; M10; M16; M22; M28; M35
	D1.3	Final publishable report	Paper	Electronic	EN	External stakeholders and key actors in Total Concept, local authorities	CIT (CO1)	PU	M36* (*= *The Final Report will be due at the latest 60 days after the end of the action. Within these two months after the end of the action only costs related to the final report and to audit certificates are eligible (Art I.11.3 of the grant agreement)*
	D1.4	Risk assessment on pilot projects	Report	Electronic	EN	Project Consortium+ EACI	CIT (CO1)	CO	M1 and at every project meeting
WP2	D2.1	Information materials on the Total Concept method and its application.	Paper	Electronic	EN	Project Consortium+ external stakeholders and key actors in Total Concept, local authorities	CIT (CO1)	PU	M4
	D2.2	Digital help tools needed for supporting the Total Concept method	Software	Electronic	EN	Project Consortium+ external stakeholders and key actors in Total	CIT (CO1)	PU	M6

		applications.				Concept			
	D2.3	Materials needed for carrying out an internal workshop within the project consortium.	Slides	Electronic	EN	Project Consortium	CIT (CO1)	CO	M4
	D2.4	Minutes and documents of the internal workshop	Paper	Electronic	EN	Project Consortium+ EACI	SCC (CB8)	CO	M5
	D2.5	A publishable report describing existing non technical barriers and suggestions for overcoming them	Paper	Electronic	EN	Project Consortium+ external stakeholders and key actors in Total Concept, local authorities	SCC (CB8)	PU	M6
	D2.6	A publishable report on the local conditions and prerequisites for adopting Total Concept method in the participating countries	Paper	Electronic	EN	Project Consortium+ external stakeholders and key actors in Total Concept, local authorities	SCC (CB8)	PU	M6
	D2.7	One common Tool-kit for the Total Concept method applications	Paper, software	Electronic	EN	Project Consortium+ external stakeholders and key actors in Total Concept	CIT (CO1)	PU	M6
	D2.8	A Tool-kit for the Total Concept method application on a national level in each participating country	Paper, software	Electronic	SE, DK, NO, EST, FIN	Project Consortium+ external stakeholders and key actors in Total Concept	CIT (CO1) SBI/AAU (CB2) SINTEF(CB4) EKVÜ (CB7) Bionova (CB9)	PU	M7
WP3	D3.1	Internal report on the selected buildings for the pilot studies and identified stakeholders and key actors for the Total Concept pilot implementation	Paper	Electronic	EN	Project Consortium+ EACI	SINTEF (CB4)	CO	M6
	D3.2	Reports on the results of implementation of Step 1 in the Total Concept working method in the pilot buildings. 1 publishable fact sheet for	Paper	Electronic	EN, SE, DK, NO, EST, FIN	Project Consortium+ external stakeholders and key actors in Total Concept	CIT (CO1) SBI/AAU (CB2) SINTEF(CB4) EKVÜ (CB7) Bionova	PU	M15

		each pilot study building in English and native language and 1 detailed report in native languages of each participating country.					(CB9) RAMBØLL (CB3) RKAS(CB5)		
	D3.3	Internal report on the results of the implementation of the Step 2 of the Total Concept working method in the pilot study buildings.	Paper	Electronic	EN	Project Consortium	SINTEF (CB4)	CO	M25
	D3.4	Reports on the results of the implementation of the Total Concept working method in the pilot study buildings. 1 publishable fact sheet for each pilot study building in English and native language and 1 detailed report in native languages of each participating country	Paper	Electronic	EN, SE, DK, NO, EST, FIN	Project Consortium+ external stakeholders and key actors in Total Concept	CIT (CO1) SBI/AAU (CB2) SINTEF(CB4) EKVÜ (CB7) Bionova (CB9) RAMBØLL (CB3) RKAS(CB5)	PU	M34
WP4	D4.1	An internal report on the implementation of the Total Concept in the different participating countries.	Paper	Electronic	EN	Project Consortium+ external stakeholders and key actors in Total Concept, local authorities	EKVÜ (CB6)	PU	M20
	D4.2	A publishable report on the evaluation of the results of the national pilot projects in the different participating countries.	Paper	Electronic	EN	Project Consortium+ external stakeholders and key actors in Total Concept, local authorities	EKVÜ (CB6)	PU	M35
	D4.3	Updated information materials on the Total Concept method and its application.	Paper	Electronic	EN, SE, DK, NO, EST, FIN	Project Consortium+ external stakeholders and key actors in Total Concept	CIT (CO1)	PU	M23, M35
	D4.4	Updated common tool-kit for the Total Concept method implementation.	Paper, software	Electronic	EN	Project Consortium+ external stakeholders and key actors in Total	CIT (CO1)	PU	M23, M35

						Concept			
	D4.5	Updated tool-kit for the Total Concept method implementation on a national level in each participating country.	Paper, software	Electronic	SE, DK, NO, EST, FIN	Project Consortium+ external stakeholders and key actors in Total Concept	CIT (CO1) SBI/AAU (CB2) SINTEF(CB4) EKVÜ (CB7) Bionova (CB9)	PU	M24, M35
	D4.6	Report on the Total Concept working method applications on an European scale.	Paper	Electronic	EN	External stakeholders and key actors in Total Concept, local authorities	EKVÜ (CB6)	PU	M35
WP5	D5.1	Training materials for training the stakeholders in the target groups of the Total Concept method.	Slides, Working paper	Electronic	EN, SE, DK, NO, EST, FIN	Project Consortium	SBI/AAU (CB2)	CO	M25
	D5.2	Collection of course materials given in the training to the specific target groups in the Total Concept method applications.	Paper, Slides	Electronic	EN, SE, DK, NO, EST, FIN	External stakeholders and key actors in Total Concept	CIT (CO1) SBI/AAU (CB2) SINTEF(CB4) EKVÜ (CB7) Bionova (CB9)	PU	M25
	D5.3	Evaluation reports of the training courses held in each participating country, including a list of participants, minutes of the training sessions and summary of the feedback.	Paper	Electronic	EN	Project Consortium+ EACI	CIT (CO1) SBI/AAU (CB2) SINTEF(CB4) EKVÜ (CB7) Bionova (CB9)	CO	M35
	D5.4	Evaluation reports on the Total Concept method help desk activities	Paper	Electronic	EN	Project Consortium+ EACI	DACC (CB6) SCC (CB8) EKVÜ (CB7) SINTEF (CB4) Bionova (CB9)	CO	M36
WP6	D6.1	Dissemination plan	Report	Electronic	EN	Project Consortium+ EACI	CIT (CO1) SBI/AAU	CO	M3

							(CB2) SINTEF(CB4) EKVÜ (CB7) Bionova (CB9)		
	D6.2	Reports for dissemination planning, reporting, evaluation, documentation (covering tasks 6.3- 6.7) in each participating country.	Paper	Electronic	EN	Project Consortium+ EACI	CIT (CO1) SBI/AAU (CB2) SINTEF(CB4) EKVÜ (CB7) Bionova (CB9)	CO	M3, M9, M18, M27, M36
	D6.3	Project website	Website/webtool	Electronic	EN, SE, DK, NO, EST, FIN	Project Consortium+ External stakeholders and key actors in Total Concept, local authorities	SCC (CB8)	PU	M5
	D6.4	A leaflet promoting the Total Concept method and targeted to the main stakeholders in each participating country	Folder	Printed	EN, SE, DK, NO, EST, FIN	External stakeholders and key actors in Total Concept, local authorities	DACC (CB6) SCC (CB8) EKVÜ (CB7) SINTEF (CB4) Bionova (CB9)	PU	M9
	D6.5	An information brochures promoting the Total Concept method and project outcomes.	Brochure	Printed, 8-10 pp, high quality, 3000 copies	EN, SE, DK, NO, EST, FIN	External stakeholders and key actors in Total Concept, local authorities	DACC (CB6) SCC (CB8) EKVÜ (CB7) SINTEF (CB4) Bionova (CB9)	PU	M21
	D6.6	E-newsletters in four editions	Newsletter	4 editions, Electronic	EN, SE, DK, NO, EST, FIN	External stakeholders and key actors in Total Concept	DACC (CB6) SCC (CB8) EKVÜ (CB7) SINTEF (CB4) Bionova (CB9)	PU	M14,M22, M28, M35
	D6.7	Presentation materials at seminars targeting local	Slides	Electronic	SE, DK, NO, EST, FIN	Project Consortium+ External stakeholders and	CIT (CO1) SBI/AAU (CB2)	PU	M22

		authorities and other important stakeholders in each participating country.				key actors in Total Concept, local authorities	SINTEF(CB4) EKVÜ (CB7) Bionova (CB9)		
	D6.8	Evaluation reports of national seminars held in each participating country, including a list of participants, minutes of the seminars and summary of the feedback	Paper	Electronic	EN	Project Consortium+ EACI	DACC (CB6) SCC (CB8) EKVÜ (CB7) SINTEF (CB4) Bionova (CB9)	CO	M35
	D6.9	Presentation materials at Total Concept working meetings	Slides	Electronic	EN	Project Consortium+ External stakeholders and key actors in Total Concept, local authorities	CIT (CO1) SBI/AAU (CB2) EKVÜ (CB7) SINTEF (CB4) Bionova (CB9)	PU	M5; M10; M16; M22; M28
	D6.10	Evaluation reports of Total Concept working meetings, including a list of participants, minutes of the training sessions and summary of the feedback.	Paper	Electronic	EN	Project Consortium+ EACI	CIT (CO1) SBI/AAU (CB2) DACC (CB6) SCC (CB8) EKVÜ (CB7) SINTEF (CB4) Bionova (CB9)	CO	M35
	D6.11	Presentation materials at national and international conferences, seminars or fairs.	Slides	Electronic	EN, SE, DK, NO, EST, FIN	Project Consortium+ External stakeholders and key actors in Total Concept, local authorities	CIT (CO1) SBI/AAU (CB2) EKVÜ (CB7) SINTEF (CB4) Bionova (CB9)	PU	M25
	D6.12	Articles in journals and magazines in each country and in	Paper	Printed, Electronic	EN, SE, DK, NO, EST, FIN	External stakeholders and key actors in Total Concept, local authorities	CIT (CO1) SBI/AAU (CB2)	PU	M35

		international magazines/conference proceedings					EKVÜ (CB7) SINTEF (CB4) DACC (CB6) SCC (CB8) RAMBØLL (CB3) RKAS(CB5) Bionova (CB9)		
	D6.13	A report about the dissemination plan beyond the project continuation	Paper	Electronic	EN	Project Consortium+ EACI	CIT (CO1) SBI/AAU (CB2) EKVÜ (CB7) SINTEF (CB4) Bionova (CB9) DACC (CB6)	CO	M36
WP7	D7.1	Set of updated IEE Common Performance indicators including their baseline and assumptions for extrapolation	Report	Electronic	EN	EACI	CIT (CO1)	CO	M4

a) Please use the same deliverable name as indicated in the work package descriptions in section 5.2. of your work programme. The deliverable name should be self-explanatory.

b) The type of deliverable could be: a publication (flyer/brochure/working paper/paper/article/press release/slides/Cd-rom), website/webtool, etc.

c) The format could be: printed and/or electronic (downloadable), the approx. number of pages / number to be printed of a publication.

d) Please specify each language in which the deliverable will be available - indicating 'all' or 'national' is not sufficient.

e) Please indicate the specific target group for each deliverable. The target groups indicated should be consistent with section 4 of your work programme. Indicating 'all' is not sufficient.

f) Name the participant of your consortium who will lead the preparation of the deliverable.

g) Please indicate the dissemination level using one of the following codes:

PU = Public, to be freely disseminated, e.g. via the website of the action

CO = Confidential, only for members of the consortium including the Commission/EACI Services (mainly for internal working documents and only in exceptional cases for results)

h) Month in which the deliverables will be actually completed. Month 1 marks the start of the action, and all deadlines should be relative to this starting date.

i) Each IEE action must produce a (Final) Result-Oriented Report. Its form and shape can vary depending on the nature of the action. It must be delivered to the EACI with the Final Report.

5.4. Schedule of activities

Phase / Duration of the action (in months)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Work package 1: Management																																				
Task 1.1. Management structure of the project and responsibilities																																				
Task 1.2. Communication within the consortium and with external stakeholders																																				
Task 1.3. Project coordination and administration																																				
Task 1.4. Organization of meetings and internal project workshops																																				
Work package 2: Development of the tool-kit for the Total Concept method application																																				
Task 2.1. Development of information materials and carrying out an internal workshop on Total Concept method applications																																				
Task 2.2 Breaking the non technical barriers																																				
Task 2.3 Survey of the local conditions and prerequisites for adopting the Total Concept method in the participating countries																																				
Task 2.4 Development of a tool-kit for the Total Concept method implementation																																				
Work package 3 - National pilot projects																																				
Task 3.1 The selection of buildings for the pilot studies																																				
Task 3.2 Involvement of the																																				

stakeholder and key actors																																			
Task 3.3 Carrying out a demonstration project																																			
Task 3.4 Implementation of Step 1 in the Total Concept method in pilot study buildings																																			
Task 3.5 Implementation of Step 2 and 3 in pilot study buildings																																			
Work package 4: Evaluation and recommendations																																			
Task 4.1. National evaluations of the pilot studies																																			
Task 4.2. Development of national guidelines and improvements in the Total Concept tool-kit																																			
Task 4.3. Overall recommendation for the general Total Concept method implementation on an European scale																																			
Work package 5: Implementation and training on national level																																			
Task 5.1 Development of the training materials for the Total Concept method applications																																			
Task 5.2 National training courses on the Total Concept method																																			
Task 5.3 Establishing help desks for Total Concept method implementation																																			
Task 5.4 Planning the continuation of the trainings and knowledge transfer beyond project frames																																			
Work package 6: Communication and dissemination																																			

Task 6.1 Dissemination and communication planning																																					
Task 6.2. Establishing a project website																																					
Task 6.3 Production of dissemination materials																																					
Task 6.4 Seminars for the stakeholders in the target group																																					
Task 6.5 Total Concept working meetings																																					
Task 6.6 Presentations at international and national conferences, seminars or fairs																																					
Task 6.7 Articles in different journals/magazines on national and international level																																					
Task 6.8 Preparation of further dissemination beyond the project frames																																					
Work package 7: IEE Common Dissem. Activities																																					
Task 7.1. Contribution, to the development of information material																																					
Task 7.2. Participation and/or contribution to information, training and dissemination events																																					
Task 7.3. Delivery of an update/further input of the action's contribution to the "IEE Common performance indicators"																																					
Project meetings [a)]	**x**			**x**					**x**							**x**						**x**					**x**								**x**		
Project reports to EACI [b)]										**P R**										**IR**									**P R**								**FR**
Project Information Sheet & Slides to EACI		**X**								**X**										**X**											**X**						
Project Webpage/site creation					**x**																																

and update (See task 6.1)																																								
Project deliverables [d]	D1.1	D1.5	, D6.1	D2.1, D2.3, D7.1	D1.5; D6.2, D6.8, D2.4	D2.2; D2.5; D2.6; D2.7; D3.1	D2.8		, D6.3	D1.2, D1.5, D6.8, D6.1				D6.5	D3.2	D1.5, D6.8		D6.1	D1.3;	D4.1 , D6.4	D1.5, D6.5, 6.6, D6.8	D4.3, D4.4	D4.5;	D3.3, D5.1; D5.2; D6.10		D6.1	D1.4, D1.5, 6.5, D6.8						D3.4	; D4.2; D4.3, D4.4; D4.5; D4.6; D5.3, D1.5,;6.5; 6.7; D6.9, D6.11	D1.6; D1.7; D5.4; D6.1; D6.12

[a] It is recommended to hold consortium meetings about every 6 months. A kick-off meeting should take place in the first 1-2 month(s). A final meeting should be foreseen to present the results to the EACI.

[b] According to the model Grant Agreement the minimum number of reports to EACI:

- 1-2 Progress reports (PR; the number of progress reports depends on the duration of the action).
- 1 Interim report (IR – technical and financial),
- 1 Final report (FR – technical and financial) at the end of the action, accompanied by a final Result-Oriented Report.

Please be aware that submission deadlines for the three types of reports have to be indicated in this time schedule, whereas the period covered is fixed in the grant agreement (PR/IR within 1 month after the end of the period, FR at the latest 2 months after the end of the period). The submission deadline of the interim report is to be proposed by the contractors, bearing in mind that it should represent a substantial advancement of the works performed. It is recommended to set the end of the interim period when about 50-60% of the works will have been accomplished.
Examples of submission deadlines (depending on the duration of the action):
24-months-action [month]: PR: 7; IR: 14 **/** 30-months-action [month]: PR: 10; IR: 19 / 36-months-action [month]: PR: 10, 28; IR: 19

[c] The Final Report will be due at the latest 2 months after the end of the action (in this 30 month example: at the end of month 32). Only costs related to the preparation of the Final Report and to an audit certificate (where applicable) are eligible during these 2 months. Note: the Final Report can of course be submitted immediately at the end of the action.

[d] Please ensure that the deadlines indicated in the List of Deliverables and the Schedule are consistent.

6. Impacts and Performance Indicators

(a) Overview tables with key outputs, impacts, performance indicators and targets

Specific Objectives, Key Outputs, Impacts and Performance Indicators within the duration of the action:

Specific Objective(s) of your proposal	➡	Key Outputs (products and services) including their quantification where appropriate	Work package(s)	➡	Impacts, with SMART performance indicators and quantified targets	Means of monitoring the achievement of your targets
1. To promote the cost-efficient energy retrofitting in existing non-residential buildings based on the Total Concept method so that it will be implemented both in the public and private sector in the participating countries.	➡	· Detailed information, national guidelines and a tool-kit available for the Total Concept method implementation in each participating country targeting the different stakeholders and key actors. · Demonstration of cost efficient larger energy performance improvement refurbishment by carrying out pilot studies in existing non-residential buildings based on Total Concept method. · High level dissemination activities targeting the stakeholders and key actors for implementing the Total Concept in the participating countries, including: - A project website with the updates of the project development and all the relevant materials - 10 000 printed leaflets and at least 3000 high quality brochures distributed within the participating countries and to other interested countries beyond the project group - 4 e-newsletters distributed in each participating country	WP2, WP4 WP3 WP5, WP6	➡	▪ 15-18 pilot implementations of Total Concept method Step 1, forming an action package, in existing non-residential buildings in participating countries within the project frames. The projects target a cost efficient energy reduction in the buildings up to 50-70%.(At least 500 downloads of WP3 reports) ▪ Practical implementations of energy saving action packages based on Total Concept method in 6-8 existing non-residential buildings within the project frames. The projects target a cost efficient energy reduction in the buildings up to 50-70%. (At least 500 downloads of WP3 reports) ▪ At least 500 persons representing important stakeholders and key actors reached and informed at national seminars in 5 different countries. At least 85% of attendees of the seminars have improved their knowledge and awareness of the Total Concept method and its implementation.	▪ Counting of concrete implement-tation and commit-ments by stakeholders ▪ Feedback sheets collected at events, minutes and documentati on from the trainings. ▪ Evaluation of the results of the help desk activities. ▪ Monitoring of website downloads

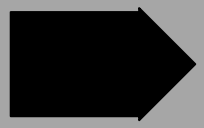
		- 1-2 national seminars in each participating country for local authorities and other stakeholders in the target group, with at least 50-100 participants in each seminar - National helpdesk service in participating countries for support and information sharing for the stakeholders. - 5-6 Total Concept working meetings for key actors and stakeholders within the project consortium as well as for other relevant parties on national level, at least 30 participants in each meeting. - 2 national training courses in each participating country with at least 50-100 participants in each course. - Presentations at national and international conferences, seminars or fairs - Articles in important news papers/trade journals about the Total Concept project and method			▪ At least 500 downloads of developed Total Concept information materials and Total Concept tool-kit (WP2 and WP4 deliverables). ▪ At least 2000 visitors at the website during project duration. ▪ At least 500 stakeholders and key actors will be trained within the project timeframe. At least 85% of attendees of the trainings have improved their knowledge and awareness of the Total Concept method and increased awareness and competence to continuously work with the energy issues related to the building performance on both short and long term scale. ▪ At least 10-15 concrete expressions of interest from relevant stakeholders (public and private building owners, tenant companies, ESCO companies, local authorities, energy consultants) in each participating country to try out and implement the Total Concept method.	▪ Monitoring of number of website visitors (automatic counting) ▪ Counting and reporting of new activities and initiatives in each participating country. Evaluation of the impact achieved.
2. To further develop the Total Concept method and tools needed for adapting it to national conditions. The Total Concept method will be customised to fit the needs of a participating country in particular.	➡	· Overview of the non technical barriers in participating countries and suggested methods for overcoming them. · Overview of the local conditions and prerequisites for adopting Total Concept method in the participating countries	WP2 WP2		▪ Target groups and key actors intensively use the developed materials. (At least 500 downloads of Total Concept information materials and Total Concept tool-kit). ▪ Total Concept stakeholders and key actors cooperate with own effort and know-how to pilot studies in 15-18 cases (see also letter of support)	▪ Monitoring of website downloads ▪ Evaluation of experiences learned in

		▪ Overview of the results of applying the Total Concept method on national level among the participating countries and valuable lessons learned. ▪ Information materials, national guidelines and a tool-kit, including guidelines, digital tools and relevant checklists, available for the Total Concept method implementation in each participating country	WP4 WP2, WP4		▪ Successful demonstration of the implementation of the Total Concept method in about 15-18 existing non-residential buildings in participating countries within the project frames. The projects target a cost efficient energy reduction in the buildings up to 50-70%.(At least 500 downloads of WP3 reports). ▪ Increased awareness and interest among local authorities and policy makers about major market barriers and national conditions/prerequisites influencing major energy performance retrofitting in non-residential building sector (At least 100 downloads of WP2 and WP4 reports).	the pilot projects. ▪ Monitoring of improved energy performance and use of renewable energy in the pilot buildings. ▪ Monitoring of initiated total concept projects outside the consortium.
3. To apply and demonstrate the Total Concept method with pilot projects in participating countries	➡	▪ Pilot studies created for demonstrating the Step 1 in the Total Concept method and providing appropriate solutions for retrofitting in about 16-18 existing non-residential buildings in participating countries. Lessons learned from the pilot implementations are disseminated and national guidelines are developed for supporting the Total Concept method implementation in the participating countries. ▪ Pilot studies created for demonstrating a practical implementation of developed action packages in about 8-10 existing	WP3, WP4 WP3, WP4	➡	▪ 15-18 pilot implementations of Total Concept method Step 1, forming an action package, in existing non-residential buildings in participating countries within the project frames. The projects target a cost efficient energy reduction in the buildings up to 50-70%.(At least 500 downloads of WP3 reports) ▪ Practical implementations of energy saving action packages based on Total Concept method in 6-8 existing non-residential buildings within the project frames. The projects target a cost efficient energy reduction in the buildings up to 50-70%. (At least 500	▪ Evaluation of the results of the pilot projects, energy use monitoring ▪ Counting of concrete cooperation to case studies by stakeholders ▪ Monitoring of website downloads

		non-residential buildings by applying the Total Concept method. Lessons learned from the pilot implementations are disseminated and national guidelines are developed for supporting the Total Concept method implementation in the participating countries.			downloads of WP3 reports) ▪ Total Concept stakeholders and key actors cooperate with own effort and know-how to pilot studies in 15-18 cases (see also letter of support) ▪ Target groups and key actors intensively use the results of the pilot studies (At least 500 downloads of pilot study fact sheets pilot study buildings and reports from WP3 and WP4)	
4. To develop materials and tools needed for training and carrying out trainings and workshops for implementing the Total Concept method in the participating countries on a broader scale;	➡	▪ 2 national training courses in each participating country are carried out with at least 50-100 participants in each course.	WP5	➡	▪ At least 500 stakeholders and key actors will be trained within the project timeframe. At least 85% of attendees of the trainings have improved their knowledge and awareness of the Total Concept method and increased awareness and competence to continuously work with the energy issues related to the building performance on both short and long term scale. ▪ At least 10-15 concrete expressions of interest from relevant stakeholders (public and private building owners, tenant companies, ESCO companies, local authorities, energy consuitants) in each participating country to try out and implement the Total Concept method.	▪ Feedback sheets collected at events, minutes and documentation from the trainings. ▪ Counting and reporting of new activities and initiatives in each participating country. Evaluation of the impact achieved.
5. To improve awareness of and knowledge about cost-efficient energy retrofitting in existing buildings together	➡	▪ 3-4 high level national events for know-how transfer (2 national training courses and 1-2 national seminars for local	WP6	➡	▪ At least 500 persons representing important stakeholders and key actors reached and informed and trained at	▪ Feedback sheets

with necessary associated education and training. These activities are targeted at local authorities, financing institutions, property owners, developers, architects, consultants and construction companies.		authorities and other stakeholders in the target group in each participating country) · 5-6 Total Concept working meetings for key actors and stakeholders within the project consortium as well as for other relevant parties on national level, at least 30 participants in each meeting. · Other dissemination activities and production of dissemination materials	WP6 WP6		national seminars, trainings and workshops in 5 different countries. At least 85% of attendees of the seminars have improved their knowledge and awareness of cost-efficient retrofitting in existing building and increased their competence to continuously work with the energy issues related to the building performance on both short and long term scale. ▪ At least 500 downloads of developed Total Concept information materials and Total Concept tool-kit ▪ At least 2000 visitors at the website during project duration.	collected at events, minutes and documentation from the trainings. ▪ Monitoring of website downloads ▪ Monitoring of number of website visitors (automatic counting)
5. To provide general recommendation for the Total Concept method future implementation on an European scale.	➡	· Overall recommendations for the general European applications of the Total Concept method · Common guidelines and tools available to support the Total Concept method implementation	WP4 WP2, WP4	➡	▪ At least 100 downloaded reports (WP4 report) ▪ At least 100 downloaded information materials and tool-kit for the Total Concept implementation outside the participating countries	▪ Monitoring of website downloads

Strategic Objectives and Long-term impacts <u>beyond the duration of the action until 2020</u>:

Strategic Objective(s) of your proposal		Expected impacts by 2020
1. Considerable reduction of energy demand in the sector of existing non-residential buildings.		▪ Support to the national target -20% energy consumption
2. Resolving the barriers for finding economically profitable solutions for investments for energy performance improvements in the non-residential building sector.		▪ Strong increase in number of major energy improvement renovation projects in the sector of non-residential buildings financed by both private and public property owners and other investors (e.g. ESCO companies)
3. Increased cooperation between the different stakeholders in the energy performance improvement process, i.e. public and private property owners, property managers, maintenance staff, tenants, architects, consultants, construction companies for gaining the best results in energy savings.		▪ Successful results in energy performance improvement process in non-residential buildings
4. Continuous knowledge transfer and training for the important stakeholders and key actors in the building energy performance improvement process improvements in the building sector		▪ Increased competence and awareness among stakeholders and key actors to continuously work with the energy issues related to the building performance on both short and long term scale.
5. Spread the outcomes from the Total Concept project in order to give uptake in large part of European countries.		▪ Strong increase in number of major energy improvement renovation projects based on Total Concept method in the sector of non-residential buildings in large part of European countries

(a) IEE Common performance indicators:

Overall objective	Target within the action duration :	Target by 2020:
To contribute to the EU 2020 targets on energy efficiency and renewable energy sources	▪ 40 million Euro Cumulative investment made by European stakeholders in sustainable energy (Euro)	▪ 5 billion Euro Cumulative investment made by European stakeholders in sustainable energy (Euro)
	▪ 2400 Renewable Energy production triggered (toe/year)	▪ 300 000 Renewable Energy production triggered (toe/year)
	▪ 7300 Primary energy savings compared to projections (toe/year)	▪ 1 million Primary energy savings compared to projections (toe/year)
	▪ 44 000 Reduction of greenhouse gas emissions (t CO2e/year)	▪ 5 million Reduction of greenhouse gas emissions (t CO2e/year)

Explain in a concise, yet robust, manner your baseline, benchmarks and assumptions for the extrapolation:

The TOTAL CONCEPT -project is estimated to trigger about 500 000 square meters building performing whole packages of energy saving measures within the action duration and the targeted countries by transferring the concept to several building owners. That will cause approximately an energy saving of 100-150 kWh/m^2 heat energy and 25-50 kWh/m^2 electrical energy. Primary energy for heat (district heating etc.) is set to 1.0 and for electricity to 2.8 and 1 MWh = 0.086 toe. For EU-27 one kWh is approximately corresponding to 0.52 Kg CO_2e. At the same time it is estimated that in average about 20% of the energy use in the buildings are converted to renewable energy sources as solar thermal, PV, specific district heating or district heating mix with more renewable sources etc. The investments are approximately 80 Euro/m^2.

It is estimated that all refurbishment that will be carried out anyway in the targeting countries during 2017 and 2018 will be done with whole packages of energy saving measures towards Nearly Zero-Energy Buildings. The refurbishment rate is about 1% of the total building stock of non-residential buildings. In 2019 and 2020 it is estimated that the benefits will be obvious which will double the refurbishment rate in the targeting countries. This will lead to 30 million square meters performing whole packages of energy saving measures to 2020. Estimating that the Total Concept will be disseminated also to other European regions beyond the targeted countries, which will cause additionally 30 million square meters performing whole packages of energy saving measures to 2020.

7. EU Added Value

(a) Evidence of the benefit of EU collaboration

The Total Concept method has been initiated and developed in Sweden in order to overcome the problem with the non-residential building owners' passivity and unwillingness to perform any energy saving measures in their existing building stock. The initiator was the Swedish Energy Agency and the method aims to show the possibilities to carry out cost-efficient energy saving measures in non-residential buildings. First the method was successfully applied and demonstrated in five buildings owned by some of the largest real estate owners in Sweden. The building owners appreciated the simplicity and efficiency with the Total Concept method and have thereafter continued to use it on other buildings. At the same time the Total Concept method has also spread among other building owners managing offices, hospitals, schools and university buildings. During the last two years the

news about the Total Concept method has spread to the Swedish neighboring countries like Norway, Denmark, Finland and Estonia. Several interest groups have requested dissemination activities. Speeches at conferences and bilateral discussions have been performed in those countries. However, in order to really get the needed knowledge on how to implement the Total Concept method, there is a strong need for more detailed planned and longer cooperation. The suggested IEE-project in this application would be the base for such cooperation.

How to take the step and to actually realize packages of energy measures towards Nearly Zero Energy buildings instead of just picking "the low hanging fruits" is a common challenge among European countries. A knowledge exchange between European countries is crucial in order to gain best practice on optimum methods and to support the major refurbishment of existing buildings towards Nearly Zero-Energy. A common approach such as the Total Concept method would provide great benefits in order to overcome the challenges faces and to initiate larger energy saving projects by showing that the refurbishment can meets the profitability conditions stipulated by the property owner. Through a close cooperation the Total Concept method can be improved in a way that it will be robust enough and it will be possible to apply it in different European areas as a market driver for carrying out major energy saving measures.

(b) Geographical focus

The TOTAL CONCEPT project has a strong geographical focus on the countries in North Europe. The geographical area covered by Sweden, Norway, Denmark, Finland and Estonia (to mention only the participating countries) are chosen due to three main reasons.

Firstly, the area is characterized by a dry climate with a few weeks of cold winters and hot summers for design temperatures and the rest of the year with more moderate autumn and spring climate. This gives valuable knowledge exchange and comparisons about the different possible system solutions and possible energy saving measures in the building. Also the building tradition is very similar, e.g. considering the need of heating and cooling the premises. For example kindergartens and primary schools are commonly without cooling facilities. Offices on the other hand have high demands on indoor climate all year around and therefore also cooling systems are common in these premises.

Secondly, several large companies and organizations in the building sector, e.g. consultants, entrepreneurs, architect, product manufacturer etc., have already established themselves in the whole geographical region. Increased market demand related to specific energy saving measure(s) can lead to decreased cost of products and services provided by these companies (which is possible with a larger market area). This will in the end give cost reductions of specific energy saving measures and make them more profitable for the building owners and consequently make them more applied.

Thirdly, the structure, hierarchy and decision systems in the real estate companies and property owners' organizations are similar. This means that knowledge exchange regarding what works in one country will be very valuable information for the other countries. This is already indicated by that fact that the countries participating in the TOTAL CONCEPT project have already showed interest and have requested implementation of the Total Concept method in their countries. This has been one of the driving forces to form the current project.

(c) Transferability

The TOTAL CONCEPT project aims to demonstrate that the Swedish method will be possible to adapt and further developed in order to get the same successfulness in neighboring countries. This will show that the technical results of using the Total Concept -method should also be applicable to other EU Member States and target audiences. The development of training material in English will be an important base in order to transfer the knowledge to other European countries. Though, the specific energy saving measures might be different in countries with other climates and national or regional regulations may cause that the Total Concept method need some further national adoptions. However, the main principle of this method should be possible to use in any region. Furthermore, by learning

from the TOTAL CONCEPT project and adapting the method from one area to another can directly be used as guide for transferability to other countries in Europe. Within the TOTAL CONCEPT project dissemination of the knowledge in countries outside the project consortium is planned through presentations at international conferences and with taking forward a plan for further dissemination beyond the project frames.

The starting point and the main barriers to tackle for the Total Concept method is quite similar in all European countries. This will ensure possible transfer to other countries.

There will also be possibilities to transfer the Total Concept method to the residential sector.

8. Composition and Rationale for the Consortium

The TOTAL CONCEPT project has the following list of participants:

Part. N°	Participant name	Short name	Country code	Profile of the organisation*	Main role in the Consortium**
CO1	CIT Energy Management AB	CIT	SE	Consultancy company	Technical expert. Coordinator. Technical support and knowledge transfer about the Total Concept method and its tool kit. Leader of pilot studies in Sweden. Training lectures.
CB2	Danish Building Research Institute	SBI/ AAU	DK	Research institute	Technical expert. Leader of implementation and training. Development and adoption of the Total Concept method and its tool kit in Denmark. Leader of pilot studies in Denmark. Training lectures.
CB3	Rambøll	Rambøll	DK	Technical Engineering Company, ESCO	Technical professional and facility manager. Market actor. Responsible for pilot buildings in Denmark. Technical support about auditing and energy saving measures.
CB4	SINTEF Byggforsk	SINTEF	NO	Research institute	Technical expert. Leader and coordination of the pilot studies. Development and adoption of the Total Concept method and its tool kit in Norway. Leader of pilot studies in Norway. Dissemination in Norway. Training activities in Norway.
CB5	State Real Estate Ltd.	RKAS	EE	Public property owner	Property owner and facility manager. Responsible for pilot buildings in Estonia.
CB6	Danish Association of Construction Clients	DACC	DK	Trade association for construction clients and property owners	Communication and dissemination expert. Leader of communication activities. Communication with its members during development of the Total Concept method. Dissemination in Denmark. Arranging trainings.
CB7	Estonian Society of Heating and Ventilation Engineers	EKVÜ	EE	Trade association for HVAC engineers (Heating, Ventilation and Air Conditioning)	Communication and dissemination expert. Technical expert. Leader of evaluation and recommendations. Development and adoption of the Total Concept method and its tool kit in Estonia. Leader of pilot studies in Estonia. Communication with its members during development of the Total Concept method. Dissemination in Estonia. Training activities in Estonia.
CB8	Swedish Construction Clients	SCC	SE	Trade association for construction clients and property owners	Communication and dissemination expert. Leader of Total Concept method and its tool kit development. Communication with its members during development of the Total Concept method. Dissemination in Sweden and the project web-site. Arranging training.
CB9	Bionova Oy	Bionova	FI	Consultancy company	Technical expert. Development and adoption of the Total Concept method and its tool kit in Finland. Leader of pilot studies in Finland. Dissemination in Finland. Training activities in Finland.

** Please indicate the type of organisation, for instance Public authority (National, regional, local), energy Agency, ESCO, consumer association, bank, consultancy, industry, housing association etc. [be aware, this is a non-exhaustive list]*

*** Please provide the main role/expertise offered by each partner (e.g. communication expert, technical expert, training provider, financial engineering, policy expert, market actor, etc.). Do not use work package numbers, tasks numbers, WP leader, etc.*

(a) Rationale for the composition of the consortium:

The countries in Northern Europe have similar needs in terms of climate conditions, technical solutions and policy strategies to adopt energy efficiency measures in existing non-residential

buildings. Working together with Swedish, Norwegian, Danish, Finnish and Estonian stakeholders and key actors with a common approach will lead to major repeatable results over this region than acting locally. The potential for implementing profitable energy saving measures in the non-residential sector is high but some non-technical barriers need to be tackled.

The consortium integrates important stakeholders and key actors in order to tackle these non-technical barriers and to show for the target groups many of the possibilities that exist in order to find profitable packages of energy saving measures.

The TOTAL CONCEPT project, therefore, has partners that are important stakeholders and key actors for the knowledge transfer to the target groups. These partners have the skills needed for auditing, identifying and analysing energy saving measures, models for profitability, the basic ground with the Total Concept method and the knowledge of developing and adapting the Total Concept method for the specific regions. These organisations are also professionals in transferring advanced technical and economical knowledge into easily understandable education materials and guidelines for using the tools. Furthermore they are professionals in holding training courses. In other words, they are professional organisations in lapping the gap between scientific development and the needs of the construction- and property owners sectors. The consortium is therefore including CIT, SINTEF, SBI/AAU, Bionova and EKVÜ.

The other important group of key actors are the trade associations that are the direct connection point to the target groups. These organisations are professional on arranging training courses and they are also crucial in the consortium for an effective dissemination. SCC in Sweden and DACC in Denmark will guarantee direct communication with the first target group building owners and construction clients. EKVÜ in Estonia will guarantee direct communication with both the target groups building owners and engineers performing energy audits and working with buildings' energy performance improvement projects. The trade associations experience and knowledge about the Total Concept method will be very important for further widespread implementation beyond the project continuation.

The consortium also consists of representatives from the target groups themselves. They will be crucial in the development of the Total Concept method in order to get a method that works in practice. Rambøll is a partner in order to strengthen the expertise for performing energy auditing and performing energy saving measures, which is part of their daily work. Rambøll has established business in all countries of Northern Europe and will bring expertise how to make rational energy efficiency measures with knowledge that can be spread to all countries, making a larger market penetration that in turn will reduce the costs for the measures. RKAS is the governmental property owner in Estonia and will directly learn by implementation of the Total Concept method in some of their buildings. The energy efficiency directive will put high demands on the public sector to go forward in energy efficiency improvements in the building sector and RKAS here has a great opportunity to be a shining example.

Furthermore the TOTAL CONCEPT -project is strengthened with the building owners who will participate in the project with the pilot projects, take the training courses and work in the reference group for developing the Total Concept materials. In Sweden the following property owners will participate in the project: Vasakronan (real estate owner of 2,6 million m^2 premises), City of Malmö (public facility management of 1,6 million m^2), Specialfastigheter (are state owned and administered through the Ministry of Finance with a building stock of 1,1 million m^2), Jernhusen (real estate company in the transport business which can be found in growth towns and at important railway junctions with 685 000 m^2) and Harry Sjögren (real estate owner of 109 properties of totally 554 000 m^2). In Norway Statsbygg and Forsvarsbygg will participate. Statsbygg is property owner of 2.7 million square meters which acts on the behalf of the Norwegian Government. The Norwegian Defence Estates Agency is a real estate owner of 4.3 million square meters with responsibility to manage the diverse defence estates and properties. In Finland City of Tampere will participate which is a building owner of 700 000 m^2, they have selected a building of 28 000 m^2 for the project. Their participation is approved with letters of support. In Denmark Rambøll will assure the pilot buildings through their daily work of facility management and in Estonia the State Real Estate Ltd. will stand for the pilot buildings.

The TOTAL CONCEPT -project will also have supporters (stated with letters of support) that will participate with dissemination activities and work as reference groups for Total Concept method development and implementation. It is BELOK, a network between 17 dominating Swedish non-residential real estate owners who in total manage about 35 million m^2 of real estate, and Swegon, a company that sells products and solutions for ventilation and indoor climate systems and also has an advanced dissemination organisation through Swegon Air Academy.

9. Co-financing Sources

Participant	Co-financing source	Comments related to case a) or b) above
CO1-CIT	Own resources	CIT is an consulting company giving consultancy in the front line about the most recently or coming technologies, regulations or customer requirements. In order to give the best advices to our clients (authorities, trade associations, actors in energy, construction and property) it is necessarily that our employees have knowledge about the most recent findings. By participating in EU projects we will learn about the development in other EU countries that we can use to advice our clients in the best way on the national market.
CB2-SBI/AAU	Self-financing	It is the policy of the Danish Building Research Institute at Aalborg University to support all initiatives that can encourage and facilitate co-operation between external partners and the many highly qualified research environments at the institute. Co-financing of the senior researchers in the present project can strengthen the research effort within energy-efficiency buildings which is an area that is of special relevance and interest. The implementation of energy-efficiency improvements leads to energy and thus cost savings instead of revenue streams. In addition, knowledge sharing is essential to effectively deploy energy-efficiency measures that are tailored to both the sector and the university.
CB3-Rambøll	Self-financing	Rambøll is an advisory organisation that which to participate both national and international in reserach project within the field of energy, indoor environment and sustainable builidngs. Sharing of konowldge is one of Rambølls characteristic. In this project we want to increase knowledge about energy complete solutions that can be useful both for our clients as well as for the society as such.
CB4-SINTEF	Own resources	This project will strengthen the know-how of our researcher. SINTEF is a research institute that possesses international top-level expertise and our aim is to become the most renowned contract research institution in Europe.
CB5-RKAS	Internal resources	This project will facilitate the work in our organisation of making energy efficiency measures.
CB6-DACC	Own resources	This project will strengthen the skills and knowledge of our members.
CB7-EKVÜ	Own resources	It is in our interest to support and encourage knowledge increase among our members. This project can increase their skills and get a more widespread business with implementation of energy efficiency measures.

CB8- SCC	Own resources	It is in our interest to support and encourage knowledge increase by our members, especially considering energy efficiency since it is one of the most important environmental aspects.
CB9- Bionova	Own resources	Bionova is a company which operates two businesses: expert services and software services. Bionova's mission is to create and market easy-to-use and cost-efficient, massively scalable solutions which improve energy efficiency both in construction and property industries. By participating in EU projects we will learn about the development in other EU countries that we can use to advice our clients in the best way on the national market.

10. Description of Each Participant

10.1 Description of the organisation and the key personnel

CO1 CIT Energy Management AB

(a) Description of the organisation

CIT Energy Management AB is a consulting company offers a unique competence in the areas of energy efficiency and indoor climate in buildings. The main owner is Chalmers Industriteknik (CIT), a non-profit foundation at Chalmers University of Technology. CIT Energy Management combines wide practical experience with advanced scientific competence when addressing issues regarding the economical and technical consequences of implementing measures for energy efficiency. We are also well-acquainted with, and have extensive knowledge about, energy simulation models for different types of buildings and how they are used. CIT Energy Management has many years of experience of advising public authorities, property owners and facility managers with regard to:

- Identifying energy saving opportunities in existing buildings without compromising indoor climate requirements;
- Finding the best (most applicable, most reliable, most energy efficient, most renewable) system solutions for heating, tap water production, ventilation and air conditioning systems. Here the building itself together with possibilities of local energy sources, district heating and electricity are considered;
- Drawing up requirement specifications and design criteria when planning new buildings.

The company are coordinating and participating in several networks that work with energy efficiency and renewable energy. The company has an extensive network among authorities, trade associations and companies within the real estate, construction and energy sector.

(b) Relevant experience of the key personnel proposed to work on this action

Organisation:	CIT Energy Management AB				
Name :	Wahlström	**First Name:**	Åsa	**Nationality:**	Swedish
Qualification:	Ph.D. in Heat and Power Technology				
Staff category*:	Senior Expert and Sector Manager: Public authorities and trade associations				
Short description of work experience, relevant to the proposal:**	Ms. Wahlström has worked at CIT Energy Management since 2008. She has previously worked eight years as senior researcher at SP Swedish Technical Research Institute and eight years at the department of Heat and Power Technology at Chalmers University of Technology. Åsa has over 20 years of experiences as coordinator and project leader of research and applied projects in the field of energy and environmental issues related to building services and the comprehensive building energy system. Åsa holds a M.Sc. in Chemical Engineering and Ph.D. in Heat and Power Technology. Åsa has been coordinator for **IDEEB** (Intelligently Designed Energy Efficient Buildings), A project within the EU 5th framework program. She has been the main responsible person for Swedish participations of: **MEDUCA**, a project within the EU THERMIE program with the aim to demonstrate that energy efficient and healthy educational buildings can be designed and built. **Solar Keymark**, a project within the EU ALTENER program. Network cooperation about implementing the EN Standards and Establishing the CEN/CENELEC Keymark for Solar Thermal Products **Solar Keymark II** a project within the IEE-program. **NEGST** (New generation of solar thermal system), A project within the EU Co-ordination action program (FP6) with the aim to introduce more cost-effective solar thermal products. **SENTRO** (Sustainable Energy systems in New buildings –market introduction of feasibility studies under the Directive on the Energy Performance of Buildings), a project within the IEE-program. She also has participated in: **SQUARE** (A quality assurance management system for retrofitting with good indoor environment and energy efficiency), a project within the IEE-program. **CEPHEUS** (Cost Effective Passive Houses as European Standard. An EU project that demonstrated pilot projects of low-energy houses.), a project within the EU THERMIE program.				

Organisation:	CIT Energy Management AB				
Name :	Maripuu	**First Name:**	Mari-Liis	**Nationality:**	Estonian
Qualification:	Ph.D. in Building Services Engineering				
Staff category*:	Expert and Project Manager				
Short description of work experience, relevant to the proposal:**	Mari-Liis Maripuu has worked at CIT Energy Management AB since 2009. Her main field of competence is energy efficient HVAC solutions in non-residential buildings. She has been a project leader and participant in a number of projects which involve applying Total Concept method in non-residential buildings, carried out for the members in the BELOK group. She has previously worked five and half years as a researcher at the department of Energy and Environment at Chalmers University of Technology. Maripuu has additionally three years' experience in planning, designing and control of HVAC-installations in non-residential buildings. Maripuu has also been a lecturer and invited speaker in a number of events and seminars in the field of energy efficiency and indoor environment. She also has participated in *SUNSTORE-4* (Innovative, multi-applicable and cost efficient hybrid solar /55%) and biomass energy (45%) large scale (district) heating system with long term hear storage and organic Rankine cycle electricity production), a project within the EU 7th framework program, theme 5 Energ. Maripuu is also involved with SDHPlus project within IEE. The SDHPlus project aims to promote and increase the application of solar district heating systems in Europe.				

CB2 The Danish Building Research Institute/ Aalborg University

a) Description of the organisation

The Danish Building Research Institute (SBi/AAU) (www.sbi.dk) is the Danish national building research institute affiliated with Aalborg University. SBi/AAU develops research-based knowledge to improve buildings and the built environment. SBi/AAU identifies subjects that are important for professionals and decision-makers involved with building and the built environment and subsequently we communicate our knowledge to these groups.

SBi was established in 1947 and merged with Aalborg University in 2007. The Department of Energy and Environment conducts research into potential energy and environmental improvement of new and existing buildings including: calculation methods in relation to energy requirements stipulated in the Danish Building Regulations; design of energy-efficient ventilation systems; environmental assessment of buildings; building-integrated solar cells; and user influence on use of resources. The main objective of the department is to establish the best possible basis for good and healthy buildings with respect to energy and environment. The department therefore develops methods and design tools for reducing energy consumption for heating, ventilation, cooling and lighting of buildings and the environmental impacts from buildings during their entire service life. In the department of Town, Housing and Property a research group furthermore focuses on sustainable cities and housing. Research interest here include behavioural and lifestyle aspects of households energy consumption, understanding and changing energy consuming practices and stakeholder involvements in facilities management.

SBi/AAU is one of the founders of the European Network of Building Research Institutes (ENBRI), whose members collaborate and exchange experience for the benefit of the entire European building sector. The members also act as technical advisers to the European Commission on building and future building research. SBI/AAU is a member of CIB (Conseil International du Bâtiment) and is represented in several CIB Working Commissions. The institute is also a member of the European Network of Housing Research Institutions (ENHR) and participates in NORDTEST-byg, which develops Nordic test methods for the building sector and safeguards Nordic interests in the wider European collaboration in the field of testing.

b) Relevant experience of the key personnel proposed to work on this action

Organisation:	Danish Building Research Institute, Aalborg University				
Name :	Afshari	First Name:	Alireza	Nationality:	Swedish
Qualification:	M.Sc., Ph.D., Docent				
Staff category*:	Professor				
Short description of work experience, relevant to the proposal**:	Professor Alireza Afshari has experience in applied research and expert in energy efficient ventilation technology and indoor climate. He has dissemination of information on heating, cooling, ventilating, air conditioning system and indoor climate. He has participated in international research project since 2002 (European project HOPE, SysPAQ – Sensor system for measuring perceived air quality, NANOSECURE - Advanced nanotechnological detection and detoxification of harmful airborne substances for improved public security). He has been project leader on numerous Danish research projects for the Danish foundations (EFP, PSO, LBF, etc). He has also been involved in several projects in collaboration with Danish industries (Lindab, Exhausto, Leanvent, etc).				

Organisation:	Danish Building Research Institute, Aalborg University				
Name :	Bergsøe	First Name:	Niels Christian	Nationality	Danish
Qualification:	B. Sc. (Eng), Engineering Academy of Denmark, Technical University of Denmark.				
Staff category*:	Senior Researcher				
Short description of work experience, relevant to the proposal**:	Expertise (keywords): Demand controlled ventilation, Energy efficient ventilation systems, Legislation, Building Regulations, Standardisation, Demonstration projects, Field measurements, questionnaires and evaluation, Calculation and simulation of ventilation in buildings. Member of the Committee DS/S-313 Ventilation under Danish Standards. Appointed specialist of the Committee DS/S-313 PG rev. DS447 on revising the Danish Code of Practice for Mechanical, Natural and Hybrid Ventilation Systems. Member of the board of Danvak Ventilation under Danvak, Network on Indoor Climate, Comfort and Energy. Relevant projects: Participated in the EU-project NatVentTM (JOULE-programme, 1994-1998) on natural ventilation in office-type buildings. Work package leader in the EU-project EPI-SoHo (Intelligent Energy Europe, 2006-2008) on Energy Performance Integration in Social Housing. Project leader and participant in several National projects and Nordic projects.				

CB3 Rambøll Denmark

a) Description of the organisation

Rambøll Danmark is part of the leading engineering and consulting company, Rambøll Group. Within Rambøll Group, almost 200 departments in 23 countries provide employment for abt. 10.000 employees, performing projects worldwide. Our presence in Northern Europe, India, Russia, and the Middle East is significant.

Rambøll Danmark provides knowledge-based overall solutions within building and design, infrastructure and transport, environment and nature, energy and climate, and industry. Rambøll is a consulting company that delivers deep retrofit of both residential and non-residential buildings and is partner within the advisory Board of the project in Denmark. Rambøll has a very important role in development of models for retrofitting processes in the TOTAL CONCEPT project.

The demonstration objects included to the TOTAL CONCEPT project will be delivered with assistance from Rambøll.

b) Relevant experience of the key personnel proposed to work on this action

Organisation:	Rambøll				
Name :	**Carsten**	First Name:	**Pietras**	Nationality:	Swedish
Qualification:	Architect, Master's in International Management				
Staff category*:	Senior project chief - Facilities Management				
Short description of work experience, relevant to the proposal**:	Carsten Pietras has the last years worked with facilities management, building operation and client advisor. He has large experiences from management and has worked with vision and strategic work primarily for public authorities both in Denmark and international. Carsten has worked with optimisation of operation and has developed the ESCO-concept in Denmark. He also has worked as inspector of both new and reconstruction.				

CB4 SINTEF

a) Description of the organisation

SINTEF, 'The Foundation for Scientific and Industrial Research', was established in 1950 and is a large contracting research organization, the largest independent research organization in Scandinavia. With a turnover of 350 M€ in 2010 and approximately 2100 employees, of whom more than 700 holding a PhD degree, the SINTEF group generate knowledge and solutions for customers in the following fields: Health, information and communications technology, marine activities, materials science and applied chemistry, petroleum and energy, technology management and building and construction. SINTEF performs R&D for EU and international programs, government and non-governmental organizations, service providers, large industrial companies and SME's. SINTEF also works closely with NTNU, the Norwegian University of Science and Technology in collaborative partnerships.

Within the unit "Building and Infrastructure" the department of "Energy and Architecture", E&A, possess expertise in architecture and building techniques, building processes, technical installations, energy and indoor climate, user behaviour and social aspects.

b) Relevant experience of the key personnel proposed to work on this action

Organisation:	SINTEF				
Name :	Mysen	**First Name:**	Mads	**Nationality:**	Norwegian
Qualification:	Dr. Ing in Energy use and Indoor, Part time Professor at Oslo and Akershus University College Of Applied Sciences				
Staff category*:	Senior Expert				
Short description of work experience, relevant to the proposal:**	Mysen has fifteen years experience as a researcher, mainly within optimising product design and energy-efficient ventilation systems. He has published four journal paper and several conference paper as first author. He has been in charge of several R&D-.projects and is currently leading the R&D-projects **UPGRADE Solutions** with focus on solutions that are crucial to Renovate Non-residential Buildings towards Sustainable Standards", and the R&D-project **reDuCeVentilation** "Reduced energy use in Educational buildings with robust Demand Controlled Ventilation". Mysen has additional eight years' experience in planning, designing and control of HVAC-installations in. He has been responsible for designing and planning of all HVAC-installations for 20.000 m^2 of the new National Hospital of Norway including laboratories, animal facilities and main kitchen. He has also participated in the pre-engineering studies of the National airport, Gardermoen, with studies of sunload, energy balance, ao				

Organisation:	SINTEF				
Name :	Mellegård	**First Name:**	Sofie	**Nationality:**	Swedish
Qualification:	Master of Architecture, KTH Royal Institute of Technology, Stockholm				
Staff category*:	Expert				
Short description of work experience, relevant to the proposal:**	Mellegård has over ten years experience in the design of larger commercial buildings in Norway, including management of the design team. As a consulting architect she has been involved in the design of one of the first low energy and Passive House standard office buildings in Norway. Since 2010 she is employed at SINTEF, currently working within the ZEB centre,WP 5, in which the aim is to achieve a zero emission concept for an office building in Norway. She is also involved in an innovation project facilitating demand controlled air conditioning of office buildings with very low heating demand. In addition she prepares SINTEF Byggforsk Technical Approvals for prefabricated building modules for the Norwegian market. Previous projects: SUSREF, a EU FP 7 project focusing on sustainable refurbishment of external facades on residential houses (development of a tool), LoRe LCA with the aim of low resource consumption buildings and constructions by use of LCA in design and decision making, BESLUTT in which the main delivery was developing a user guide for housing associations for achieving more ambitious upgrading of existing non commercial housing.				

Organisation:	SINTEF				
Name :	Svensson	**First Name:**	Anna	**Nationality:**	Swedish
Qualification:	Master of Science in Civil Engineering, Royal Institute of Technology, Stockholm				
Staff category*:	Junior Expert				
Short description of work experience, relevant to the proposal:**	Anna has worked at SINTEF Building and Infrastructure since 2010. She has previously had experience from building developer NCC as a building site supervisor and consultant in energy and indoor environment. Anna is currently working with projects as: UPGRADE Solutions, a R&D project with focus on renovation of Non-residential Buildings towards Sustainable Standards, as well as a national expert in IEA SHC Task 47 “Solar Renovation of Non-Residential Buildings”. She is also involved in evaluating energy and indoor climate in residential passive houses. Previous main projects has been SUSREF, a EU FP 7 project focused on sustainable refurbishment of external facades on residential houses and MECOREN a nordic project on methods and business concepts for sustainable renovation on residential houses.				

CB5 State Real Estate Ltd. RKAS

a) Description of the organisation

State Real Estate Ltd (RKAS), founded in 2001, is a real estate development and management company owned by the Republic of Estonia. RKAS’ main purpose is to improve the management of the state’s property. The objective is to guarantee the saving and effective provision of the real estate service to the executors of state authority. The gradual concentration of the development and management of state assets into one company (RKAS) has created the preconditions for the state to operate at the real estate market as one person and with the single objective – to guarantee the prudent and effective management of state assets and increase in value. RKAS is the provider of real estate service to the executors of state authority. RKAS is the preferred partner and competence centre for the government and state authorities for the fulfilment of the state functions and providing the public service in development, management and maintenance of the required real estate.

The volume of real estate portfolio of RKAS increases, the transfer of the real estate owned by the different administrators, incl. also real estate unnecessary for the administration, to the company is continued. The number of buildings in the real estate portfolio of RKAS is about 948, corresponding to about 844 000 m^2 of floor area of premises.

RKAS holds the ISO 9001:2000 quality management certificate and it was also awarded the ISO 14001 environment management certificate at the beginning of 2009.

b) Relevant experience of the key personnel proposed to work on this action

Organisation:	Riigi Kinnisvara AS / State Real Estate Ltd (RKAS)				
Name :	Hani	**First Name:**	Allan	**Nationality:**	Estonian
Qualification:	PhD				
Staff category*:	Senior Expert				
Short description of work experience, relevant to the proposal:**	Allan Hani has worked in Riigi Kinnisvara AS from 2011 as a building automation specialist in the Department of Maintenance. He successfully defended dissertation „Investigation of Energy Efficiency in Buildings and HVAC Systems“ and was given a degree of Doctor of Philosophy in 2012. Since the beginning in Riigi Kinnisvara AS he has developed the building automation distance monitoring and control systems. This portfolio today consists of more than 50 buildings, which is the largest such kind of automation system in Estonia. In addition he actively takes part in different Riigi Kinnisvara AS other projects (Energy efficiency and sustainable development; cooperation projects with Tallinn University of Technology, Estonian National Museum new building, etc). His previous experience is related to building services design and construction supervision-management in international consultancy corporation. He has experience in Russia, Finland, Latvia, Lithuania. Before joining RKAS their team completed a 100 000 m^2 shopping centre in Saint Petersburg.				

Organisation:	Riigi Kinnisvara AS / State Real Estate Ltd (RKAS)				
Name :	Väärtnõu	**First Name:**	Andrus	**Nationality:**	Estonian
Qualification:	MBA				
Staff category*:	expert				
Short description of work experience, relevant to the proposal:**	Having been employed in Riigi Kinnisvara AS in 2003 Andrus Väärtnõu was the first development project manager of the company (before that only construction project managers had been only hired). As a development project manager and director his field of activity was very wide-scale: from the analysis of projects (financial, feasibility and other analyses), holding (lease) negotiations with clients, organizing the detailed plans, architectural competitions and building designing up to takeover of the property from the state and organizing of the sale of unnecessary objects of the company. From 2007 up to 2011 Andrus Väärtnõu has managed the development department as well as strategic and analysis department in the company. This period includes the management of departments (incl hiring of employees and their assistance in their everyday work), improvement of the activity of the company (ISO, risk management etc), starting of new projects, client communication etc. Since December 2011 Andrus Väärtnõu has been managing the business analysis department. The tasks of the department include, among other things, the company's strategy, design of business processes (incl business model of the company) and implementation of innovation (creating of ideas supporting new business model) projects or supporting of their implementation.				

CB6 Danish Association of Construction Clients

a) Description of the organisation

The Danish Association of Construction Clients (DACC) is an interest group representing professional construction clients in Denmark. The association was established in 1999 by 28 leading (mostly public sector) clients with support from the Ministry of Housing with the goal to influence and improve the Danish construction sector. The historical background was a public wish for increased demand for productivity improvements and greater customer orientation in construction.

DACC has three strategic focus areas: influence, network and development. The Danish Association of Construction Clients has approximately 100 members, representing a construction volume of 5 bn. EUR per year, which is equivalent to about 20% of the market. DACC has a broad range of different clients: Public sector members - state clients, counties and municipalities; Semi-public members - housing associations and coops; Private clients - within housing, office and administrative sectors.

b) Relevant experience of the key personnel proposed to work on this action

Organisation:	Danish Association of Construction Clients				
Name :	Bang	**Name :**	Bang	**Name :**	Bang
Qualification:	MSc con man (Reading) MSc civ eng (DTU) PhD ind econ (Copenhagen Bus. School)				
Staff category*:	Director/trade association				
Short description of work experience, relevant to the proposal:**	Since January 2004 director for the Danish Association of Construction Clients, trade association for the professional Danish construction clients. Responsible for the strategy and management of the association and the supervision of daily operations of the secretariat. Initiated several national projects concerning improvements in energy efficiency of the existing building stock (e. g. 'Renovation on the agenda' and 'Energy renovation for tenants'). From October 1996 to December 2003 senior researcher at Statens Byggeforskningsinstitut (Danish Building Research Institute/SBi). Research within the fields of e.g. the client role, construction sector learning and innovation, partnering, demonstration projects, new ICT concepts in construction etc. From August 1993 to September 1996 PhD studies at Copenhagen Business School. Research on strategy, organisation and innovation of large construction companies. From August 1992 to July 1993 market analyst at European Construction Research, an independent market research company. Analyses of European construction market developments.				
Organisation:	Danish Association of Construction Clients				
Name :	Simonsen	**Name :**	Simonsen	**Name :**	Simonsen
Qualification:	Architect, MA, MAA (Academy of Architecture Aarhus)				
Staff category*:	Senior Expert/trade association				
Short description of work experience, relevant to the proposal:**	Since May 2011 chief project manager in the Danish Association of Construction Clients. Currently responsible for implementing a development plan for energy efficient renovation of rental housing – including several projects, which promote energy optimization of rental dwellings in Denmark. Previously (2000-2011) head of development in SBS Rådgivning a/s, working with R&D and innovation – mainly developing new products, processes and learning in the building sector and implementation and communication activities – both strategic and operational. Responsible for several web tools such as www.energikoncept.dk. Member of SBi Advisory Forum and member of the board of representatives at the Danish Association of Academic Architects.				

Organisation:	Danish Association of Construction Clients				
Name :	Ullum	**Name :**	Ullum	**Name :**	Ullum
Qualification:	Architect, MA, MAA (Copenhagen Royal Academy of Architecture)				
Staff category*:	Senior Expert/trade association				
Short description of work experience, relevant to the proposal:**	Since February 2008 head of development in the Danish Association of Construction Clients. Responsible for developing economic management systems of the association, its educational program (continuing education of members), and various construction client related development projects including funding as well as project and program management. Secretary for the Energy & Environment work group of the association. Member of advisory board for 'TEST' a program dedicated to funding innovation in sustainability projects initiated by the Realdania foundation. From June 1998 to February 2008 architect in Greve Municipality. Responsible for coordination of maintenance of public buildings, various construction projects and coordinator of activities aimed at developing new strategies withing both areas of the organization. Specialist in Facilities Management organization and development.				

CB7 Estonian Society of Heating and Ventilation Engineers

a) Description of the organisation

EKVÜ (Eesti Kütte- ja Ventilatsiooniinseneride Ühendus) is a non-profit society of professionals with the objective to develop the activities concerning the field of heating and ventilation and professional engineering. EKVÜ was founded in 1987 when the leading specialists of the profession, mainly from Tallinn design-and commissioning companies, started to organize conferences on subject in the interest of resolving engineering problems on more rational basis. EKVÜ membership consists of more than 240 active members. In communication with the governmental structures of that time those conferences were known as Heating and Ventilation Engineering Council.

Owing to the work of committees the specialists of EKVÜ have actively participated in computing norms and standards for speciality, assisting in curricula planning for schools and systematically organized training seminars. EKVÜ has established contacts with the trade associations of the other countries. EKVÜ is an associated member in Scanvac (the association uniting Scandinavian countries), a member of REHVA (European Association of Heating and Ventilation Trade) and a joint member of the Association of Civil Engineers – Ehitusinseneride Liit (EEL).

b) Relevant experience of the key personnel proposed to work on this action

Organisation:	EKVÜ				
Name :	Uutar	**First Name:**	Aivar	**Nationality:**	Estonian
Qualification:	Master's Degree, 1999				
Staff category*:	Senior Expert and Project Manager				
Short description of work experience, relevant to the proposal:**	Mr. Uutar has worked in HVAC field from 1996. For last 7 years he has worked as CEO of local HVAC Company. He has been a member of the board of EKVÜ since 1997. EKVÜ (Eesti Kütte- ja Ventilatsiooniinseneride Ühendus) is a non-profit society of persons with the objective to develop the activities concerning the field of HVAC engineering. Mr. Uutar has over 10 years of experiences as coordinator and project leader of different projects in the field of energy and environmental issues related to building services and the comprehensive building energy system. He has been the main responsible person for EKVÜ training courses.				

Organisation:	EKVÜ				
Name :	Talvik-Nakurt	**First Name:**	Kristi	**Nationality:**	Estonian
Qualification:	MSc, 2006				
Staff category*:	Expert				
Short description of work experience, relevant to the proposal:**	Mrs Talvik-Nakkurt has worked in HVAC field from 2003. For last 3 years she has worked as an energy assessor and buildings energy expert. In her participation REHVA Conference and Annual Meeting 2011 in Tallinn was organized. Also in her participation a number of training courses for engineers and building energy experts have been organized. She was an Estonian project manager in BPIE buildings study. Mrs Nakkurt has been a member of EKVÜ since 2006 and a EKVÜ board member from 2009 to 2012.				

CB8 The Swedish Construction Clients

a) Description of the organisation
SCC is a representative association for professional construction clients. The Swedish Construction Clients aims to strengthen and organize construction clients in Sweden in order to achieve a powerful construction client function in the country:

- outwards to the world around and
- focused on the internal organisation within companies that have a construction client function

The building and construction sector is the largest industrial sector in Sweden. Within it there is an important role to be played by construction clients. The Swedish Construction Clients was founded during the 1960s (under the title of Byggherreföreningen) as the interest group for construction clients. Then, as now, it had the objective of promoting the interests of construction clients in Sweden. Today, with more than 100 members in firms, municipalities and regional authorities, government services and agencies, and property companies, the Forum represents the majority of construction clients in Sweden.

b) Relevant experience of the key personnel proposed to work on this action

Organisation:	The Swedish Construction Clients				
Name :	Björs	**First Name:**	Mats	**Nationality:**	Swedish
Qualification:	Master of Science, civil engineering				
Staff category*:	CEO				
Short description of work experience, relevant to the proposal:**	Mats Björs is Managing director of the Swedish Construction Clients Forum since three years. He has previously worked as Managing director of Precast Concrete industry for ten years and before that as manager of market communications for cement manufacturer Cementa. Mats Björs has also worked two years as a contractor with the company Platzer Construction. Mats has a master of science in civil engineering from Chalmers University of technology. Mats is today board member of both the Swedish Energy Agency's client group BELOK(premises) and Bebo (housing).				

CB9 Bionova

a) Description of the organisation
Bionova is a company which operates two businesses: expert services and software services. Bionova's mission is to create and market easy-to-use and cost-efficient, massively scalable solutions which improve energy efficiency both in construction and property industries. Bionova is active in developing new methods to be applied at national scale, for instance Bionova has written the Finnish Building Life-cycle Metrics guidebook, used to calculate various environmental indicators for buildings for better planning, use and management.

Bionova advises the Finnish government (Ministry of Environment, Ministry of Employment and Economy, Housing Funding Center) as well as the key actors of the sector including Green Building Council Finland, Confederation of Finnish Construction Industries and public and private property owners, as well as several industrial companies. Bionova has also created sectoral implementations of the Energy Saving Directive together with the Finnish government. Furthermore, we are also active in environmental standardisation.

Bionova also provides software as a service for measuring, improving and managing data for making life-cycle efficient decisions in construction and property management (360optimi product, at www.360optimi.com). The product is used by constructors, companies, property owners and authorities to manage sustainability as part of project or property performance.

Bionova is member of the Green Building Council Finland and SFS (standardisation).

b) Relevant experience of the key personnel proposed to work on this action

Organisation:	Bionova				
Name :	Pasanen	**First Name:**	Panu	**Nationality:**	Finnish
Qualification:	MSC Industrial Engineering				
Staff category*:	Director				
Short description of work experience, relevant to the proposal:**	Mr Panu Pasanen is the founder and CEO of Bionova since 2001. At Bionova, he works with government and other key clients such as Green Building Council Finland, Confederation of Finnish Construction Industries RT and Agency for Housing Funding and Development, as well as the major industrial and public sector customers. He is the leading Finnish expert on building life-cycle environmental impacts and he has worked with energy production, energy efficiency in both operational settings as well as in preparing legislation on assignment from the Finnish government. Prior to Bionova, he was developing a facility management software for Ramboll.				

Organisation:	Bionova				
Name :	Bruce	**First Name:**	Tytti	**Nationality:**	Finnish
Qualification:	MSC Energy & Environmental Management				
Staff category*:	Expert				
Short description of work experience, relevant to the proposal:**	Ms Tytti Bruce is a product manager in charge of the 360optimi product family, and property sector metrics expertise in general. Her role is to productize solutions and concepts which can be fruitfully applied at large scale in the property sector. Her tasks involve training, client requirements capturing and solution delivery. She has carried out the Finnish Tax Administration property energy efficiency program, for instance. Prior to Bionova, she was working at Paroc (construction materials) and the Lappeenranta University of Technology.				

10.2 List of most relevant actions

CO1 CIT Energy Management

Action (not more than 5 items per organisation)	**National or local/regional or European**	**Year of finalisation**	**Budget involved for your organisation**	**Website**
NNE –buildings (Development of the requirements on close to zero energy buildings)	National	2011	70 kEuro	http://www.belok.se/projekt_nne.php http://energimyndigheten.se/
BELOK	National	2011	800 kEuro	http://belok.se/
LÅGAN	National	2014	300 kEuro	www.laganbygg.se
SDH-Plus	IEE	June 2015	140 kEuro	www.solar-district-heating.eu/
SUNSTORE4	FP7	Ongoing	150 kEuro	http://www.solarmarstal.dk/SUNSTORE%20.html

CB2 SBi/AAU

Action (not more than 5 items per organisation)	**National or local/regional or European**	**Year of finalisation**	**Budget involved for your organisation**	**Website**
HOPE	FP6	2002	299 kEuro	http://hope.epfl.ch/
SysPAQ	FP6	2006	510 kEuro	www.SysPAQ.eu
SHC Task 47 Renovation of Non-Residential Buildings towards Sustainable Standards	IEA		134 kEuro	www.iea-shc.org/task47

CB4 SINTEF

Action (not more than 5 items per organisation)	**National or local/regional or European**	**Year of finalisation**	**Budget involved for your organisation**	**Website**
The Research Centre on Zero Emission Buildings – ZEB	National	2017	2000 kEuro	www.zeb.no
UPGRADE Solutions	National	2014	500 kEuro	www.upgradebuildings.no
SHC Task 47 Renovation of Non-Residential Buildings towards Sustainable Standards	National funding connected to IEA		100 kEuro	www.iea-shc.org/task47
reDuCeVentilation	National	2013	450 kEuro	http://www.sintef.no/projectweb/reDuCeVentilation/
Sustainable Refurbishment of Building Facades and External Walls SUSREF	EU/FP 7	2011	590 kEuro	http://cic.vtt.fi/susref/

CB5 RKAS

Action (not more than 5 items per organisation)	**National or local/regional or European**	**Year of finalisation**	**Budget involved for your organisation**	**Website**
Project management for renovating 480 buildings in order to gain energy efficiency. Project funding according to greenhouse gas emission trading system under the Kyoto Protocol.	National	2012 (reporting until 2014)	Total costs of the project 164 mln €	http://www.rkas.ee/co2
Different renovation projects	National	2011	Total costs of the investments in 2011: 24 mln €	www.rkas.ee

CB6 DACC

Action (not more than 5 items per organisation)	**National or local/regional or European**	**Year of finalisation**	**Budget involved for your**	**Website**

			organisation	
Renovation on the agenda (Renovering på dagsordenen)	National	2012		www.bygherreforeningen.dk
Energy renovation for tenants (Energirenovering for lejere)	National	2015		www.bo-energi.net

CB7 EKVÜ

Action (not more than 5 items per organisation)	**National or local/regional or European**	**Year of finalisation**	**Budget involved for your organisation**	**Website**
BV2	National	2010	100k€	http://www.mkm.ee/public/honete-mn_BV2_lopparuanne.pdf
BPIE	Building Performance Institute Europe	2011	6k€	http://www.bpie.eu/
Seminars for HVAC engineers and other professionals	National	2012	20k€	www.ekvy.ee

CB9 Bionova

Action (not more than 5 items per organisation)	**National or local/regional or European**	**Year of finalisation**	**Budget involved for your organisation**	**Website**
Low carbon construction project 2013-competition	National	2013	97 k€	360optimi.com/haaste2013
Public Energy Alternatives	European	2012	150 k€	http://www.peaproject.eu
Efficient Energy Management in Barents	Nordics + Russia	2014	140 k€	-
ESD directive implementation for farming sector buildings	National	2008	150 k€	http://www.motiva.fi/maatilat
Green Building Metrics for Finnish Property and Construction Sectors	National	2012	30 k€	www.figbc.fi

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