



# **Contracted projects related to the buildings sector**

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## Table of Contents

PILOT ACTIONS TO DEVELOP A FUNCTIONING MARKET FOR ENERGY PERFORMANCE CERTIFICATES (BUDI)	4
APPLYING THE EPBD TO IMPROVE THE ENERGY PERFORMANCE REQUIREMENTS TO EXISTING BUILDINGS (ENPER-EXIST)	6
IMPROVING ENERGY PERFORMANCE ASSESSMENT AND CERTIFICATION SCHEMES BY TESTS (IMPACT)	8
SECURING THE TAKE –OFF OF BUILDING ENERGY CERTIFICATION : IMPROVING MARKET ATTRACTIVENESS THROUGH BUILDING OWNER INVOLVEMENT (STABLE)	9
ENERGY-TOOLSET FOR IMPROVING THE ENERGY PERFORMANCE OF EXISTING BUILDINGS (E-TOOL)	10
ENERGY PERFORMANCE ASSESSMENT FOR EXISTING NON RESIDENTIAL BUILDINGS (EPA-NR)	11
FIELD BENCHMARKING AND MARKET DEVELOPMENT FOR AUDIT METHODS IN AIR CONDITIONING (AUDITAC)	13
TOWARDS CLASS A. MUNICIPAL BUILDINGS AS SHINING EXAMPLES (TOWARDS CLASS A)	15
A PROGRAMME TO DELIVER ENERGY CERTIFICATES FOR DISPLAY IN PUBLIC BUILDINGS ACROSS EUROPE WITH A HARMONISING FRAMEWORK (EPLABEL)	17
GREENBUILDING	19
DEVELOPMENT OF DISTANCE LEARNING VOCATIONAL TRAINING MATERIAL FOR THE PROMOTION OF BEST PRACTICE VENTILATION ENERGY PERFORMANCE IN BUILDINGS (VENT DIS.COURSE)	20
DEVELOPMENT OF AN INTERACTIVE VOCATIONAL WEB TRAINING TOOL FOR THE TAKE-OFF OF THE BUILDINGS DIRECTIVE 2002/91/EC (EEBD (ELECTRONIC ENERGY BUILDINGS DIRECTIVE))	22
DISSEMINATION OF ENERGY EFFICIENCY MEASURES IN THE PUBLIC BUILDINGS SECTOR (DEEP)	24
EUROPEAN HIGH QUALITY LOW ENERGY BUILDINGS (EULEB)	26
PROMOTION OF EUROPEAN PASSIVE HOUSES (PEP)	28
BEST PRACTICE FOR DOUBLE SKIN FACADES (BESTFACADE)	29
ENERGY SAVINGS FROM INTELLIGENT METERING AND BEHAVIOURAL CHANGE (INTELLIGENT METERING)	30
DEVELOPMENT OF PILO SOLAR THERMAL ENERGY SERVICE COMPANIES (ST-ESCOS) WITH HIGH REPLICATION POTENTIAL (ST-ESCOS)	31
MARKETABLE PASSIVE HOMES FOR WINTER AND SUMMER COMFORT (PASSIVE-ON)	32
SERVICE BUILDINGS KEEP COOL-PROMOTION OF “SUSTAINABLE COOLING” IN THE SERVICE BUILDING SECTOR (KEEP COOL)	34
REGIONAL MARKET PREPARATION FOR ENERGY EFFICIENCY SERVICES IN PUBLIC BUILDINGS (PU-BENEFS)	36

EXTEND ACCREDITED RENEWABLES TRAINING FOR HEATING (EARTH)	37
ENLARGING SOLAR THERMAL SYSTEMS IN MULTI-FAMILY HOUSES, HOTELS, PUBLIC AND SOCIAL BUILDINGS IN EUROPE (SOLARGE)	38
RURAL ADVICE AND SUPPORT UNITS FOR RES IN HEAT SYSTEMS AND INTEGRATED ENERGY MANAGEMENT IN BUILDINGS (RURASU)	40
CLEAN ENERGY NETWORK FOR EUROPE (CLEAN-E)	42
ESTABLISHING LOCAL VALUE CHAINS FOR RES HEAT IN LOCAL COMMUNITIES (ELVA)	44
KEY ISSUES FOR RENEWABLE HEAT IN EUROPE (K4RES-H)	46
RES & MICRO CHP IN RURAL LODGES (GREEN LODGES)	48
ANNEX: CONTACT PERSONS	49

## Pilot actions to develop a functioning market for energy performance certificates (BUDI)

The overall goal of this project is to **accelerate the successful introduction of energy performance certificates.**

The project has a focus on the regional level. Examples and showcases for a successful implementation of energy certificates in the 6 participating regions are developed and the tools, guidelines and certificates are provided to all interested countries and regions in Europe;

For relevant building segments the issuing of energy performance certificates will be tested and the organisational procedures developed as a basis for an accepted, informed and functioning market. A focus in all regions will be on apartment blocks and public buildings as shining examples.

The **objectives** of the action are:

1. Creating **regional information and competence centres** which will disseminate their practical experiences
2. Carrying out pilot actions for two important target groups: public buildings and apartment blocks
3. **Supporting these target groups in the broader implementation** of energy performance certificates through information, tools and advice
4. Developing **training for independent experts** to assure a sufficient number of qualified experts; carrying out one training seminar per country
5. Developing **guidelines and accreditation schemes** to assure the quality level of the certificates and experts; developing **implementation and quality assurance procedures**
6. **Transferring the results and gained experiences** to interested key actors in other regions in Europe

The **work packages** are:

7. Market analysis and raising awareness for the Building Directive
8. Pilot action on residential buildings
9. Pilot action on public buildings
10. Qualification and accreditation of independent experts and quality assurance
11. Target group oriented dissemination activities and implementation support
12. International transfer of experience
13. Common dissemination
14. Management

The **planned results** are in particular:

15. 60 energy certificates for apartment blocks and 48-60 for public buildings issued before 2006; at least 48 certificates for public buildings placed to the public

16. Increased awareness and a positive attitude towards the energy performance certificate:  
300 more certificates committed by the end of the project
17. Information material for the two target groups and the general public; for other regions in the participating countries and for other regions in Europe.
18. At least 72 more experts trained to issue energy performance certificates and to give advice to end-users
19. Models for accreditation schemes for experts; implementation and quality assurance
20. A web-site, a project leaflet presenting the products of the project and various dissemination and networking activities to ensure the international transfer of experiences made
21. Established information and competence centres

## Applying the EPBD to improve the Energy Performance Requirements to Existing buildings (ENPER-EXIST)

The Energy Performance of Building Directive (EPBD) sets a series of requirements specifically dedicated to existing buildings but the member states are facing difficulties to implement quickly these requirements. The main goal of the ENPER-EXIST proposal is to support the take off the Energy performance of building directive (EPBD) in the field of existing buildings.

ENPER-EXIST has 4 main objectives:

22. To de-fragment technical work performed on existing buildings. Indeed actions already launched in CEN to apply the EPBD are de-fragmented but mainly focus on new buildings. On the other hand different projects on certification procedures are going on at the European level but are not coordinated.
23. To de-fragment work on legal, economical and organisational problems such as the analysis of certification on the market, the human capital and the national administrations.
24. To enable to achieve a better knowledge of the European building stock.
25. To define a roadmap for future actions regarding existing buildings.

The work program is split in 4 technical work packages in addition to dissemination and management activities.

### **WP1: Tools application**

WP1 will analyse how existing buildings are taken into account in technical tools such as CEN standards, national calculation procedures... Recommendations on how to improve the consideration of existing building will then be defined

### **WP2: Legal economical and organisational impact**

WP2 will analyse the impact of the certification procedures and regulations of existing buildings on the market, on the human capital and on the national administration. Survey in the different member states will be realised and recommendations will be written.

### **WP3: Building stock knowledge**

WP3 will analyse the level of information available in each country regarding the existing building stock. Procedure enabling to refine this information and ways to use the certification procedure are a tool to collect data regarding this stock will be developed.

### **WP4: Roadmap**

An overview of possible legal measures for existing buildings will be written. Indications of alternative strategies to improve on a wide scale improving the energy efficiency of existing buildings. Possibilities (including pro's and cons) to widen the scope of the EPBD in case of a future revision of the requirements of the directive will be described.

ENPER-EXIST will produce 4 reports

26. • Guidelines on the application of the technical tools to existing buildings (Month 14).
27. • Legal, economic and organizational issues raised by the application of EPBD to existing buildings: experience of member states and proposal to maximize the impact of the EPBD (Month 14).

28. • Existing building stock: present knowledge on statistics of energy performance and savings and furthermore proposals to improve knowledge using certification schemes (Month 20).

29. • Roadmap for long term regulatory and voluntary actions adapted to existing buildings (Month 24).

A website, newsletters and workshops organised with the different actors involved in the application of the EPD will enable a strong interaction between ENPER-EXIST and different interest groups as well as a wide dissemination of ENPER-EXIST results.

## Improving energy Performance Assessment and Certification schemes by Tests (IMPACT)

A huge energy saving potential exists in the existing building sector. The implementation of energy performance certificate schemes can contribute to the exploitation of this potential. Due to the EU Directive on the Energy Performance of Buildings (EPBD) energy performance certification schemes become mandatory in January 2006. However in order to be effective all elements in the certification process need to be addressed properly.

In practice barriers have been reported regarding quality control, promotion and communication to building owners. In order to tackle these barriers the IMPACT project is focused on testing in practice of Energy Performance Certification schemes. These tests will be prepared and executed closely together with the relevant stakeholders on national level (responsible for EPBD roll-out) as well as on market level (expert organisations, building owners, intermediaries). The IMPACT project provides a valuable opportunity for an international exchange of learning experiences and prevents re-inventing the wheel. The test will lead to recommendations for improvement of tools, certification schemes, training of experts and communication. Based on the tests a best practice model EPBD implementation model will be derived as basis for EU dissemination activities.

The work plan is divided into 4 work packages. In work package 1, test preparation, the available information regarding existing certification schemes, barriers and success factors reported, is translated to test approaches for best practice certification schemes. Work package 2 consists of 6 national implementation tests. The focus of these tests varies according to the specific needs and barriers that need to be addressed in the different countries. In work package 3 the test results are analysed and evaluated. Recommendations are formulated for improvement of tools, certification procedures, training of experts and communication. Work package 4 is an EU wide dissemination work package. It aims at actively involving all relevant actors (national, international, market) as from the start of the project with the goal to learn from experiences in practice, improve the test set-ups, prepare stakeholders at different levels for the EPBD introduction in 2006 and disseminate the best practice approach throughout Europe.

The expected results of the IMPACT project are:

30. The national EPBD implementation tests in practice will contribute to the improvement of tools, expert training and communication in EPBD schemes as well as to the preparation of relevant market actors for the EPBD introduction in 2006. This will support the efficient, timely and high quality practical implementation of the EPBD in six EU member states.
31. An effective model for implementation of the EPBD, based on European best practice and covering all essential elements for implementation
32. An EU wide dissemination program aiming at effectively preparing relevant national stakeholders and market actors for the introduction of the EPBD in 2006.



## **Securing The Take –off of Building Energy Certification : Improving Market Attractiveness through Building Owner Involvement (STABLE)**

This project aims at launching a collaborative effort of national energy agencies and federations of building owners in order to establish a firm basis for market acceptance of building energy certification as defined in the Directive on the Energy Performance of Buildings.

The overall aim of this project is to secure the genuine market-driven take-off of building energy certification in the participating countries. This aim will be reached through the realisation of the following objectives:

33. Improve market attractiveness of energy certification through developing and disseminating customer quality requirements, related quality recommendations to programme managers and approaches for linking high energy performance with financial market incentives;
34. Increase the awareness and interest of European building owners by delivering a targeted information campaign towards major building owner sectors in participating and developing a generic structure and basic elements of a European energy certification campaign for further dissemination;
35. Increase the certification related competence and knowledge level of qualified energy auditors; and
36. Transfer best practices on energy certification and building energy auditing between Member States (current, new and candidate)

Expected results of the action are the following:

37. information on energy certification and related benefits provided directly to 2000 building owners and indirectly to 100 000 building owners;
38. 2000 building energy auditors directly informed regarding energy certification and customer requirements;
39. analysed and structured information on customer requirements provided to certification programme management organisations and national authorities in all participating countries.

These results will be achieved through the work of a strong consortium of national energy agencies and national federations of building, supported by selected consultants. Furthermore, dissemination support is provided by the European Property Federation (EPF) and the Union Internationale de la Propriete Immobiliere (UIPI), which enables the results of the project to be effectively disseminated throughout Europe beyond the countries represented in the consortium.

## Energy-toolset for improving the energy performance of existing buildings (E-TOOL)

The overall objectives of the proposed action is to promote the implementation of the EU building performance directive (2002/91/EF, 16<sup>th</sup> December 2002) by developing an energy-toolset, which on a European level can support the implementation of the directive in relation to existing domestic, commercial and public buildings. There is a strong focus on developing an operational and simple tool, which is well suited for practical application. The main target group are the energy consultants, who will carry out the energy performance certification. As a base will be used the experiences and electronically available data (not used yet) from around 200,000 energy certifications in DK and 35,000 in AU.

The proposed energy-toolset will focus on different main categories of buildings: Domestic, commercial (shops, restaurants etc.) and public buildings, giving an overall coverage of different types of buildings. The energy-toolset will comprise:

Bench-marking of the energy consumption of different main categories (age, type etc.) of existing buildings, which makes it possible to compare actual consumption of what could be expected

Guidelines for typical energy saving measures including costs estimations for different classifications of existing buildings

Energy performance requirements after energy retrofitting, for different categories of buildings.

From DK and AU there are experiences of barriers for carrying out energy performance certificates. There is only short time to make the energy status of the building and to make the proposal for the energy saving measures and calculating the payback time. A practical tool as described can be a good help in the energy performance certification process.

The energy-toolset will give a methodology for different main categories of existing buildings in different parts of Europe, with a special focus on the southern/south-eastern part of Europe including new EU candidate countries.

The toolset will be developed for and tested against public buildings in Spain, Greece and Slovenia, using operation experiences from public buildings in the 3 countries and model calculations. The toolset for commercial buildings will be developed in AU, using experiences from the 35,000 certifications. For residential buildings in Denmark, using experiences from 200,000 certifications, in Slovenia for residential buildings using experiences from energy audits, and in Bulgaria the toolset will be developed for residential concrete building blocks.

The impact of the proposed action is estimated to be “extra” energy savings of 25,000 GWh. The impact will also be an important input for making the implementation the building performance directive into a success.

The partners cover different regions of Europe and different types of relevant experience and know how:

40. Energy supply company in Denmark (participant 1)
41. Scientific institutions in Spain and Slovenia (participant 2 and 7)
42. Public authority in Austria (participant 3)
43. Public building administrator in Greece (participant 4)
44. Consultants in Bulgaria and Greece (participant 5 and 6).

## Energy Performance Assessment for Existing Non Residential Buildings (EPA-NR)

The EC Energy Performance Buildings Directive (Jan 2003) obliges Member States (MS) to: set energy performance requirements for new buildings and major renovations of existing buildings; apply Energy Performance Certificates (assessment and certification) to both new *and existing buildings*; control the quality of heating and air-conditioning equipment. In parallel CEN have planned to work on 31 standards related to the assessment of Energy Performance Certificates over the next 5 years. MS are striving to incorporate these standards or draft standards into methodologies that they are planning. This complicates the process of implementation and introduces more risks.

Levels of progress of MS in implementing measures to comply by the Jan 2006 deadline vary enormously. Some MS are on track, others are still at the start line and are facing a giant 'tour de force' to get policies and measures ready in due time. The New MS greatly increase the range of difference in progress across Europe. In addition, MS that are on track are still in need of instruments and tools to be able to fully comply.

A substantial amount of know-how, tools and expertise is available within the European Union, especially with regard to new buildings. Also on existing dwellings progress has been made in developing assessment methods. However, the existing non-residential (ENR) building sector still requires substantial support; support which covers a more complex set of considerations. Compared to dwellings, non-residential buildings are much more diverse in user patterns and building typology. The HVAC systems are complicated. An energy performance assessment method for ENR buildings is therefore much more complex.

EPA-NR addresses the challenge for all MS in providing a support platform that organises the implementation process for existing NR building stock in an efficient and cost-effective way.

The EPA-NR assessment method will determine an energy performance certificate specifically designed for existing NR buildings. Tools will be developed to perform the assessment (check lists, inspection protocol and a software package for the energy calculation). Pilot projects will test the method and tools. Policy recommendations will be provided to all levels of government across Europe.

The EPA-NR method will take the local contexts into account with a focus on technical aspects, design and building management processes and acceptance by the actors in the market. The flexibility of the tools guarantees simple transfer of this method to all MS. The tools will be designed to enable adaptation for future/changing CEN standards.

EPA-NR connects a strong support network between the MS (partners, national committees, potential end-users of the method, policy makers across all levels of government and industry actors) so that they can benefit from each other's experiences, barriers can be identified and gaps filled. Ultimately efficiency will be optimised and the time lag in compliance minimised between countries. The dissemination plan will be implemented over the EPA-NR network in strong co-operation with other activities planned (the ENPER EXIST project, Concerted Action EPBD project, etc).

The EPA-NR project provides the opportunity to fast track the implementation process in the MS significantly due to combined effort. The flexibility of the system respects the national differences and future developments.

Energy savings and cost reductions can be derived from optimising the efficiency of the process to reach compliance across all member states; one robust method and set of tools

enabling compatibility, consistency, quality assessments and comparisons over Europe; clarity of rules and processes for assessors, consultants and the building industry to exploit.

The challenge of standardising the process and optimising efficiency will be facilitated on a European scale.

## Field benchmarking and Market development for Audit methods in Air Conditioning (AUDITAC)

In the coming years the stock of Air Conditioning (A/C) equipment in use in Europe will partly become obsolete. Most systems will be renovated for the first time (after 10-15 years of operation) and an opportunity exists to introduce higher efficiency systems. Out of the 2 200 Mm<sup>2</sup> of air conditioned building area in use in 2010 in Europe, 800 Mm<sup>2</sup> will date by more than 15 years and will need urgent renewal.

The AUDITAC project will allow to :

45. To accelerate the adoption of Air Conditioning inspection as described in the EPB Directive 5 (directive on the Energy Performance of Buildings),
46. To generate a sufficient number and variety of field demonstrations and benchmarks of inspection and AUDITs in Air Conditioning (hence the name AUDITAC),
47. To promote best practice examples and procedures in such audits and consequent retrofits,
48. And finally to put in place a real outcome into high quality audits, namely investment-grade audits and actual works on the existing Air Conditioning facilities in EUR-25.

The **first objective** is to disseminate the measures taken at EU level and to **increase the motivation of the actors** to take advantage of the opportunities created.

The **second objective** is to **accelerate the adoption of best practice of inspection** (that may be defined in CEN, studied in this project or concerted between the countries) by generating success stories. The Directive about Energy Performance of Buildings states indeed: " Article 9 : Inspection of air-conditioning systems. With regard to reducing energy consumption and limiting carbon dioxide emissions, Member States shall lay down the necessary measures to establish a regular inspection of air-conditioning systems of an effective rated output of more than 12 kW. This inspection shall include an assessment of the air-conditioning efficiency and the sizing compared to the cooling requirements of the building. Appropriate advice shall be provided to the users on possible improvement or replacement of the air-conditioning system and on alternative solutions."

Standardisation is one way to accelerate the adoption process of this legislation. The project will deliver other ways to accelerate savings, without compromising health and comfort requirements.

The **third objective** is to **increase the percentage of inspections followed by investment grade audits in AC**, to take advantage of the new inspection markets, in order that inspection and other regulatory measures are followed by actual renovation markets. This will be achieved by suppressing the barriers between pre-audits and investment grade audit, namely the lack of benchmarking of the auditing methods. The objective of an "inspection" is to give a broad view of the design and performance without putting a numerical value on its likely or actual performance. Other steps should follow, which represent the largest part of this study, even if it starts by promoting the CEN standardised inspection.

Renovation needs pre audit and detailed audit. However renovation requires mostly the detailed audit phase, because it's the availability of "**investment-grade**" audits which makes the return on investment possible.

The **fourth objective** is to give tools for **transformation of audits in actual works**, namely by easing decision making and giving sufficient case studies. Renovation of Air Conditioning

systems is a big challenge for the coming years aiming at the development of a renovation market (if providing more success in the realisation of potential improvements).

## Towards Class A. Municipal Buildings as Shining Examples (TOWARDS CLASS A)

### Objectives

The purpose of Towards **Class A - Municipal Buildings as Shining Examples** is to accelerate the implementation of the **Building Directive** in Municipal buildings – and anticipate the draft Directive on energy efficiency and energy services – through:

49. Extending the display of the performance of municipal buildings - in terms of energy consumption and CO<sub>2</sub> emissions – in more than 500 municipalities all over Europe.
50. Initiating and stimulating a *certification of buildings* process in municipalities.
51. Encouraging municipalities to improve their building performance towards *Class A* so that they become "Shining examples".
52. Making known existing Shining buildings and the reasons for such a performance.
53. Developing "*How to become a shining example?*" processes, by motivating municipalities, and allowing a gradual improvement towards certification.
54. Stimulating communication and awareness raising campaigns at local level towards the general public from municipal Shining examples.

### Description of the work

**Towards Class A** is the first project at European scale targeted to the practical implementation of the Building Directive "from the ground" and/or "in preparing the ground" for a better implementation when the legislation will enter in force in the different countries. The project will last 3 years but the Campaign is planned to last near a decade.

The project is organised in 8 work packages which will all run together during the duration of the project:

- |         |  |
|---------|--|
| 55. WP1 | Project management and coordination                  |
| 56. WP2 | Large scale Display Campaign                         |
| 57. WP3 | Towards Class A Help Centre                          |
| 58. WP4 | Shining examples to boost the building certification |
| 59. WP5 | Dissemination activities                             |
| 60. WP6 | Promotion meetings                                   |
| 61. WP7 | Annual "Towards Class A" Award                       |
| 62. WP8 | Common dissemination activities                      |

### Expected results

Main results of Towards **Class A**:

63. Large extension of **the display of the performance** of municipal buildings - in terms of energy consumption and CO<sub>2</sub> emissions in more than 500 municipalities all over Europe (up to 5.000 municipal buildings)

64. Set up the **Towards Class A Help Centre** which shall help the bad classified municipalities to jump rapidly from Class E-G to Class B-C
65. Describe 100 **Shining examples** from all Europe and make them accessible to all European municipalities via the **Display Database**
66. Implement a comprehensive analysis of the Shining examples to enable the drafting of recommendations
67. Organise the **Towards Class A Award** which shall be focused on the communication and awareness raising campaign launched by municipalities towards the general public.

The key actors are local authorities and local energy agencies; national energy agencies and administrations, architects; manufacturers providing good and products for energy efficient buildings.



## A programme to deliver energy certificates for display in public buildings across Europe with a harmonising framework (EPLABEL)

### Objectives

The primary objectives for the EPLABEL project are to facilitate the implementation of the EPBD by:

68. Extending the proven methodology for energy certification of existing office buildings developed by the Europrosper SAVE project to other key non-domestic sectors which might fall under the “Public” building designation and will therefore be amongst the first to require certification: higher education, schools, sports facilities, hospitals and other public health facilities, hotels and restaurants.
69. Making the methodology applicable to and available in all EU Member States (**17 are participating plus Norway and Switzerland**).
70. Establishing a delivery infrastructure including training schemes, quality assurance and a user-friendly web site which allows the method to be used readily, robustly and efficiently.
71. Developing data processing proposals which support a process of “learning by doing”, so that information collected using the certification system can track developments in buildings and their energy performance, allowing techniques and benchmarks to be refined.

### Description of the work

There are six key work packages:

72. **A review** by each Partner of existing measured energy performance data and benchmarks for buildings in the six target sectors in their country, with similar reviews in countries associated with the project leading to recommendations on the best way to accommodate different levels of benchmarking within a harmonising framework
73. **Establish benchmarks:** The project will extend the innovative energy certification approach for offices based on customised benchmarks to five other key non-domestic sectors and will test its applicability to buildings across Europe
74. **Develop a public domain web-based benchmark generation engine** for use across the EU, and energy certification demonstration software based on this engine
75. **Develop training material:** for use of the engine by Article 10 experts and self-assessors
76. **Overcome delivery barriers:** for example, how to make the inputs required for energy certification easy to collect and quality assured
77. **Dissemination** and co-ordination with other activities relating to implementation of the EPBD

### Expected results

The main deliverables will be a public domain web site to generate customised energy benchmarks for buildings in the six target sectors and a training package for the engine for accredited Article 10 experts and self-assessors. The approach will be compliant with emerging CEN Standards for the energy certification of occupied non-domestic buildings and

applicable across Europe. Demonstration software will illustrate how the procedure can be used to produce quality assured energy certificates for display.

The project will also work to overcome delivery barriers so that the procedure is practical yet technically robust and can deal with institutional arrangements eg between landlords and tenants. All the key individuals who will work on the project are involved in an advisory capacity at National and European level which will enable the project to inform and be informed by National policies.

Data processing proposals will be developed which can support the synthesis of energy certification results and the periodic refinement of energy performance benchmarks.

## Greenbuilding

The project GREENBUILDING is a stand alone pilot action carried out in ten member states of the European Community. GREENBUILDING is driven by a consortium of 13 national or regional energy agencies, research institutes and a property federation who work as National Contact Points in the participating countries. The objective of GREENBUILDING is to trigger investments in energy efficiency and renewable energy technologies in non-residential buildings with focus on existing premises. The impact of the GREENBUILDING project will go beyond the standards imposed by the European building directive and national building codes in force. The GREENBUILDING project is designed to overcome socio-economic and market barriers – in particular lack of awareness, lack of know how and technical capabilities, lack of access to finance and energy service offerings – that are currently preventing investments in spite of high benefits and short payback times.

The guiding principle is that energy efficiency measures and technologies based on renewable energy sources shall be implemented into non-residential buildings in order to substantially reduce their energy consumption. New buildings shall consume 30% – 50% less energy compared to the respective building code currently in force, depending on the different starting conditions in the different countries. Investment is supposed to pay back within 6 years. Energy management policies shall be adopted to continuously operate the building at its best performance. Organisations committing themselves to the rules and principles of the GREENBUILDING project are awarded “Partner Status”.

GREENBUILDING will set up a collection of useful deliverables being accessible via national and a centralised program websites: a toolbox of guidelines, a Best Practice inventory of successful projects, a directory of competent programme endorsers and a publication adapted to national contexts and languages.

During the first project phase lasting six months a set of guidelines for building owners or operators and energy consultants is developed. In parallel the project partners set up an effective infrastructure and compile Best Practice cases for a European directory. In the following project phase the methodologies are applied to two to four selected pilot projects in each of the participating countries. At the end of the pilot phase the impact of the action on energy efficiency investments, resulting energy savings and energy cost reductions will be clearly measurable. The results and experiences will be used to evaluate and to fine tune the guidelines. Each country participating in the GREENBUILDING project will work out a concept to promote energy efficiency improving measures and the use of renewable energy sources in non-residential buildings. GREENBUILDING’s outcomes are disseminated across the EU and in EU-internal communication structures.

## **Development of Distance Learning Vocational Training Material for the Promotion of Best Practice Ventilation Energy Performance in Buildings (Vent Dis.course)**

### **Objectives**

The main objective of the proposed action is to accelerate implementation of a core area (ventilation) within the Energy Performance of Buildings Directive (EPBD) at European and national levels and thus improve energy efficiency in buildings by directly transferring existing knowledge to appropriate actors in a suitable format.

This will be achieved by developing and promoting vocational training material in a multi-lingual distance-learning format for building professionals to facilitate the implementation of best practice ventilation energy performance (both for indoor environmental quality and thermal comfort) in large new and retrofitted buildings of various types.

Development objectives include (a) evaluation of vocational distance learning training methods for effective market penetration and (b) collection/evaluation/classification of existing and recently developed knowledge of energy efficient ventilation technologies into vocational distance learning training formats. Promotion objectives include pilot seminars, Continuing Professional Development (CPD) material in professional journals and targeted initiatives (flyers, advertisements) in addition to the available training material in three distance-learning formats.

### **Description of the work**

The work programme includes seven work packages with an overall duration of 24 months. Each work package has a work programme with clearly assigned responsibilities and deliverables. The work programme includes:

78. Evaluation of educational distance learning methods and application to building ventilation vocational training.
79. Collection, evaluation and classification of information and material on energy efficient ventilation technologies and design to develop the distance learning training.
80. Development of material which will consist of (a) CPD articles in professional journals; (b) textbook and (c) electronic training material using specialised educational software; all to include practical (EPBD based) training exercises and assessment material.
81. Establishment of the training methodology including the operational schedule of the material in its various facets and requirements for certification.
82. Transfer of information to training institutes, pilot seminars and CPD articles.
83. Testing of the educational package by selected European experts.
84. Finalisation of the training modules and future dissemination plans

### **Expected results**

The main direct deliverable is distance learning vocational training material for sustainable building ventilation in three formats together with training methodology, operational schedule and requirements for certification. During the project, national seminars, CPD articles (in national languages) and selected training (targeted by professional bodies within participating countries in their national language) would contribute to dissemination.

The main contribution of this proposed action is that by transferring knowledge on the latest energy efficient ventilation technologies and system design (within EPBD initiatives) to appropriate actors in a systematic but flexible format (distance training) supported by employers and professional institutions in participating countries, it is possible to considerably reduce energy use in buildings. This will be achieved by designers having the know-how (together with calculation methods) on minimising the need for mechanical ventilation (by applying passive ventilation techniques) and specify energy efficient plant where this is necessary. Energy use by ventilation losses and fans accounts for almost 10% of total energy use in EU-30 and the potential impact in energy saving in 2016 could be 1.3Mtoe/year giving a reduction of 3 Mton CO<sub>2</sub>-eq./year. In 2050, the energy saving potential is approaching 1.5% of 1990 total energy consumption.

<sup>1</sup> Cluster Project on Demand Controlled Hybrid Ventilation in Residential Buildings with specific emphasis on the Integration of Renewables, 5<sup>th</sup> Framework, <http://www.reshyvent.com/>

## Development of an interactive vocational Web training tool for the take-off of the buildings DIRECTIVE 2002/91/EC (EEBD (Electronic Energy Buildings Directive))

The proposed action aims to make contribution to the take-off of the European **DIRECTIVE 2002/91/EC** through developing a web-based dynamic vocational training tool. The building sector constitutes about 40% to the total energy consumption in EU. It is therefore essential to improve the energy efficiency in buildings. The **DIRECTIVE 2002/91/EC** provides a precise legislative framework for improving the energy performance of the built environment. It has been well understood that up to 22% of energy saving could be achieved in the building sector in Europe if the economic condition permits. Surveys carried out in previous projects revealed that significant amount of energy had been wasted in buildings due to poor design, commissioning, maintenance and operation. Besides the economic barriers, this situation is likely because building designers, managers and operators do not have sufficient technical competence. The training tool to be developed in this project will provide them a suitable mean to obtain the technical competence that allows them to better understand and use the **DIRECTIVE 2002/91/EC** and relevant national regulations and to design, maintain and operate the buildings with higher energy efficiency. Furthermore, the training tool will also provide information on the process of building energy certificate that can be disseminated among trainers, auditors, certificate experts, and building owners, tenants and operators. The proposed objectives will be achieved by identifying the vocational training needs in EU regions and by interacting with the key actors in the development of the training tool. The tool will incorporate the state-of-the art information in modules and will be automatically updated according to the end users requirements. Each trainee will be given opportunities to rate each of the modules and the entire tool in terms of flexibility, usefulness, completeness, consistence with his/her demands, user friendliness, adaptability to the market requirement. The feedback from trainees will be used to continuously improve the tool in order to meet the market needs. The tool will be free of charge and after the completion of the project, the maintenance of the tool will be made by own funds, advertising and by honorarium.

The project consortium is consisted of partners from the UK, Greece, France, Bulgaria and Austria. These partners have long-term experience on their national building regulations. Most partners are currently involved in or responsible for assessing the impacts of the **DIRECTIVE 2002/91/EC** on national regulations and developing necessary national implementation details. Many partners have already worked together in other EU funded projects (SMART-BE, SMART-ACCELERATE, etc). An effective working relationship between partners has already been established.

The tool will be evaluated by academic experts via peer review, which focuses on the examination of the trainability of the tool, and through mock-up trainings, which is designed to collect and analyse feedback from potential users of the tool such as building design engineers, building operators, and building control system integrators.

The major deliverables are: Report on vocational training needs in various EU regions; Report on participants profile; Academic materials of the training tool; Vocational training syllabus for the four EU regions (Northern, Southern, Eastern and Central); The static part of the tool; The dynamic part of the tool; Report on the testing activities; Report on the evaluation results; Potential impact report; Virtual Classrooms; Electronic brochures and on-line help desk for the EEBD tool; The static part of the EEBD tool in CD-ROM.

A number of workshops will be organised in participating countries to disseminate the output of the project.

## Dissemination of Energy Efficiency Measures in the Public Buildings Sector (DEEP)

Buildings are major consumers of energy. Around 40% of final energy consumption in the European Community is in the buildings sector. EC research has indicated that by improving energy efficiency, carbon emissions from buildings and related energy costs could be reduced by 42%.<sup>1</sup> Public buildings have an important part to contribute to this potential.

The procurement of energy efficient materials and/or services by public bodies has the potential to become a major driving force for the market penetration of efficient products. The power of public procurement in Europe is significant: public authorities each year spend over € 1,500 billion on goods and services. Approximately 40% of the procurement budgets of local authorities are spent on buildings, some report even higher figures. To date, there are still many but surmountable obstacles to the realisation of energy efficiency potentials in this sector.

The proposed action aims to promote opportunities in improving energy efficiency through high environmental standards for public office buildings. Therefore, criteria for building materials, energy requirement, and green electricity will be developed. Based on this, information and training tools for public authorities' suppliers and public purchasers will be developed, and links between procurement and other related policies will be established. In order to overcome identified barriers, European Policy Recommendations will be formulated, taking into account the project findings.

To ensure that the criteria developed in the course of the proposed action are relevant and useful for local authorities and reflect latest technological developments, stakeholder groups will be involved in the development procedure. Furthermore, as the success of the developed criteria, their implementation by local authorities, will highly depend on their practical applicability, the criteria will be directly used by and integrated into the Procura<sup>+</sup> Sustainable Procurement Campaign.

ICLEI developed and launched the Procura<sup>+</sup> Sustainable Procurement Campaign in 2004. This activity aims to achieve tangible improvements for the global environment, based on the targets that local political decision-makers set for their administration. The campaign provides key criteria to distinguish "green" products from average products, which can be applied directly in the procurement process. Three of the currently six product groups focus on energy consumption or its generation. In the project, the criteria for energy consumption and generation established in 2003 will be reviewed, since significant technological and organisational developments are currently taking place.

The criteria developed under the proposed action will be discussed and adopted within Procura<sup>+</sup>, and the campaign material will be adopted correspondingly. This process will ensure the practical feasibility of the criteria, since direct input is given by those implementing them. Their large scale implementation will be assured and channelled through an already existing structure, allowing also for monitoring of the results. To date, more than 30 local authorities from all across Europe have signed up to the campaign. Although the project is closely linked to the Campaign and profits from its structure, results are all available to the public and are not linked to participation in the Campaign. Dissemination will furthermore be

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<sup>1</sup> See: Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, "Towards a thematic strategy on the urban environment", COM (2004) 60 final



realised through the Cities for Climate Protection Campaign, and the BIG-Net, the “Buy It Green”-Network of Procurement Professionals in Europe.

## European high quality low energy buildings (EULEB)

This project is intended to supply information to architects and engineers throughout Europe to support the Energy Directive on Buildings through providing design and engineering details of high quality, low energy consumption public buildings throughout the EU.

By supplying information on architecture, energy consumption, economical and ecological efficiency as well as the comfort of these innovative buildings in use, the lack of information on low energy architecture and the prejudices lots of people have against it shall be eliminated.

Therefore a CD will be created, providing detailed concrete information on the significant parameters of exemplary buildings in the EU and the experiences in use. The CD will be disseminated by magazines and seminars.

The target groups are the main market actors like public clients, investors, and building industry as well as architects and engineers with their local, national and european organisations. The public building types chosen are:

85. Local Government Office Buildings

86. Educational Buildings (kindergartens, schools, universities, libraries)

87. Leisure facilities (museums, sports halls, theatres etc)

Buildings will be chosen in each of the above categories from the participating countries which in population term cover a large majority of the EU even after enlargement ( UK, France, Germany, Italy and Spain). In total this means 21 to 24 buildings. The criteria for choice of the buildings will be:

88. Good Design, preferably award winning buildings

89. Low Energy Consumption

90. Advanced solutions for architecture, room comfort and technology

91. Different climatic zones in Europe (south, middle, north)

92. Availability of monitored energy consumption or easily measurable

93. Availability of financial data relating to energy saving features ( RUE and RES)

The mode of presentation of the information will be through a web based CD which will be distributed as inserts in architectural and/or engineering magazines in the various countries. In total it is expected that 150000 CDs will be produced.

Interviews with building-users will show the acceptance and the resulting comfort for the people in innovative buildings.

The format chosen will be based on the SUNH/SHINE CD-res produced under Altener contract BU1054/96, while the information will be wider and more detailed. In contrast to SUNH&SHINE, which is limited to residential buildings, EULAB will deal with non-residential and public buildings, thus an overlap of projects is impossible. The format will be navigable through either the individual project or through the particular technology. It will therefore include:

94. Plans/Sections and Photographs of Building

95. Details of technologies include diagrams of principle of operation and photographs.

96. Energy Savings associated with technologies

- 97. Room comfort
- 98. Cost/Benefit analysis of technologies
- 99. Videos with interviews of building operators and occupants.
- 100. The CD will therefore encompass:
- 101. Architectural Design Aspects
- 102. Energy Savings
- 103. Economics
- 104. Social aspects
- 105. Climatic data.

The CD will be offered in English, French, German, Italian and Spanish to offer the information easy understandable to a large number of European people.

Students, who are the key market actors of the future, will be informed about the project during special lectures.

## PROMOTION OF EUROPEAN PASSIVE HOUSES (PEP)

The European CEPHEUS-project (BU/0127/97) was very successful in demonstrating the best contemporary efficiency and renewable energy standard in 14 building projects with more than 200 dwellings in 5 countries. Best practices efficiency technologies were developed and demonstrated in an integrated concept. The total non-renewable energy demand was reduced by more than a factor 4 compared to contemporary national standards. As an impact of this success until now more than 4000 dwellings have been built according to the best practice standard defined by CEPHEUS and more than 50 companies – many of them small and medium sized enterprises – developed building products (insulation, passive solar components, window frames, special glazings, highly efficient heat recovery systems, compact heating units and others) which are suitable to be used in passive houses.

The present proposal aims at the fundamental goal to spread the experience gained by CEPHEUS and the subsequent projects. This will be realized by the following activities

106. documentation of the energy saving potential of the Passive House concept all over Europe;
107. show specific solutions for Passive Houses in different European regions and climates and to adapt the passive house designing tool (PHPP, Passive House Planning package) to meet the demands of architects and planners in different countries;
108. set up an information package with practical information, such as building product documentation, design guides, research results, calculation methods, quality assurance activities;
109. set up a certification programme and make a link between the Passive House buildings and technologies certification and the national Energy Performance Certification system, according to the EU building directive;
110. organise national workshops and an annual international Passive House Conference;
111. create national Passive House websites.

These activities subsequently promote regional economic activities especially for SMEs which do main part of work for building houses. So a substitution of expenses for energy use during the lifetime of houses by investment in the building envelope is induced.

Involvement of key partners of CEPHEUS: ProKlima and Passive House Institute and, though not a partner in the proposal, the Energieinstitut Vorarlberg will give a substantial input. This will be helpful in order to fully use the know-how gained by development, demonstration, evaluation and monitoring work done in the framework of CEPHEUS.

In order to have the information spread as wide as possible, contact will be maintained with project EIE-2003-091: Passiv-on (Co-ordinator: prof. Lorenzo Pagliano). Exchanges of best practice and experience are foreseen in the International conference, in dissemination activities and the website.

## BEST PRACTICE FOR DOUBLE SKIN FACADES (BESTFACADE)

Innovative façade concepts are today more relevant than ever. The demand for natural ventilation in commercial buildings is increasing due to growing environmental consciousness while at the same time energy consumption for buildings has to be reduced. An advanced façade should allow for a comfortable indoor climate, sound protection and good lighting, thus minimising the demand for auxiliary energy input. Double skin facades (DSF) have become a major architectural element in office buildings over the last 15 years. The double skin façade can provide:

- |      |                                   |  |
|------|-----------------------------------|--|
| 112. | a thermal buffer zone             | - solar preheating of ventilation air    |
| 113. | energy saving                     | - sound protection                       |
| 114. | wind protection with open windows | - pollutant protection with open windows |
| 115. | fire protection                   | - nocturnal cooling                      |
| 116. | aesthetics                        | - site for incorporating PV cells        |

Commercial buildings with integrated DSF can be very energy efficient buildings with all the good qualities listed above. However not all double skin facades built in the last years perform well. Far from it, in most cases large air conditioning systems have to compensate for summer overheating problems and the energy consumption badly exceeds the intended heating energy savings. Therefore the architectural trend has in many cases unnecessarily resulted in a step backwards regarding energy efficiency and the possible use of passive solar energy.

The BESTFACADE will actively promote the concept of double skin facades. A best practice guideline of double skin facades will be created. It will be based on a comprehensive survey of double skin facades in Europe. Information on built examples of double skin facades in European office buildings will be collected, investigated and assessed. Using this guideline designers and investors can avoid application of non relevant concepts of DSF performing worse than traditional facades. The investor confidence concerning operating performance, investment and maintenance costs will be increased.

A simple calculation method for national guidelines to estimate the energy demand and comfort parameters will be developed. This method will be evaluated using measured and simulated data sets. It will be presented to the relevant CEN committees and could be integrated into assessment methods of the EBPD.

## Energy Savings from Intelligent Metering and Behavioural Change (Intelligent Metering)

The building sector is responsible for a significant proportion of energy consumption in the European Union, accounting for around 40 % of total consumption. Any action to accelerate increased energy savings in this sector is therefore of strategic importance with respect to European energy-related policies. The proposed project aims to demonstrate and promote the extensive take-up of intelligent metering across Europe. To maximise the energy savings available from the implementation of efficient technologies and products there needs to be an accompanying change to responsible energy behaviour by building users. By changing building occupant behaviour energy use can be rationalised. Intelligent metering analyses half hourly monitored data to identify activities to change the behaviour of building owners and tenants resulting in energy and water savings. Work to date carried out in Leicester has demonstrated savings of up to 30% with little or no investment.

With the deregulated energy markets the performance and ability of the utility companies to provide consistent and relative data to building managers in a format that enables the manager to identify change of use has been very poor. Few utilities have been able to cope themselves with the changes within their own companies or keep pace with the number of new owners and staff movements with the most experience staff often leaving the organisation at a time when the customer requires the most help and guidance. These problems are compounded with the poor billing systems and lack of real data that has existed. In the UK there have been many examples of lack of data and estimated accounts (Leicester City Council 2000 and OFGEM Reports 2003). This is of no use to the energy manager of today. Leicester Energy Agency (Leicester City Council) has been pioneering a radical change of how it obtains its building data and has moved to the position of data collector at source and providing this data back to the utility company to allow them to invoice correctly. In this way Leicester has captured the most powerful tool available to today's energy manager and building user **Real Data in Real Time** but it how you use this that is the powerful story that Leicester has to tell and promote through this project proposal.

An important factor for increasing energy efficiency in buildings is through the demonstration of workable approaches to energy efficiency. Therefore this project includes a pilot action to demonstrate the energy savings available at minimum cost through the use of intelligent metering and building occupant training. Local authority buildings including offices, museums, schools and homes will monitor energy and water use half hourly. This data will be processed to identify actions and associated savings. Training will be provided to the building users to achieve energy savings and the actions will be followed up and monitored. Best practice methodologies and approaches for replication of the concept will be developed for dissemination.

Exchange of information, dissemination and promotion are all very important to ensure that take-up of the intelligent metering concept is as widespread as possible. So in addition to the demonstration and building occupant training elements of the project there is a strong dissemination element including presentations, demonstrations, a website and the development of a framework for on-going training.

The project meets the objectives of Vertical Key Action 1 "Multiplying success in buildings" (SAVE).

## Development of pilot Solar Thermal Energy Service Companies (ST-ESCOs) with high replication potential (ST-ESCOs)

The **objective** of the project is to promote the creation and development of Solar Thermal Energy Service Companies (ST-ESCOs) and, by this, to assist in accelerating the growth of the solar thermal market in Europe.

The actual **problem faced** by this project is that although solar thermal applications are technologically mature and economically advantageous in the long term, they have still little penetration in the European market, with respect to their potential. One of the main reasons is that end users (especially large ones) are still reluctant to face the high initial investment cost and doubtful for the reliability and durability of solar installations.

The **ST-ESCOs**, by **selling the solar energy (and not the solar plant)** at a competitive price and by carrying out the plant's operation and maintenance can remove completely the above mentioned barriers, thus opening the way for a rapid expansion of solar thermal installations throughout Europe in all potential sectors (residential, services and industry), both private and public.

However, the development of European ESCOs in general is still in its infancy and, to what concerns in particular the solar thermal sector, only sporadic (and not always successful) initiatives have been taken.

This project aims to found and foster the sector of ST-ESCOs by carrying out the following work:

117. Elaborate a **market** and framework conditions **analysis** (learning from the past attempts), identify the potential and the most promising sectors for actions.
118. **Transfer the know-how** from successful experiences (e.g. in Austria) among the partners.
119. **Inform stakeholders**, bring them together and seek for ST-ESCOs establishment.
120. **Provide** valuable **tools** for ST-ESCOs: a complete **Guide** with financial, technical and contractual aspects and a user-friendly **Software** package for the quick assessment of possible applications.
121. **Elaborate** and propagate concrete **suggestions for necessary ST-ESCOs support measures** both at EC (Directive) and National level.
122. **Disseminate** the **results** (by means of a ST-ESCOs web site, brochures, conferences etc.) and seek for future support and ST-ESCOs network creation.
123. **Prepare** detailed, real cases of ST-ESCOs **agreements** and try to implement them in practice. In fact, the expected final outcome is to sign at least one new ST-ESCO agreement for each participating country.

The actions listed above will result in having (among else): a) well informed/instructed stakeholders stimulated on ST-ESCOs benefits b) progress in creating a friendly framework for the ST-ESCOs future development and c) a founded network of pilot ST-ESCOs.

It is expected that the current project will have a high replication potential in the participating countries as well as in the rest of Europe and will contribute substantially to a quick and healthy expansion of the European Solar Thermal sector.

## Marketable Passive Homes for Winter and Summer Comfort (Passive-On)

### Objectives

Past projects have successfully examined specific passive cooling strategies for Mediterranean Climates. Recent work (e.g.CEPHEUS) has shown that cost effective, comfortable Passive Homes can be built in heating load climates.

Passive-On combines past experience in passive cooling and heating to develop tools for designers and policy makers to move Passive Homes from a market niche to more wide scale development :

124. for designers (particularly smaller studios) the project provides **Design Guidelines** and a **Software Design Tool** for developing cost effective all season Passive Homes in both heating load and cooling load climates.

125. For Policy makers the project provides a **Scope and Strategy Report**, examining barriers and the solutions for EU, national and local government which can lead to more wide scale development of Passive Homes.

Passive-On::

126. **expands** the Passive Home concept to other heating load dominated climates

127. **extends** the Passive Home concept to cover summer space comfort

### Description of the Work

Design Guidelines will be developed by evaluating data from existing Passive Home and passive cooling projects. . The successfully tested Passive Home Planning Package Design software developed by the Passiv Haus Institut (PHI) will be adapted for use in new warm climates.

For the Scope and Strategy Report, interviews will be undertaken with key commercial and public actors in order to determine current development activity, interest, barriers in low energy housing and potential solutions for wider scale development.

Analysis is accompanied by an effective communication programme to promote

passive cooling and heating guidelines and to anticipate and then widely disseminate project specific deliverables.

The project involves National Experts from six countries, including four Mediterranean countries; all with a proven track record of working on the issue of either passive cooling or passive heating techniques. Commercial are enthusiastic about the proposal and have agreed to fund the project.

### Expected Results

Residential properties are responsible for three quarters<sup>2</sup> of energy consumption and emissions of the building sector. In heating load dominated climates Passive Homes consume 80% less than standard alternatives.

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<sup>2</sup>Mitigation of CO2 emissions from the building stock, Ecofys for Eurima and EuroACE, 2004



Passive-on will confidently bring Passive-Homes to the forefront of the technical and political debate surrounding the implementation of the EU Building Directive in Member States. Passive-On will inspire policy makers to act to promote the Passive Home concept and influence the national labelling debate (for example efficiency levels) . Passive-On, by providing designers with the tools to develop turn-key solutions, will show Passive Homes to be a reality for all.

Importantly Passive-On will bring the Passive Home concept to the Mediterranean, integrating passive heating and passive cooling into one marketable solution.

## Service Buildings Keep Cool-Promotion of “sustainable cooling” in the service building sector (Keep Cool)

### Objectives

According to recent EU-studies a four-fold growth in air-conditioned space is likely between 1990 to 2020. Despite this worrying perspective energy efficiency policy in European countries rarely addresses cooling. Available **energy efficient and sustainable cooling technologies hardly reach the market** today.

The **overall goal** of the project is to implement activities that reduce the negative impacts from increasing cooling demand in Europe through an increased market penetration of sustainable cooling approaches and technologies. In a “preliminary definition” **sustainable cooling consist of the following elements**: reducing heat load; minimizing the electricity consumption; increasing the use of renewable energy sources.

As target sector the proposed action addresses both **newly constructed and existing service buildings (both public and private sector)**. **Since the buildings owners are** the driving force in the investment process, the project focuses on convincing building owners on the benefits of sustainable cooling solutions through **marketing and dissemination of already existing technologies, knowledge and tools**. In addition the project aims at supporting the cooperation between **suppliers of sustainable cooling solutions** and ensuring the link **to policy instruments**, that might support the accelerated market penetration of sustainable cooling.

### Description of work

This proposal is composed of **4 work packages** that reflect the overall goals and objectives:

128. **Work package 1 collects the state of the art related to sustainable cooling.** Starting from a definition of “sustainable cooling”, the information will be presented “from the perspective of the building owner”.
129. **Work package 2 describes available tools.** As Final output a tool kit with assessment instruments and strategies for implementation of “Sustainable cooling” will be produced.
130. **Work package 3 contains marketing and dissemination activities** and represents the core activity of the project. Except the concluding conference, the work package is implemented on a national/regional level. The focus is on concrete advice in real projects but also seminars, face to face meetings and pilot projects. A network of key actors is created.
131. **Work package 4 ensures the link to policy measures**, that would – in addition to marketing and know-how-transfer – support the accelerated market penetration of sustainable cooling approaches and technologies.

The tasks and activities go **beyond pure dissemination and information transfer**. They include also activities related to **”market transformation”** by bringing together the relevant market actors and build up a structured supplier/customer dialogue.

## Expected results

1. Due a focus on marketing and dissemination **awareness of existing sustainable cooling solutions** that secure summer comfort will increase in the participating countries.
2. The project will enhance **know-how-transfer** between northern, southern, western and eastern Europe on the benefits, costs, chances, risks of sustainable cooling in building practice.
3. The **companies** supplying elements of sustainable cooling will increase their co-operation and **start to provide attractive package solutions**.
4. The project will **increase the number of implemented sustainable cooling solutions**. Both in new buildings and refurbishment projects sustainable solutions will be an obvious discussion point.
5. Policy instruments will increasingly address the energy consumption for cooling and support sustainable cooling solutions.

## Regional Market Preparation for Energy Efficiency Services in Public Buildings (PU-BENEFS)

This project intends to develop a suitable management framework for assisting **public bodies** and especially local **authorities** to **implement energy services including energy efficiency**, and thus to **enhance the market** of energy efficiency and energy services, by providing **efficient tools** to **meet the needs** of public bodies and facilitating the work of ESCOs. The major outcome of this action would be an increased number of **public bodies using energy services**.

Opening of energy markets and use of energy services represents a good opportunity for local authorities to include energy efficiency measures in their management, but several problems can occur, such as lack of knowledge of existing mechanisms, as third party financing, specificities inducing difficulties to implement energy services (legislation, accounting schemes etc), risk of losing the knowledge on the energy consumptions.

Concrete assistance will help the local authorities **overcoming their non-technological barriers**, to create a new market for energy services and thus **realise** the high energy **efficiency potential** in their building stock.

Work will start with studies on the specificity of public bodies, their legal framework and capacity for third party finance contracting in 8 countries (F, GB, D, A, SP, S, FIL, I); In total fourteen feasibility studies will identify the specific problems and solutions for implementing energy services. Elaborated specifications will assist local authorities for their tenders to implement energy services, allowing having the **best offer** by ESCOs.

As the **quality of contractual relationships** is crucial model contracts will be elaborated, taking into account the acquired know-how in Europe, in a way those public bodies can **adapt** them rapidly. Tools (brochure, CD-ROM, web sites) will be produced in seven languages facilitating the implementation of energy services.

The dissemination will ensure an efficient replication of the work carried out directed to the target groups while associating the key actors (**specific advisory committees**). Organisation of **training and dissemination seminars** at different levels completes the promotion. In this way this project will be able to increase the number of public bodies and local authorities deciding to study and further to implement energy services schemes.

## **Extend Accredited Renewables Training for Heating (EARTH)**

The EARTH proposal will seek to promote solar water heating (SWH), ground-source heat pumps (GSHP), and biomass as heat and energy sources. This will be achieved by creation of courses on the installation of these energy technologies in participating countries.

These courses will help create a competent, qualified workforce of installers and intern promote the wider implementation of SWH, GSHP, and biomass technologies by alleviating the barriers that lack of installers and poorly installed or malfunctioning systems represent. Consumer and investor confidence in both the technologies and in the abilities of installers will justifiably increase. Increased utilisation of these technologies provides significant environmental benefits and assists in the reduction of carbon emissions, and could crucially affect whether the EU fulfils its primary energy targets.

The project will also extend quality audit procedures for renewable energy training, ensure RES Heat training opportunities are appropriate for national training frameworks and consolidate previous and existing work packages under the ALTENER / SAVE programmes.

Direct project results will be

132. Reports on biomass, GSHP and SWH training & training providers in all countries
133. Final peer-reviewed Task Analyses for biomass, GSHP and SWH installer training
134. Project website with all deliverables uploaded
135. A European workshop to review the project and accreditation process, and consider future development
136. 2 dissemination workshops in each of 9 participating countries, with supporting leaflets or website pages.

The project involves 18 different courses (8 biomass, 4 GSHP, 6 SWH) across 9 different countries.

For each course the outputs in local language will be:

137. Course definition including syllabus
138. Teaching Materials Pack
139. 1 train-the-trainers workshop
140. 1 pilot course
141. Accreditation audit

The creation of RES-Heat installer training opportunities in national training frameworks, has consequent indirect effects on the deployment of these technologies, consolidation of past EC projects, and progress against EU and national environmental targets.

## Enlarging Solar Thermal Systems in Multi-Family Houses, Hotels, public and social buildings in Europe (SOLARGE)

### Aims and objectives of SOLARGE:

In order to implement the needed market growth, intensive efforts are necessary. SOLARGE aims at tearing down existing market barriers and impediments concerning the extensive use of solar heat. For that, SOLARGE develops market and practice related tools that involve all relevant areas of collective solar heat such as political and legal conditions, technical developments, best practice of pilot projects, information, qualification and marketing measures. Awareness campaigns will be carried out towards all relevant professional target groups. These actions shall provide a market stimulation of collective solar heat in the involved partner countries. Specific objectives are:

Reach the collective solar heat targets defined in the European White Paper on the regional level by stimulating investments by the demand side.

Analysis of national and regional market situations for collective solar heat; estimation of collective solar heat potentials and description of obstacles and market barriers for decisive market stimulation; the aim is to reduce or tear down identified market barriers.

142. Exchange of project implementation instruments and tools as well as on know-how and experiences.
143. Compilation of know-how on best practice examples, on 'best options' for the project development; compilation of legal, technical, financial and marketing guidelines.
144. Qualification and capacity building of the supply side, that is: engineers, architects, installers, manufacturers, etc.
145. Awareness campaigns towards potential investors; information, qualification and advice for relevant decision makers in the building stock concerning technical and economic aspects.
146. Stimulating the market for collective solar heat by assessing with adequate methods the building stocks of private, social and public market actors on the demand side
147. Define national strategies for market stimulation in relation to regional policies and activities (regional objectives, target groups, schedules, milestones); supporting political decision making for collective solar heat targets.
148. Europe wide dissemination of project results, especially involving CEEC countries

The participating partner consortium has a high competence in collective solar heat and for energy related marketing campaigns as well as many years of experience in the implementation of European projects. Since the action will be carried out in seven countries the respective partner's work programmes and corresponding national actions will be very similar in all work packages. The following partners will take part:

149. target GmbH, **Germany**
150. Bundesverband Solarindustrie e.V. (BSi), **Germany**
151. Berliner Energieagentur (BE), **Germany**
152. ADEME, **France**
153. Enerplan, **France**

154. Ramboll, **Denmark**
155. Ecofys b.v., **Netherlands**
156. Ecofys sl, Spain
157. Ambiente Italia (AI), **Italy**
158. University of Ljubljana, **Slovenia**
159. European Solar Thermal Industry Association, **Belgium (Brussels)**

Additionally representatives and experts from Greece, Portugal and Cyprus will be included to ensure a very good market coverage.

The national tasks as well as the European experiences of the partners enable an effective **dissemination of the project results**, which is of major concern for this project. The dissemination strategy aims to reach nation-wide and Europe wide interests and transfer in other European regions.

The dissemination strategy covers the following structure:

The **results** related to the aims and objectives of this project present an important precondition and foundation for obtaining the necessary market growth and the Take-Off-Effect in the key technology "Collective Solar Heat". The potential **impacts** of the project are

160. A systematic effort on developing measures and market tools for the stimulation of European collective solar heating markets to remove the main market barriers
161. Increasing interest for the collective solar heat on the offer and demand side
162. Improvement of image and acceptance for collective solar heat and promoting CSTS technologies.
163. Increasing collective solar heat utilisation in member states and CEEC
164. The project results and deliverables will be published and distributed in 8 languages
165. Promoting, accelerating, and monitoring the progress of integrated policies, regulations and financial instruments to provide better market conditions for collective solar heat technologies
166. Reach the targets for collective solar heat defined in the European White Paper on the regional level by facilitating and stimulating solar thermal investments on the demand side.

## **Rural Advice and Support Units for RES in Heat Systems and Integrated Energy Management in Buildings (RURASU)**

### **Objectives**

Having the knowledge and the experiences from establishment and operation of the Design and Advice Support Units it came up the need to work intensive with rural areas. So, the aim of the proposal is to provide energy management, energy conservation consultancy and services in rural areas. The above will be achieved through the Design and Advice Support Unit partners network, which have to combine and adapt scientific and technological knowledge with best engineering and architectural practice.

As most of the areas, that are under the Design and Advice Support Units authority have, "cold climate" (North European countries) or "climate of mountain" (Greece), the main energy problem is the requirement for heating and energy supply.

The specific objectives of the proposal include: the adaptation of already developed practical educational material and design tools to the local conditions so that are suitable for use within the scope of the project, the organization of specific events promoting the use of RES in buildings (like announcements in newspapers and radios) among local actors, the assessment of the energy characteristics of each involved regions building stock, the training of professionals on techniques and high quality materials or systems, the training of energy auditors in accordance to the EC directive and the establishment of a Design and Advice Support Units Partner network, experienced professionals and construction materials or systems providing renewable or low energy solutions.

### **Description of the work**

The project team will achieve the objectives presented above, through the implementation of seven phases. The total duration of the project is 30 months. The overall work will be divided and carried out in the following work packages:

167. Systematization and exchange knowledge and experience.
168. Setting-up and further development of Rural Design and Advice Support Units in EU
169. On-site Consultations in respect of the EC Building Directive
170. Creating of a Rural Design and Advice Support Unit Partner Network
171. Support of local Energy Management
172. Media Work and Free Pre- Consultation Service
173. Evaluation and Dissemination Strategy

To disseminate the results of the project a specific dissemination plan has been designed and is proposed.

### **Expected results**

The final deliverable of the present project will be focus to the energy problems of each involved area, aiming to support dispersed local actors like building designers, consumers, public authorities on the use of renewable energies and energy efficiency measures in the building stock. The most expected results are: Design and Advice Support Unit for rural areas, training of professionals on renewable energy techniques, systems or materials, set-



up of Design and Advice Support Unit Partner Network, wide dissemination by internet, newsletters, newspapers, radios, produce of educational material, such as leaflets, booklets, simplified software tool for building simulations in local language, training of energy auditors, establishment of quality criteria for Design and Advice Support Units and auditing consultancies.

## Clean Energy Network for Europe (CLEAN-E)

### Background

Market analyses indicate that the potential market for RES-E goes beyond the small niche that it has occupied thus far. Unfortunately many green products which are offered on the voluntary green electricity market do not represent a real improvement for the environment as they fail to generate additional environmental and climate benefits (environmental additionality). Only those green products can claim environmental additionality which ensure that customer contributions for RES-E result in new RES-E power plants. The investments in new plants must be over and above the baseline which is defined by existing RES-E power plants and the effects of public support schemes.

Quality labels which define a minimum standard for green electricity products assist consumers to verify the ecological performance of green products. National labelling programmes which have emerged in some European countries became important and powerful instruments to strengthen consumer confidence in the green electricity market.

### Objectives

The CLEAN-E project will accompany the establishment of new and the improvement of existing green electricity product labels in selected EU Member States. In this regard the CLEAN-E project will support the efforts of the European Green Electricity Network EUGENE<sup>3</sup>, a non-profit approach which has set up a minimum standard for green electricity labelling schemes. The EUGENE standard will serve as the major point of orientation throughout the project.

The establishment of new labels will be accompanied by a wide range of activities. This includes the development of ecological minimum standards for the two key renewable technologies hydropower and biomass. The project also widens the scope of green power labelling towards the integration of energy efficiency as well as renewable heat. CLEAN-E also has a focus on the interface of green power labels with RES related policies on the national and the EU level including the Guarantee of Origin for renewable electricity and Electricity Disclosure. Furthermore, the project will include a wide range of activities aimed at disseminating and sharing best practices for green power procurement.

### Results

The key results of the CLEAN-E project are:

174. New green power labelling schemes in France, Italy and Spain including the establishment of sound labelling structures and the development of label criteria. Existing labels will be improved towards a harmonised European standard.
175. Guidelines how to implement ecological minimum standards for hydropower and biomass in the scope of green power labels.

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<sup>3</sup> EUGENE ([www.greenelectricitynetwork.org](http://www.greenelectricitynetwork.org)) is an independent network bringing together non-profit organisations such as national labelling bodies, experts from environmental and consumers organisations, and research institutes. The EUGENE network pursues no commercial interest. Some of the EUGENE activities have been partly funded by the EU Commission (DG Environment) and the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

176. Procedures and methodologies how to integrate measures in the field of energy efficiency and RES-H into the scope of green power labelling schemes.
177. Guidelines how to integrate new policies on the EU and Member States' level (e.g. Guarantee of Origin, Electricity Disclosure) and private sector initiatives (such as RECS) in green power labelling schemes.

## Establishing Local Value Chains for RES Heat in local communities (ELVA)

### Background

In a number of European countries such as Austria, Finland, Sweden, France and southern Germany significant numbers of projects using biomass in small district heating applications have been established in the last decade. The majority of member states, however have very little or no experience at all with this technology. In principle, the structure of local value chains for RES heat markets at local level will be comparable for all RES heat technologies, including Solar, Geothermal and Biomass heat. However, this project will take advantage on the already advanced progress of biomass heat applications and technologies in order to focus on the market mechanisms related to the value chain and the associated training activities. Although there will be numerous references throughout the proposal to biomass heat, the intended terminology is the more general RES heat.

While the BIOHEAT and BIOHEAT II projects have successfully tried to disseminate information and know how on heating large buildings with biomass, ELVA extends these efforts towards the next level of larger biomass heating projects: microgrids connecting a few close by buildings and district heating systems in rural villages and towns. Successful projects in this field are very often characterised by effective public-business-citizen-partnerships and the establishment of local value chains based on these partnerships. Thus they are more demanding from the point of view of project development and need both educated local policy makers setting up the necessary partnerships and skilled energy advisors developing the technical parts of such systems. As indicated by the uneven dissemination of this technology, deployment of biomass district heating systems has been very dependent on the local frame conditions.

### The aim of the project

This project aims to contribute to the development of local value chains for RES heat by transferring the know-how of a country with extensive experiences in this field (Austria) to countries with less experience (Norway, Ireland, England, Scotland, Portugal, Greece, and Slovenia). Although the heat requirements in countries like Greece and Portugal are less significant than what is the case in more northern countries, the market mechanisms will be similar. Countries with more cooling requirements may therefore focus more on the cooling aspects on local level value chains.

The project intends to stimulate a wider diffusion of biomass heating grids in countries, which have little or no experience in this field so far by a fourfold approach:

178. Conceptualise, based on mainly Austrian experiences and the preconditions in the participating countries, a management model of how to establish effective local value chains that can be used as blueprint for local RES heat development.
179. Make local policy actors aware of the opportunities created by local value chains for RES heat and educate them in how to establish public-business-citizen partnerships
180. Educate energy advisors in the respective countries in a way that enables them to assess and develop projects in interested communities
181. Analyse the requirements regarding legislative conditions that would support market development both on national and on EU level. Particular emphasis will be given to

assessing the potential benefits and to analyse, compare and examine successful local and national legislative and financial initiatives and propose new ones for the EU 25.

### **Scope of Work**

In the target countries there is an apparent lack of appropriate tools and know-how for developing the whole value chain at local level, which requires in-depth theoretical knowledge and practical experience with economics and local politics. This project aims to study existing, successful experiences, design an optimised market model, and to use the model in concrete feasibility studies in pilot markets with the aim of a public-business-citizen partnership in the partner countries. Energy advisors play a key role in developing the technical side of projects. This target group will be trained directly by Austrian experts.

In order to address local policy makers effectively, contacts will be established with organisations that are active in informing and training this target group such as associations of towns or educational organisations of political parties. A “Train the trainers” approach will be the means to reach a wide potential audience effectively. In fact this approach will put the required emphasis on the target area 3 of the RES Heat Key action, in addition to the first and second target areas.

Experiences in other fields of RES show that frame conditions have a decisive impact on market development. Thus a focus of this project will also be to look into beneficial frame conditions both at the national and at the European level. RES Heat markets are by nature driven by local factors, and it has been difficult to argue that a single European market can be created for heat. In addition to the above mentioned aims, the ELVA project will investigate the existing legislation applicable to RES heat in the EU Members and eventually identify possible legal framework conditions upon which further legislative work could be based. More specifically, it will assess in what way these local factors would be affected by such a legislation and to what extent it would contribute to a stronger push for RES Heat market development at local level

## Key Issues for Renewable Heat in Europe (K4RES-H)

In recent years, the EU has put considerable effort in creating a favourable legal framework for renewable energy sources. However, **RES heating and cooling has so far received less political attention than renewable electricity/biofuels**, both at EU and at national level.

The White Paper of 1997 **set a target of 12 % RES contribution** to the gross inland energy consumption in the EU, by 2010. **To reach this target, the EU must strengthen its action to promote Renewables in the heating and cooling sector (RES-H)**. This project analyses public policies supporting RES-H, identifies best practices and develops concrete guidelines, applicable at local, regional national and European level.

The outcome of this cross-sectoral (Solar Thermal, Biomass, Geothermal) and integrated (definition of a common methodology) project is a **comprehensive Action Plan for RES-H in Europe**. Developed by the leading European industry associations, in collaboration with private and public institutions, the project addresses **5 Key Issues for RES-H**:

### Verifiable targets for RES-H

The absence of such targets and of reliable RES-H statistics has led to a low visibility of RES-H and a lower level of support. This project aims at overcoming this barrier by providing: the best available RES-H statistics for EU-25, guidelines to improve their reliability and methods for setting verifiable targets for RES-H.

### Quantifying the energy delivery of individual RES-H installations

In the heating sector, energy delivery of single installations is seldom measured. RES-H installations are no exception: especially for smaller installations a precise measurement of clean heat produced is not usual, because too costly. This project provides guidelines for the measurement or scientific assessment of the energy delivery, enabling policy makers to enact innovative RES-H policies based on the desired result in terms of energy delivered.

### Regulations

Local, regional national and European regulations can have a strong impact on the uptake of RES-H, positive or negative. Analysing such regulations, this project identifies best practice examples most suitable to promote RES-H and worst practice regulations hampering its growth. The resulting guidelines will help design more effective RES-H regulations.

### Financial Incentives

Different financial incentive schemes exist to support the uptake of RES-H. Critical evaluation of these measures is needed. By providing guidelines on best practice, this project contributes to more efficient incentive schemes for RES-H.

### Innovative RES-H applications

Innovative RES-H applications, such as cooling and industrial process heat are emerging. This Key Issue aims at presenting selected emerging technologies, their market and potential and the specific policies needed to promote them.

**For the first time, these 5 Key Issues are studied** not for a single technology but **for RES-H as a whole**. A common and integrated methodological framework developed in the first phase of the project ensures comparable results of the analyses carried out separately for Solar Thermal, Biomass and Geothermal heat.

At the end of the project, **the Action Plan for RES-H in Europe** presents integrated guidelines for each of the 5 Key Issues and serves as a blueprint for strong and coherent RES-H policies, that is disseminated with a broad range of communications tools and events.

## RES & micro CHP in rural lodges (GREEN LODGES)

The project aims at promoting and facilitating RES heat & electricity applications (biomass, solar & micro CHP mainly) in rural lodges, usually located in areas with high environmental value. This has a high interest to get environmental benefits and could act as display to foster the use of RES among guests.

*A rural lodge is generally understood as a lodge placed in rural areas having up to 10-12 rooms, usually being an old cottage or farm which has been refurbished to following integration criteria with the landscape around.*

The main project deliverable is the realization and dissemination of:

182. procedure guides, which helps lodges' owners introduce micro CHP & RES into their establishments, step by step, pointing them out the different micro CHP & RES-based systems that they could install,
183. Listings of local suppliers of equipment, services and biomass fuels,
184. financing systems they can apply for in order to implement RES and CHP projects.
185. Workshops that allow head to head contact among rural lodges owners and local providers of RES & micro CHP services and equipment, in order to encourage the implementation of RES & CHP projects.

The profile of energy demand of rural lodges in eight E.U. regions will be analysed to find the most appropriate RES based system that can cover their demand. Dissemination activities at regional and at international level will be also carried out.

Also it is intended to reach as many potential users as possible (from other rural business, i.e., farmers), to let them know about the benefits provided by RES & micro CHP from a comfort, energy saving & environmental benefit point of view.

The eight regions (seven countries) directly involved in the project are: Asturias and Jaen (Spain); Walloon (Belgium); Greece; French Alps (France); Austria; Emilia-Romagna (Italy); and Entre o Douro e Vouga (Portugal).



## Annex: Contact Persons

	Area	Proposal No	Proposal Acronym	Coordinator	Country	Proposal Full Name	Last name of contact person	First name	Street	Post code	City	Country	Tel	Fax	Email
1	SAVE	EIE-2003-182	BUDI	Grazer Energieagentur Ges.m.b.H.	AT	BUDI	Bucar	Gerhard	Kaiserfeldgasse 13/1	8010	Graz	Austria	0043 316 811848 13	0043 316 811848 9	<a href="mailto:bucar@grazer-ea.at">bucar@grazer-ea.at</a>
2	SAVE	EIE-2003-096	ENPER EXIST	Centre Scientifique et du Bâtiment	FR	Applying the EPBD to improve the ENergy PErformance Requirements to EXISTing buildings	Visier	Jean Christophe	BP02	77421	Marne la vallee	France	00331 64 68 82 94	+331 64 68 83 50	visier@cstb.fr; <a href="mailto:lahrech@cstb.fr">lahrech@cstb.fr</a>
3	SAVE	EIE-2003-161	IMPACT	Ecofys b.v.	NL	IMproving energy Performance Assessments and Certification schemes by Tests	Zegers	Frank	Kanaalweg 16-G	3526 KL	Utrecht	The Netherlands	+31 (0) 30 2808313	+31 (0) 30 2808301	<a href="mailto:F.Zegers@ecofys.nl">F.Zegers@ecofys.nl</a>

	Area	Proposal No	Proposal Acronym	Coordinator	Country	Proposal Full Name	Last name of contact person	First name	Street	Post code	City	Country	Tel	Fax	Email
4	SAVE	EIE-2003-016	STABLE	Motiva Oy	FI	Securing The Take-off of Building Energy Certification: Improving Market Attractiveness through Building Owner Involvement	Aho	Ilari	Urho Kekkosen katu 4-6 A	00100	Helsinki	Finland	+358 9 8565 3103	+358 9 8565 3199	<a href="mailto:ilari.aho@motiva.fi">ilari.aho@motiva.fi</a>
5	SAVE	EIE-2003-239	E-Tool	Naturgas Midt-Nord	DK	Energy-toolset for improving the energy performance of existing buildings	Fentz	Jacob	Vognmagervej 14	DK-8800	Viborg	Denmark	0045 87278504	0045 87256735	<a href="mailto:jaf@midtnord.dk">jaf@midtnord.dk</a>
6	SAVE	EIE-2003-125	EPA-NR	EBM-consult BV	NL	Energy Performance Assessment for Existing Non Residential Buildings.	Poel	Bart	Nieuwe Plein 3	6811 KN	Arnhem	The Netherlands	+ 31 26 353 72 72	+ 31 26 351 17 13	<a href="mailto:bpoel@ebm-consult.nl">bpoel@ebm-consult.nl</a>

	Area	Proposal No	Proposal Acronym	Coordinator	Country	Proposal Full Name	Last name of contact person	First name	Street	Post code	City	Country	Tel	Fax	Email
7	SAVE	EIE-2003-104	AUDITAC	ASSOCIATION POUR LA RECHERCHE ET LE DEVELOPPEMENT DES METHODES ET PROCESSUS INDUSTRIELS	FR	Field benchmarking and Market development for Audit methods in Air Conditioning	ADNOT	Jérôme	60 Bd St Michel	75272	Paris	France	00 33 1 40 51 91 74	00 33 1 46 34 24 91	<a href="mailto:jerome.adnot@ensmp.fr">jerome.adnot@ensmp.fr</a>
8	SAVE	EIE-2003-053	TOWARDS CLASS A	ENERGIE-CITES	FR	TOWARDS CLASS A - MUNICIPAL BUILDINGS AS SHINING EXAMPLES	MAGNIN	Gérard	rue de Palente - 2	25000	BESANCON	France	33 3 81 65 36 80	33 3 81 50 73 51	<a href="mailto:info@energie-cites.org">info@energie-cites.org</a>

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9	SAVE	EIE-2003-202	EPLABEL	Energy for Sustainable Development Ltd	GB	A programme to deliver energy certificates for display in public buildings across Europe within a harmonising framework	Cohen	Robert	Overmoor , Neston	SN13 9TZ	Corsham	United-Kingdom	+44 1225 812102	+44 1225 816644	
10	SAVE	EIE-2003-057	GREENBUILDING	Deutsche Energie-Agentur GmbH	DE	GREENBUILDING	Agricola	Annegret-Cl.	Chaussee str. 128a	10115	Berlin	Germany	0049-30-7261656-51	0049-30-7261656-99	
11	SAVE	EIE-2003-022	Vent Dis.course	Brunel University	GB	Development of Distance Learning Vocational Training Material for the Promotion of Best Practice Ventilation Energy Performance in Buildings	Kolokotroni	Maria	Kingston Lane	UB8 3PH	Uxbridge	United-Kingdom	+44 1895 274000 ext	+44 1895 256 392	

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16	SAVE	EIE-2003-030	PEP	Energieonderzoek Centrum Nederland	NL	Promotion of European Passive Houses	Kaan	Henk	Westerduinweg 3	1755 LE	Petten	The Netherlands	+31 224 56 4689	+31 224 56 8966	kaan@ecn.nl
17	SAVE	EIE-2003-135	BESTFACADE	MCE Anlagenbau Austria GmbH & Co KG	AT	BEST PRACTICE FOR DOUBLE SKIN FACADES	Paul	Jan	Oberlaaer Strasse 331	1230	Vienna	Austria	0043-1-61036-302	0043-1-61036-314	<a href="mailto:jan.paul@anlag-enbau-austria.at">jan.paul@anlag-enbau-austria.at</a>
18	SAVE	EIE-2003-107	Intelligent Metering	Leicester Energy Agency	GB	Energy Savings from Intelligent Metering and Behavioural Change	Lack	Don	2-4 Market Place	empty	Leicester	United-Kingdom			don.lack@energyagency.co.uk
19	SAVE	EIE-2003-059	ST-ESCOs	Centre for Renewable Energy Sources	GR	Development of pilot Solar Thermal Energy Service Companies (ST-ESCOs) with high replication potential	AIDONIS	Aristotelis	19th km Marathonos Ave.	190 09	Pikermi	Greece	++30 210 6603300	++30 210 660301	aidonis@cres.gr ; gmarko@cres.gr

	Area	Proposal No	Proposal Acronym	Coordinator	Country	Proposal Full Name	Last name of contact person	First name	Street	Post code	City	Country	Tel	Fax	Email
20	SAVE	EIE-2003-091	Passive-On	Politecnico di Milano, Dipartimento di Energetica	IT	Marketable Passive Homes for Winter and Summer Comfort	Pindar	Andrew	Piazza Leonardo da Vinci, 32	20133	Milano	Italy	+39 02 2399 3882	+39 02 2399 3940	andrew.pindar@polimi.it
21	SAVE	EIE-2003-179	KeepCool	Energiebewertungsagentur, the Austrian Energy Agency (E.V.A.)	AT	Service Buildings Keep Cool – Promotion of "sustainable cooling" in the service building sector	Leutgöb	Klemens	Otto-Bauer-Gasse 6	1060	Vienna	Austria	0043 1 5861524-28	0043 1 5861524-40	leutgoeb@eva.ac.at
22	SAVE	EIE/04/006	PU-BENEFS	Rhônealpe énergie-Environnement	FR	Regional Market Preparation for Energy Efficiency Services in Public Buildings	Six	Reinhard	Rue des Archers 10	69002	Lyon	France	+33 47837291 4	+334478376 491	reinhard.six@raee.org

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23	ALTERNER	EIE-2003-038	EARTH	IT Power Ltd	GB	Extend Accredited Renewables Training for Heating	Shaw	Rita	The Manor House, Lutyens Close	RG24 8AG	Basingstoke	United-Kingdom	+44 (0)1256 392700	+44 (0)1256 392701	<a href="mailto:rita.shaw@itpower.co.uk">rita.shaw@itpower.co.uk</a>
24	ALTERNER	EIE-2003-082	SOLARGE	Target GmbH	DE	Enlarging Solar Thermal Systems in Multi-Family Houses and Hotels in Europe	Steege	Andreas	Anders Markuskirche 1	30163	Hannover	Germany	0049 511 90 96 88 30	0049 511 90 96 88 40	steege@targetgmbh.de
25	ALTERNER	EIE-2003-223	RURASU	PIERIKI LOCAL DEVELOPMENT AGENCY S.A.	GR	RURAL ADVICE AND SUPPORT UNITS FOR RES IN HEAT SYSTEMS AND INTEGRATED ENERGY MANAGEMENT IN BUILDINGS	PARTSALIDOU	BETTY	16th OKTOBRIO Y 17b	60100	KATERINI	Greece	+30 2351 027541	+30 2351 025187	pieriki@otenet.gr

	Area	Proposal No	Proposal Acronym	Coordinator	Country	Proposal Full Name	Last name of contact person	First name	Street	Post code	City	Country	Tel	Fax	Email
26	ALTERNER	EIE-2003-136	CLEAN-E	Oeko-Institut e.V. - Institute for Applied Ecology	DE	Clean Energy Network for Europe	Buerger	Veit	Binzengruen 34a	79114	Freiburg i. Br.	Germany	00 49 761 47 295 59	00 49 761 47 54 37	<a href="mailto:v.buerger@oeko.de">v.buerger@oeko.de</a>
27	ALTERNER	EIE-2003-214	ELVA	Institute for Energy Technology - New Energy Performance AS	NO	Establishing Local Value Chains for RES Heat in local communities	Mydske	Hans Jacob	Instituttveien 18, P.O. Box 40	N-2027	Kjeller	Norway	0047 63 80 64 75	0047 63 81 29 05	mydske@online.no
28	ALTERNER	EIE-2003-240	K4RES-H	European Solar Thermal Industry Federation aisbl	BE	Key Issues for Renewable Heat in Europe	Raffaele	Piria	26, Rue du Trone	1000	Bruxelles	Belgium	0032 2 54619 38	0032 2 54619 44	info@estif.org
29	ALTERNER	EIE-2003-252	GREEN LODGES	BESEL, S.A.	ES	RES & micro CHP in RURAL LODGES	ESCOBAR LOPEZ	GUILLERMO JOSE	GENERAL MARTINEZ CAMPOS, 11 1º	E-28010	MADRID	SPAIN	34914445 901	3491447752 7	guillermo.escobar@besel.es



