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Renewable energy

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Renewable energy

Small-scale renewable energy applications in buildings

The European Union has signed up to binding, EU-wide targets pledging to meet 20% of its energy needs from renewable energy sources such as biomass, geothermal, hydro, wind and solar by 2020. The agreement also includes a commitment to a 10% use of renewable energy in transport. These targets are contained in a new directive for the promotion of renewable energy sources. One of the specific requirements of the directive is to increase the use of renewable energy in buildings by 2020. In particular, Member States are requested to encourage local and regional administrative bodies to include renewable energy in the planning of city infrastructure, to include appropriate measures in their building regulations and codes to increase the share of renewable energy in the building sector and, by 2015 at the latest, to require the use of minimum levels of energy from renewable sources in new buildings and in existing buildings that are subject to major renovation.

Moreover, Member States should ensure that certification schemes or equivalent qualification schemes are available by 31 December 2012 for installers of small-scale renewable energy systems in buildings, like biomass boilers and stoves, solar photovoltaic and solar thermal systems, shallow geothermal systems and heat pumps.

At the same time, the so-called EPBD (Energy Performance in Buildings Directive) promotes the improvement of the energy performance of buildings within the Community. Before construction starts on new buildings with a total floor space of more than 1 000 m², alternative systems have to be taken into consideration, such as decentralised renewable energy supply; CHP (combined heat & power); district or block heating or cooling; and heat pumps. Member States have to ensure that the relevant technical, environmental and economic feasibility studies take place. The possibility of enlarging and extending this requirement to all buildings is currently being discussed as part of the recast of the directive (COM(2008) 780, 13 November 2008). This would enlarge the EPBD’s scope while supporting the EU targets on renewables.

The emphasis given in these two directives to the buildings sector reflects the very high level of energy consumption in buildings in Europe’s energy economy. Residential and commercial buildings are together the largest users of energy. They are responsible for about 40% of the EU’s total final energy consumption. We use more energy for heating, cooling and lighting in buildings than in any other sector.

While buildings are the biggest consumer of energy, they also have the greatest potential to reduce the EU’s conventional consumption. By combining energy-saving measures with renewable energy sources, the total consumption of conventional energy in buildings can be reduced to zero. Buildings can even become net producers of clean energy: they can be fitted with solar water and space heating and cooling systems.
Renewable energy systems, building-integrated photovoltaic and rooftop photovoltaic systems, and biomass-fuelled energy systems, as well as small-scale CHP and ground coupled geothermal heat pumps. The design and performance of such renewable energy supply systems are now well understood. The technologies are both simple and comparatively reliable, and they can be integrated into most buildings without radical changes to the architecture. Nevertheless, there is still a lack of experienced planners, designers and installers with the relevant know-how in many parts of the EU, including many major cities. Skilled people are urgently required.

The integration of renewable energy systems into the urban environment is one of the key components of the Intelligent Energy – Europe (IEE) programme. The programme supports multinational teams working to create more favourable policies and better business environments for renewable energy technologies in buildings in all Member States. Whilst EU policies set the targets and the legal framework, the IEE programme supports the people who make it happen on the ground.

IEE projects involve different bodies, including local authorities, which are best placed to create the conditions for the large-scale diffusion of small-scale renewable energy applications. Projects also involve small to medium-sized enterprises tasked with promoting innovation. Householders, building owners and building managers are important because they are the people who take the final decisions on how their buildings are constructed and used. A big effort to provide each of these groups with transparent and updated information on the available technologies, the costs and the advantages, is vital to ensure they have the confidence to make the right decisions. Finally, architects, engineers, and the other conventional actors in the building sector (e.g. construction companies, plumbers, installers) need to develop working relationships with the most reliable developers, manufacturers, suppliers, retailers, and installers of renewable energy systems, so that together they can bring these new technologies into the market.

This brochure presents a series of selected IEE projects aimed at promoting the integration of renewable energy applications in buildings. The projects address a range of issues, including driving markets, enabling policies, and training.

Most of the IEE projects on small-scale renewables aim to trigger market transformation by improving conditions for suppliers and installers, and by providing easy access to good quality information for end-users. Before they can be expected to buy a renewable energy system, final users must be given access to reliable information on availability and cost of systems and products, and who can be trusted to install them properly. Several projects aim to promote certified products which comply with the relevant standards, as well as certified installers guaranteed to meet quality standards and to comply with industry guidelines.

Five IEE projects help develop innovative urban planning. The aim is to boost the use of renewable energy in cities, solar energy in particular. These projects also support public authorities in their drive to achieve minimum levels of renewable energy via regulations and codes on new or refurbished buildings.

Training and capacity building are also delivered by IEE projects. They tackle issues such as the development of training courses for drillers, designers and installers of shallow geothermal systems coupled to heat pumps, and the development of common accreditation and certification schemes for installers of small-scale renewable energy systems in different Member States, in line with the requirements of the new renewable energy directive.

IEE projects bring together suppliers, users, public authorities and other interest groups from across the EU with the common goal of building a critical mass of initiatives capable of bringing about significant changes in the market. They also help increase the number of skilled people (installers, urban planners, policymakers) and final users aware of the economic and environmental benefits of energy from renewable sources.
Introduction of Renewable Energies in Building Sector
RESINBUIL

Duration: 1/1/2006–29/2/2008

Objectives
The RESINBUIL project aimed to encourage the use of small-scale renewable energy appliances in buildings in four provinces in Spain, Italy, Romania and Slovenia. Target groups were local authorities, business associations, constructors, professional associations and the public. There was a threefold strategy. First, local markets were developed using new regulations, on taxation for example. Commercial agreements between installers and local banks were encouraged. Second, permanent exhibitions in Spain and Slovenia were set up as a promotion tool, to run alongside a campaign based on radio and TV adverts and posters. Third, training courses on renewable energy sources were set up at the University of Burgos together with online courses for the other participating countries.

Results
> An increased use of small-scale renewable energy applications was noted in buildings in the participating regions.
> Commercial agreements were set up offering favourable purchase and installation terms. Energy agencies mediated between banks and installers. Legal ordinances were prepared and presented to public administrations to support renewable energy in buildings.
> While the construction sector remains reticent to install renewable energy appliances, architects and engineers are increasingly interested.
> Exhibitions, workshops and training courses proved successful.
> General public identified as the best tool for promoting renewable energy in buildings. The public can be best reached via local authorities, partners found.

Budget: €522 681
(EU contribution: 50%)
Building and Energy Systems and Technologies in Renewable Energy Sources Update and Linked Training

BEST RESULT

Duration: 1/1/2006–31/12/2008

Objectives

The BEST RESULT project was developed with professionals who were already involved in the training and promotion of renewable energy source technologies. The project's aim was to raise awareness and improve skills on the supply side of the industry: technicians, architects, planners, retailers, and installers. To this end, a range of training and promotional activities was put together, including specialist courses, info-desks, and workshops. The guidelines, seminars and publications were also designed to encourage end-users. Project partners shared a common methodology.

Results

> More than 65 training courses have been given, in addition to workshops on renewable source technologies.
> Four postgraduate courses of 200 hours tuition have been organised in three countries.
> Each partner has put together e-learning material, which has been brought together on an e-learning platform, available to both students and suppliers.
> Several info points for the general public have been run.

Budget: €1 338 169
(EU contribution: 50%)
Rural Advice and Support Units for RES in heat systems and integrated energy management in buildings

RURASU


Objectives

The RURASU project addressed sustainable energy management in rural regions in Germany, Greece, Spain and the United Kingdom. It aimed to support engineers, architects, public authorities and consumers with a view to increasing use of renewable energy sources and saving energy in buildings. This was to be achieved via rural design and advice support units offering free, impartial and expert suggestions. Educational material and training in preparation for the European Buildings Directive was also to be offered.

Results

> The rural design and support units have helped save about 10,000 tonnes of carbon dioxide emissions annually and have created 1,030 direct and 550 indirect jobs, according to the assessment methodology developed during the project.
> Renewable energy sources and energy efficiency techniques are now more broadly used, project partners reported.
> Two new Design and Support Units were established in Spain and the United Kingdom. In Germany and Greece, existing units were consolidated.
> Around 60 on-site audits were carried out by the four design and support units.
> Partner networks were established in each region bringing together trained energy professionals.

Budget: €1 095 500

(EU contribution: 50%)
Accelerated penetration of small-scale biomass and solar technologies
ACCESS

Duration: 1/1/2006–31/12/2008

Objectives

The ACCESS project involved small-scale technologies using biomass and solar energy for heating and hot water supply. Concentrating on Bulgaria, Czech Republic, Hungary, Romania, and Slovakia, the project aimed to boost these technologies’ market penetration in housing with individual and local heating systems. This was to be achieved in a variety of ways: by developing a virtual market network; exploring biomass energy potential in the participating countries; outlining design criteria for combined systems using solar energy and biomass; promoting standards for both the technologies and biomass products; developing training courses; and putting together finance schemes.

Results

> Biomass energy potential database has been developed.
> Guide to identifying combined solar and biomass schemes in place.
> Web-based market for technologies was set up.
> Proposals for financing have been put forward.
> Technology transfer from the rest of the EU has received support, as has local technology production.

Budget: €661 331
(EU contribution: 50%)
Promotion of the Intelligent Combination of Sun and Wood for producing warm water and heating for private houses

ICOSAW

Duration: 1/1/2006–29/2/2008

Objectives

In northern and central Europe, a combination of solar panels and firewood is proving to be a promising, reliable way of heating smaller buildings. Building owners can supply themselves with warm water and heating without resorting to imports and irrespective of the price of crude oil. The ICOSAW project aimed to bring together partners with a background in crafts from Germany, Poland, Slovakia and Sweden to promote the necessary technologies. The goal was the creation of training schemes, marketing, networks and public relations operations capable of being adapted to other countries in the European Union.

Results

- Training schemes have been created for the installation of ICOSAW plants. They enable professions to integrate plants in their calculations for the energy demand of a building.
- A marketing plan was developed for craftsmen and architects. Demonstration plants for installers proved popular.
- Models were created for promoting ICOSAW and establishing a European standard.
- Many network partners were found, even in Poland and Slovakia, where lower interest was initially expected.
- The project kicked off new activities in partnering regions.

Budget: €323 668

(EU contribution: 50%)
Sustainable, comfortable and competitive biomass-based heating of private houses

BioHousing

Duration: 1/1/2006–31/12/2008

Objectives

A lack of technical knowledge and the absence of standard systems are the greatest barriers to biomass-based energy in private houses. The BioHousing project aimed to design standard, commercial systems and produce information on how they can be used sustainably. The use of stoves as either a secondary or main heating source is common in Europe. Stove selection, proper firewood storage and good firing practices are essential to avoid emissions and achieve efficient combustion and comfortable heat.

Results

> Deciding on a heating system is one of the most important and long-lasting decisions the householder will make when planning a house. This fact has been further emphasised during the project in view of the fluctuation of fuel prices, especially oil prices.
> In order to give guidance for this decision, the project developed web tools comparing different heating systems and equipment (catalogue) and providing solutions (the heating tool). They focus on firewood, pellet and briquette systems, as well as the storage and placement of stoves, fireplaces, boilers and wood-fuelled heating networks.
> To give substance to these investments, several kinds of prefabricated boiler room unit concept have been developed and promoted, including EnergyCabin, a combination of solar and wood, and Biocompact, a plug and heat solution.
> Training courses have been run for chimney sweeps, architects and civil engineers. There have been 1 044 trainees. Training material has been published in six languages.
> A wide range of information on sustainable heating by biomass has been published, including a manual on efficient and environmentally friendly biomass heating (in six languages); a guide for private houses on storage of firewood (four languages); and a guide for connecting houses to a micro-heating network (six languages). In addition, new business concepts were developed to encourage entrepreneurs to start up or enlarge biomass related businesses.

Budget: €1 523 474
(EU contribution: 50%)
Reaching the Kyoto targets by means of a wide introduction of ground coupled heat pumps (GCHP) in the built environment

GROUND-REACH

Duration: 1/1/2006–31/12/2008

Objectives

This project concentrated on ground coupled heat pumps for the heating and cooling of housing in Europe. It aimed to identify the potential of such pumps for reducing CO₂ emissions and primary energy demand, and to analyse their contribution towards the EU directive on the energy performance of buildings. Project partners compiled best practice information and found ways to overcome barriers to long-term market penetration. A promotional campaign targeted key professional groups via an international conference and exhibition, 18 national and regional meetings, as well as articles in both technical and commercial press.

Results

> Better EU policy in relation to short and long-term market penetration of ground coupled heat pumps through market analysis, best practice provision, guidelines for local/regional authorities and key professional groups, conferences, meetings, websites, posters, brochures and other promotional tools.
> Understanding of the merits and benefits of ground coupled heat pumps and their relevance towards European Kyoto targets and the European Buildings Directive.
> Identification of barriers and strategic dissemination plan for long-term market penetration.

Budget: €1 730 970

(EU contribution: 40%)
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Promoting the use of photovoltaic systems in the urban environment through demo relay nodes

PURE

Duration: 1/1/2006–31/12/2008

Objectives

The photovoltaic market in Europe is growing rapidly but unevenly. While southern Member States have the largest solar potential, northern Member States have the highest level of usage. Moreover, the growth of this market is necessarily linked to PV development in the urban environment. The aim of PURE is precisely the promotion of PV energy in buildings, mainly focused on its integration into urban elements, particularly in those EU countries with large solar potential but still with limited installed capacity. The project was designed to overcome the existing lack of basic information, both technical and economic, on renewable (solar) energy integration in buildings. Stakeholders who could facilitate PV integration in our cities, namely public bodies, architecture associations, building industry professionals, and end-users were targeted using five PV Demo Relay Nodes (PV-DRN), a permanent exhibition and a contact point to gather technical, economic and legislation information on PV and for the organisation of periodical events.

Results

> PV-DRNs designed and set up in five EU regions: Chania (Crete-Greece), Basque Country (Spain), Savona (Italy), Lisbon (Portugal) and Banska, Bystrica (Slovakia).
> PURE partners participated in more than 30 regional, national and international events on BIPV.
> Reports produced on technical and economic solutions for the integration of photovoltaics in buildings as well as the potential and benefits. Best practice guide produced.
> Report produced on European regulation in the area of building-integrated photovoltaic systems.

Budget: €1 148 080
(EU contribution: 50%)

Local exhibitions to boost PV markets
Promoting the rational use of energy and small scale renewable energy sources applications in buildings

ENERBUILDING


Objectives

Residential and commercial buildings account for over 40% of the EU’s final energy use. Reductions in carbon dioxide emissions can be achieved by combining energy efficiency with renewable energy generation within buildings themselves. End-users can consume energy more efficiently, but they can also act as energy producers by installing their own solar thermal collectors, photovoltaic panels or biomass heating systems. ENERBUILDING is a broad information campaign initiated by consumers’ associations in four EU countries: Spain, France, Italy and Portugal. By using the existing consumers’ networks, practical information on energy efficiency measures and renewable energy systems in buildings can be spread widely. Practical guides for consumers are being distributed; moreover, by means of ad hoc conferences, seminars, call centres, a website in five languages and radio and TV broadcasts, at least one million end-users will benefit from practical information on sustainable energy solutions to be adopted in their own dwellings.

Results

> Call centres set up in Spain, France, Italy and Portugal providing assistance and information to consumers on improving the energy efficiency of their buildings.
> Website on action taken developed in five languages.
> Development of four practical guides in four languages (380 000 copies in total) as well as a video. A mobile demo stand for use in meetings with students was set up.
> Events have taken place in Spain, France, Italy and Portugal. A conference accompanied the launch of the project, while five conferences for the general public as consumers are planned, as well as seven workshops for local authorities and 45 meetings with secondary school students. A final international conference is also taking place.
> Media campaigns have taken place in each country. Project partners have participated in 30 radio and TV programmes. Press conferences have been organised.

Budget: €1 447 293
(EU contribution: 50%)
Promotion of efficient heat pumps for heating  
ProHeatPump

Duration: 1/12/2006–31/5/2009

Objectives

This project aims to help reduce use of fossil fuels in heating by promoting energy-efficient heat pumps. It will focus on the residential sector and small to medium-sized heat pumps, in particular during refurbishment, when the need for promotion is greater than when buildings are built. The market potential for heat pumps is being specifically analysed for buildings from 1980 onwards. The potential for combining heat pumps and renewables will also be assessed according to technical, economic and environmental merits. Promotional activities will target end-users, installers and policymakers.

Results

> Increasing the number of heat pump installations during the project time in selected target areas.
> Offering suitable, practical information material for each target group (installers, end-users and policymakers) on the possibilities and the advantages of heating using heat pumps.
> Improving marketing strategies to promote heat pumps in countries with low market penetration but high potential for heat pumps (based on experience in countries with high market share).
> Presenting favourable conditions for the combination of heat pumps and renewables.

Budget: €654,907  
(EU contribution: 49%)
Increasing the market implementation of Solar air conditioning systems for small and medium applications in residential and commercial buildings

**SOLAIR**

*Duration: 1/1/2007–31/12/2009*

**Objectives**

Electricity consumption for air conditioning is increasing dramatically throughout the EU. The use of solar thermal energy for air conditioning in buildings, a relatively new technology, offers an alternative and is today largely unexploited. The SOLAIR project will promote the rollout of small and medium-sized solar air conditioning appliances in both residential and commercial sectors. The project will attempt to counter a lack of awareness of the technology through market surveys and through promotions aimed at investors.

**Results**

- The reasons behind the poor market penetration of solar technology have been identified.
  - Costs are still too high compared to standard cooling appliances. There are too few running systems and not enough monitoring of data.
  - While interest is strong among both specialists and the general public, the technology is still unknown to many technicians and investors. Market data is difficult to collect.
  - A good practice guide has been compiled, as have technical guidelines and training materials.

**Budget:** €1 187,375

*(EU contribution: 50%)*
Identification of most promising markets and promotion of standardised system configurations for the market entry of small-scale combined solar heating & cooling applications

Solar Combi+


Objectives

This project aims to promote standardised solar heating and cooling systems for both water and space up to a load of 20 kW (Solar Combi+ systems). By accelerating and facilitating the market entry of small-scale Solar Combi+ systems, the project will help achieve the EU’s energy policy goals while promoting a technology led by European industry. To identify standard system configurations and the most promising applications, the project partners will undertake virtual case studies under different conditions.

Results

- Defined standard systems have been a complex process. National regulations differ and are in some cases contradictory.
- Standard systems have helped cut down on design work. Such work is often too expensive for small applications.
- Sorption chiller producers have produced package solutions.
- Most promising markets have been identified.
- Knowledge among professionals about the feasibility and opportunities of Solar Combi+ systems has been enhanced, as has awareness among public authorities. Authorities can consider using the technology as they implement the EU directive on energy performance in buildings.

Budget: €969,501

(EU contribution: 50%)
New energy for old buildings – promoting the integration of RES & RUE measures in historic buildings

New4Old


Objectives

Historic buildings are often wasteful in terms of energy. Changing their energy supply and consumption is particularly challenging given that heritage needs protecting. New4Old aims to promote the integration of renewable energy and energy efficiency technologies into historic buildings while creating a Europe-wide network of renewable energy houses. The existing renewable energy houses in Brussels have already attracted thousands of visitors, giving them the chance to see working renewable systems. This idea is to be transplanted to at least four other countries. Each house should not only draw attention to renewable energy and energy efficiency in the country in which it is located but also help protect the historic building itself.

Results

> Five renewable energy houses are being set up in different Member States. They have already begun showcasing the latest technologies.
> Technical guidelines have been drawn up for the integration of these technologies into historic buildings. Technical training has taken place.
> Five workshops and an international conference have taken place, targeting real estate agents and investment funds.
> A market study on renewable energy house projects for the entire EU has been carried out.
> A marketing campaign on building integration is underway.

Budget: €823 682
(EU contribution: 50%)
Expanding the existing annual ‘Solar Days’ in Austria, Germany and Switzerland to further European countries

European Solar Day


Objectives

This project aims to expand upon the success of existing, national Solar Days by taking the concept to new countries with the ultimate goal of creating a European Solar Day. Solar Days are currently celebrated in Austria, Germany and Switzerland. Between 2002 and 2007 there have been six in Austria, two in Germany and four in Switzerland. The events have helped the solar thermal markets double in Austria and Switzerland since 2002 while in Germany the same market growth has been achieved in less time: since 2004. Five new countries have been targeted for 2008: Spain, France, Italy, Portugal and Slovenia. Further expansion is also being planned.

Results

> More than 4 000 events took place throughout Europe in May 2008, attracting more than 400 000 people from nine countries (Austria, France, Germany, Italy, Portugal, Slovenia, Spain and Switzerland, and many more to come). Even more events and people are expected for the session in May 2009.
> Professional associations, local communities, schools, agencies, and individuals can organise events and get support by registering though the websites. Eight national websites and a Europe-wide website have been set up, helping partners transfer know-how and experience.
> Supported by these ‘Solar Days’, the annual solar thermal markets have doubled in Austria and Switzerland (since 2002) and Germany (since 2004). ‘Solar Days’ have helped strengthen local industry.

Budget: €558 728
(EU contribution: 50%)
SEasonal PErformance factor and MOnitoring for heat pump systems in the building sector

SEPEMO-Build


Objectives

The project aims to help bring about wider use of heat pumps by coming up with robust data on the reliability and seasonal efficiency of ‘real’ as opposed to theoretical installations. A lack of such data has been a brake on market growth, it has been suggested. Key elements for examination include the efficiency of the heat pump unit, the quality of the installation, the design and temperature of the heating system, the insulation level of the building and climate. The project should result in the creation of a universal methodology for measuring heat pump systems, thereby helping the technology achieve broader acceptance. One key requirement to achieve awareness about real-life performance is a universal methodology for field measurement of heat pump systems or SPF (seasonal performance factor). Such methodology requires a systems perspective including not only the efficiency of the heat pump unit but also the respective regional building standards and climate conditions. Connected to the development of this methodology the project seeks to improve the understanding of key parameters influencing reliability and efficiency of heat pump systems in residential buildings. Reference is made to national and EU standards such as EN 14511, EN 255, prEN 15316 and prEN 14825. The objective is broader acceptance and improved quality assurance for heat pump systems in the building sector.

Results

The expected results are:

> Proposal for harmonised EU field measurement method for reliable information about ‘real installations’ and guidelines for setting up and evaluating SPF field measurements for all types of heat pump systems, giving comparable results between different field measurements.
> Guidelines for improving heat pump system quality, reliability and energy performance for the system for all types of heat pump systems.
> Development of quality schemes for heat pump systems based upon an SPF for certification of installers with RES directive, Annex IV.
> National and international events and workshops with relevant target groups.

Budget: €1 545 894

(EU contribution: 75%)
PV in Urban Policies: a strategic and comprehensive approach for long-term expansion

PV-UP-SCALE

Duration: 1/1/2006–30/6/2008

Objectives

For a sustainable electricity supply in the EU, large-scale implementation of photovoltaics (PV) in our cities is a necessity. Successful implementation of PV on a large scale depends on PV being: part of the urban planning process of city districts building or renovating; available as an accepted building product; attractive for investors, utilities and end-users. The planning process and the connection of a large number of PV systems to the low voltage grid have been addressed by PV-UP-SCALE. In the planning process, it is crucial that decision-makers are aware of the possibilities of PV as an energy-producing building product and that implications on an urban scale are clear. Drivers to stimulate decision-makers to apply solar energy have been identified, and solutions for the bottlenecks have been proposed and best practices presented to the stakeholders in the process of planning, application and use of PV.

Results

> The existing PV database (developed within Task 7 of IEA PVPS) has been updated and extended with urban-scale and large PV projects (http://www.pvdatabase.org).
> Fourteen urban planning case studies have been published online, showing in detail how successful projects can be made to happen. Detailed reports on grid issues and economical drivers have also been published on the project website.
> The case studies were used to determine common success factors, problems and solutions. The results have been presented at various workshops and discussed with relevant market stakeholders (developers and construction consortia, builders and urban planners, building owners, architects, engineers, etc.).
> BIPV systems can play an essential role in sustainable urban planning since they are easily integrated in building surfaces and visually attractive. Architecturally well-designed BIPV systems are an important driver to increase market deployment.

Budget: €1 096 306
(EU contribution: 50%)
Best practice implementation of Solar Thermal Obligations

ProSTO

Duration: 1/1/2008–31/12/2010

Objectives

ProSTO aims to boost solar thermal energy by helping implement Solar Thermal Obligations: the rules requiring a minimum share of heating demand to be covered by solar energy when constructing or renovating a building. A growing number of municipalities, regions and countries are already familiar with Solar Thermal Obligations. The region of Lazio and the cities of Stuttgart, Murcia, Lisbon and Giurgiu are together helping develop a best practice guide. The aim is to come up with model regulations, targeted criteria and efficient administrative procedures, thereby encouraging new communities to sign up to solar thermal obligations.

Results

> Five best practice showcases have been created based on technical, legal and administrative criteria.
> The impact of Solar Thermal Obligations is being monitored by local authorities. Real monitoring has been missing so far. Such testing should help create confidence.
> A detailed baseline assessment has been carried out by the project partners, who have listed success factors, performance indicators and recommendations for tools.
> Thousands of local authorities across Europe are now aware of the project. Those wanting more information can contact a help desk.

Budget: €1 155 958

(EU contribution: 50%)
Identification and Mobilisation of solar potentials via local strategies

POLIS


Objectives

This project goes down to the local level in its attempt to boost solar energy. It looks at town planning and local policy in different European cities (Munich, Vitoria, Lyon, Paris, Lisbon and Malmo). The aim is to bring key players together so that solar energy is included in an integrated planning process. Solar energy has special needs in terms of legislation and municipal agreements. Thereby the project aims to increase the use of solar energies in European cities and to stimulate the cities involved in the project to act as top runners. Therefore, identified methods and instruments for solar urban planning will be applied together with the local authorities (planning and urban departments) in pilot actions and the results will be disseminated on the web page and at workshops and conferences to showcase the diverse approaches.

Results

> Increased use of solar thermal systems and photovoltaics in urban areas should result.
> At least six cities should have decided to integrate solar energies as part of their urban planning.
> Enhanced knowledge on solar urban planning activities throughout Europe.
> Implementation of advanced planning and policymaking process integrating solar aspects in European cities.
> A more comprehensive approach of interdisciplinary planning established within local authorities.

Budget: €1 108 874
(EU contribution: 75%)
Supporting development of Photovoltaics in the EU New Member States Network

PV-NMS-NET

Duration: 10/10/2008–30/9/2011

Objectives

PV-NMS-NET is a network for promoting solar electricity in the new Member States, where the photovoltaic market is not as developed as in Western Europe. The project aims to develop a methodology for monitoring the impact of measures adopted by new Member States while contributing to the transparency, reliability and cohesion of the legal framework. The action will contribute to raising awareness of solar electricity among decision-makers, regulators and utilities, facilitating the integration of the photovoltaic market into the economy.

Results

- An up-to-date, complete overview of the photovoltaic market in the 12 new Member States will be put together (yearly reports and a final report).
- The project will help change attitudes towards the photovoltaic market among national regulators and policymakers.
- Input will be provided for the preparation of national renewable energy action plans on photovoltaics, in line with the renewable energy sources framework directive.
- The project should boost photovoltaic investment across new Member States, increasing market experience and helping reduce the perceived risks that hinder this type of investment.

Budget: €1 113 672
(EU contribution: 75%)
Reduction of legal-administrative barriers for photovoltaic system installations in Europe

PV LEGAL


Objectives

The goal of PV LEGAL is to overcome market barriers to photovoltaics (PV) on a regulatory level in 12 EU Member States. The project partners will set up and regularly update a database comparing the administrative procedures for PV installations in the 12 states, differentiated according to three main PV applications (small-scale installations on residential buildings; small to medium-scale installations on commercial buildings; medium to large-scale ground-mounted installations on open lands). The database will identify the administrative steps necessary to obtain permission for constructing, grid-connecting and operating PV systems. The findings will then be disseminated among target groups and actively put into action with the aim of removing legal and administrative market barriers for further PV development in the EU.

Results

> A comprehensive, freely accessible and updated online database containing 12 national PV legal-administrative frameworks and at least eight regional PV legal-administrative frameworks is to be set up. It will provide stakeholders and policymakers with a systematic analysis of practical experiences with regulatory barriers encountered by investors in PV systems.

> National and regional advisory papers and recommendations (covering the three market applications) will be drawn up, each targeted at improving legal-administrative procedures for PV installations.

> National forums and workshops will take place with the participation of all key stakeholders involved in legal and administrative procedures to discuss the advisory papers and the findings of the database (national PV industry associations, grid operators, regulators, national and regional governments, public authorities in charge of licensing/permitting procedures, national energy agencies).

> Significant improvements to the national PV legal-administrative frameworks in each of the 12 countries are expected.

Budget: €2 491 133
(EU contribution: 75%)
Photovoltaic for small investors in Germany, Spain, France and Portugal
deSOLaSOL

Duration: 1/1/2006–30/6/2008

Objectives

In a number of European countries, such as Germany, Spain and France, a good legal framework is already in place and is supporting photovoltaic uptake. However, photovoltaic energy still suffers from high investment costs, as well as technical and administrative obstacles, which together make it difficult for individual investors and small organisations to get access to installations. The main objective of deSOLaSOL was to minimise these barriers, by delivering high-quality information, and to make it easier for people to invest jointly in grid-connected plants. Public authorities, energy agencies, consumer associations and NGOs were all targeted with an information campaign, handbook and discussion network.

Results

> A best practice handbook explaining how to invest jointly in grid-connected photovoltaic plants was developed.
> A comparative analysis of legal, fiscal and technical norms concerning grid-connected plants was completed, as well as a publication on project finance.
> An awareness-raising campaign took place in all the targeted countries.
> A European experts’ meeting took place to encourage the exchange of information on jointly owned photovoltaic plants.
> There are opportunities in each country to develop jointly owned PV plants. In Germany there are many well-known examples of this type of investment scheme. Successful experiences encourage people to participate. Spain has seen huge photovoltaic progress during the course of the project, including jointly owned PV plants, but there is still work to do. Some systems are starting to appear in France whereas in Portugal there is more work to be done.

Budget: €476 058
(EU contribution: 50%)
Assessing tax-based support schemes

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Refund individual investments in RES heating systems through direct tax measures

REFUND+


Objectives

Income tax credits, tax reductions and tax allowances are being used today in five Member States to reduce the high cost of renewable heating systems. The REFUND+ project explored the different designs in Belgium, France, Italy, Austria and Portugal and looked at how well such measures have worked in these countries. This research was accompanied by surveys involving end consumers and suppliers – in this case, retailers and installers. Simulation exercises will be carried out for the Lithuanian and Polish market. Project partners will devise recommendations for policymakers.

Results

> Monitoring of the impact of direct fiscal measures in each country has taken place.
> Comparisons have been made of the different national experiences for the purpose of putting together a best practice guide.
> Simulation of the potential tax impact on the Lithuanian and Polish markets has taken place.
> Recommendations have been gathered for future tax initiatives of this kind.
> Findings to be released via workshops and conferences.

Budget: €798 069

(EU contribution: 50%)
Geo-education for a sustainable geothermal heating and cooling market

Duration: 1/9/2008–28/2/2011

Objectives

Ground source heat pumps contribute greatly to energy saving and emission reduction. Research in Europe shows that one of the barriers to a sustainable and growing geothermal market is the lack of appropriate skilled personnel. The quality of both design and work is not always satisfactory. The objective of this project is to develop a European education programme for the certification of geothermal installations. Different groups of professionals are involved in ground source heat pumps. The GEOTRAINET project is focused on two target groups: designers (geologists, geotechnical engineers, HVAC engineers) and drillers (including installers and maintenance personnel). The project will develop an education programme, and prepare didactic materials, training courses and an e-learning platform. Training for geothermal professionals will take place in eight EU countries.

Results

> Developing a European training structure to support and improve the quality of geothermal installations, with an education program to support continual professional development (CPD) for earth science experts and drilling professionals.
> Establishing an international platform of experts on Geothermal Energy H&C to provide the knowledge required for training courses and a European e-learning platform for shallow geothermal applications.
> Improving the access to geological data needed for the design of geothermal energy heating and cooling installations.
> Proposing high professional standards for geothermal energy heating and cooling in Europe.
> Proposing a European certification framework.

Budget: €952 004
(EU contribution: 75%)
Farming photovoltaic flowers: a new challenge for land valorisation within a strategic eco-sustainable approach to local development

PVs in BLOOM

Duration: 1/10/2008–30/9/2011

Objectives

The project aims to promote the installation of small and medium-scale ground photovoltaic plants with a power capacity ranging from 50 kWp to 2–3 MWp for requalifying marginal or sterile soils using a new eco-sustainable strategic approach. It will increase awareness and knowledge of the economic potential and green value of photovoltaic panel plantations (PVPPs) in both the public and private sectors (municipalities, chambers of commerce, energy agencies, landowners, private investors, farmers).

An initial survey will be carried out among 600 municipalities in order to identify local authorities interested in implementing this type of plant. Handbooks for public administrations, training courses for municipalities and policymakers, and tools to promote start-ups in PVPP enterprises will also be provided.

Results

- At least 40 municipalities will be supported with the implementation of photovoltaic panel plantations in marginal areas.
- Several practical and strategic documents on PVPPs will be written: a ‘strategic vision’; a technical guide for architects, engineers and investors; an administrative guide for the public sector; and a practical guide to encourage start-up enterprises.
- 620 people will be trained on PVPPs across Europe so that they can support local authorities and private investors facing the most critical difficulties pertaining to PVPP start-ups.
- Thanks to this initiative, approximately 20 MWp are expected to be produced in the selected countries.

Budget: €1 428 402

(EU contribution: 75%)
Quality Certification & accreditation for installers of small-scale renewable energy systems

QualiCert

Duration: 1/6/2009–28/2/2012

Objectives

In line with Member States’ obligations arising from the new directive on renewable energy sources, QualiCert addresses the certification and accreditation of installers of small-scale building-integrated renewable energy systems. The project in particular tackles the directive’s requirement for certification schemes in each Member State that obey a set of similar criteria and recognise each other’s certification. To guarantee the broadest possible support for the future accreditation and certification scheme, QualiCert relies on an interdisciplinary multi-stakeholder approach involving builders, installers, training providers, accrediting bodies, the European renewable energy industry, and a number of national energy agencies. This EU-wide concerted approach will allow partners to go beyond national considerations and concentrate on an outcome based on the best-identified methodology valid for the entire EU-27. QualiCert also addresses the market need for a comprehensive system for certifying installers, thereby guaranteeing quality installations and satisfied customers, which in turn will spur further market deployment.

Results

> Assessment of the performance of existing schemes for accreditation of training and certification of installers on small-scale RES systems in buildings EU-wide.
> Validation of success criteria with stakeholder groups and development of a manual of success criteria addressing technical, legal, institutional, financial and communication aspects.
> Adoption of a common approach to accreditation and certification schemes for installers in five EU Member States, with mutual recognition of the schemes.
> Facilitation of accreditation and certification schemes based on the joint approach in the five Member States.
> Results will be used to encourage all 27 Member States to adopt a joint approach.

Budget: €1 074 462
(EU contribution: 75%)
Renewable energy technology is a reality but has still not penetrated the building sector to the extent that it has become part of our everyday lives. From photovoltaic panels to ground source heat pumps, technology can help consumers save emissions while reducing their energy bills.

This brochure details 25 projects aiming to overcome the remaining hurdles renewable energy applications face in buildings, both residential and commercial. With a little push, perhaps better marketing or a new approach from local authorities, these applications can help change Europe’s energy map definitively.

http://ec.europa.eu/intelligentenergy