

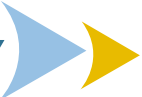


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Sharing success

Local approaches to
**energy efficiency and
renewable energy**

2011 edition

managenergy 

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INTELLIGENT ENERGY
EUROPE 

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Showing the way

Increasing in number, external events across the globe show more clearly than ever before that strengthening our efforts on energy efficiency and promoting renewables is the best way forward to ensure our safe, sustainable, affordable low carbon energy future. ManagEnergy is playing a key role in this effort and I welcome the practical actions it is undertaking to promote energy efficiency and the use of renewable energies across Europe.

Energy saving is one of the most cost effective ways to enhance security of energy supply and competitiveness of our industry as well as to reduce emissions of greenhouse gas and other pollutants. The series of projects in this booklet demonstrate clearly how well-designed activities undertaken by public and private organisations at local and regional level can contribute to this goal.

Previous ManagEnergy projects have already benefited households, businesses and public authorities across Europe. Wider application of these actions will play an important part in the implementation of the EU energy-efficiency action plan. This includes, among others, promotion of the exemplary role of the public sector in building refurbishment, improved efficiency of power and heat generation, and the role of smart grids and meters to help consumers optimise their energy consumption. In all those areas ManagEnergy aims to show the way.



Günther H. Oettinger

Günther H. Oettinger
Commissioner for Energy, European Commission

Tackling energy issues at the local level

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The **ManagEnergy** initiative was launched in 2002 to meet the need for improved communications and information dissemination on sustainable energy at local and regional level in Europe. The initiative aims to facilitate global thinking on strategic local issues and support local actors in the capacity building process, resulting in better use of available solutions to sustainable energy and transport challenges. ManagEnergy provides information and workshops, and targets energy professionals and staff of local and regional energy agencies. It also focuses on the collection and dissemination of good practice to learn and share expertise and knowledge from others.

ManagEnergy is a technical support initiative of the European Commission's Intelligent Energy-Europe (IEE) programme which aims to assist actors from the public sector and their advisers working on energy efficiency and renewable energy at local and regional level. More specifically, the initiative is targeted at:

- **Local and regional energy agencies;**
- **Energy specialists** in local and regional public authorities;
- **Urban planners** and elected officials at municipal, provincial and regional level, especially signatories to the Covenant of Mayors (www.eumayors.eu); and
- **Other local and regional organisations** with a public mission that are working on sustainable energy.

The EU and its Member States are facing global energy and environmental challenges with an ambitious energy policy covering the full range of energy sources from fossil fuels – oil, gas and coal – to renewables such as solar, wind, biomass, geothermal, hydro and tidal.

Central to this policy is a commitment to the EU '20-20-20' target – 20% less greenhouse gases, 20% better energy efficiency and a 20% share of renewables – to build a secure and cleaner energy future. This approach is intended to spark a new industrial revolution that will deliver a low-energy economy, whilst making the energy we do consume more secure, competitive and sustainable.

A key element in achieving these objectives is an EU focus on a number of energy-related measures, in particular aiming at improving energy efficiency and raising the share of renewable energy in the energy mix.

Key role for municipalities and regions

Municipalities and regions have a key role in the implementation of EU policies for promoting the use of renewable energy and the improvement of energy efficiency at local and regional levels. An increasing number of these authorities are setting targets that are even more ambitious than those agreed at national or European level, in particular in the frame of the Covenant of Mayors.

Some local and regional plans for reducing energy consumption and greenhouse gas (GHG) emissions contribute directly to the EU objectives of sustainability, security of supply and competitiveness, and are very successful. Others still need improvements and could benefit from external support. At the same time, there are still many municipalities and regions in Europe that have not yet prepared a plan for their future energy use, for sustainable development, or for mitigation and adaptation to climate change.

To implement EU policies for energy efficiency and renewable energy at local and regional level is very challenging, and requires inputs from a wide range of actors, including local and regional authorities, energy agencies, non-governmental organisations, small and medium-sized enterprises (SMEs) and energy producers. Good quality information, services and advice are also needed. In addition, international co-operation and networking amongst these different actors is essential to achieve the EU's ambitious 2020 energy and climate change targets.

What is ManagEnergy?

- An **interactive website** offering continually updated information, good practice and support on energy efficiency and renewable energy at local and regional levels
 - Check out the new **interactive map**, which easily locates energy agencies near you
 - Try the new **partner search tool** with profiles for almost 5 000 organisations which can help you find partners for your Intelligent Energy-Europe project proposals and other activities
 - Access a wide range of **case studies** and **good practice** on the website or in this brochure
 - Visit the revamped **Kids Corner** with information for teachers, children and parents, including quick links to the latest websites on energy education
 - Have a look at the **Vocational Training Corner** which includes a searchable collection of links to key training resources and pioneering training schemes
 - If you are an energy agency, visit the **Energy Agency Corner** and get in touch with peers
- **Networking opportunities** such as the ManagEnergy annual conference
- **Capacity-building workshops** offering practical training and capacity development for municipalities and other local energy actors all over Europe

More information:

ManagEnergy
www.managenergy.net
Intelligent Energy-Europe (IEE)
<http://ec.europa.eu/energy/intelligent>
Covenant of Mayors
www.eumayors.eu
EU energy policy
<http://ec.europa.eu/energy/efficiency>

Sharing expertise cuts energy use in buildings

Clearinghouse Support – Paving the way for a better energy performance of buildings in the EU (Baltic Energy Conservation Agency, BAPE, Poland)

The IEE Clearsupport project established a European clearing house to help small and medium-scale sustainable energy projects in new Member States in less developed regions to obtain funding through the European Regional Development Fund. Structural Funds are available for thermo-renovation (e.g. insulation, energy saving measures) and renewable energy, assuming that a number of specific requirements are met and the application is prepared according to the strict guidelines but not all projects obtain funding. Direct assistance was provided through project service facilities (PSF) to project owners for the practical implementation of EU energy policy goals, streamlining project handling and addressing the sizeable need for sustainable energy investment. The main idea was to develop a structure giving complete support to potential investors and promote the exchange of information, increasing the chances of project funding. The Baltic Energy Conservation Agency (BAPE) was the PSF in Pomerania (Poland), which has a population of 2.2 million and a relatively old housing stock, offering great energy conservation potential. BAPE addressed public authorities and housing associations with the potential for larger-scale building renovations, provided practical assistance on project identification and documentation, and supported thermo-modernisation projects, including external wall insulation, roof insulation, window exchange, retrofitting of heating and hot water installations and the installation of renewable energy systems.

Results

Overall, Clearsupport facilitated the preparation of 230 energy-efficient construction projects in 5 countries and furthered the understanding of the key barriers to the development of such projects. Furthermore, it developed new instruments for accelerating project implementation, including the promotion of the revolving fund instrument for better project financing by the project team. What is more, interaction between project partners provided new, innovative financing mechanisms. The 72 projects supported by BAPE in Poland resulted in a potential reduction in energy consumption of 17 000 MWh/year. Fifty-four focused on public sector buildings such as hospitals, schools and health centres, where the reduction in energy consumption has been over 14 000 MWh; the remaining 18 buildings were multi-family houses with energy consumption reductions of 3 000 MWh.

Replicability

The concept of a project service facility supporting local self-government and investors in the preparation of projects seems to respond to market needs. To ensure the successful replication of the PSF approach, staff training is needed, as well as new standards,



computer programmes, procedures and guidelines for environmental impact assessment and economic feasibility, and guidance on the key elements of an effective project. A set of tools, financial studies and a technology catalogue have been made available by the Clearsupport project to facilitate replication, and can be downloaded from the website indicated below. The adoption of the PSF concept by other EU regions would lead to significant gains in the implementation of energy-efficient building projects.

More information – Więcej informacji

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Budget – Budżet

€ 1 638 616
(50% EU funding – z funduszy UE)

Wymiana wiedzy specjalistycznej pozwala zmniejszyć zużycie energii w budynkach

Nominee for the
ManagEnergy Award
2010

Projekt Clearing House Support (w skrócie: Clearsupport) – przecieranie szlaków na drodze do zapewnienia większej efektywności energetycznej budynków w Unii Europejskiej (Bałtycka Agencja Poszanowania Energii, Polska)

W ramach projektu Clearsupport, stanowiącego element programu Inteligentna Energia — Europa (IEE), powołano europejską izbę rozliczeniową, której celem jest pomoc podmiotom realizującym małe i średnie projekty na rzecz zrównoważonego zużycia energii w mniej rozwiniętych regionach nowych państw członkowskich w zdobywaniu funduszy na ich realizację za pośrednictwem Europejskiego Funduszu Rozwoju Regionalnego. Fundusze strukturalne można uzyskać na termomodernizację (np. na izolację i na rozwiązania energooszczędne) oraz na inwestycje w rozwiązania umożliwiające korzystanie z energii odnawialnej. Należy jednak spełnić szereg specyficznych wymagań i przygotować wniosek o dofinansowanie zgodnie ze szczegółowymi wytycznymi, przy czym nie wszystkie projekty otrzymują takie dofinansowanie. Powołano specjalne punkty wspierania termomodernizacji (*project service facility* – PSF), które udzielają podmiotom realizującym takie projekty bezpośredniej pomocy w praktycznym wdrażaniu celów polityki energetycznej UE, ułatwiając wykonywanie projektów oraz zaspokajając znaczne zapotrzebowanie na inwestycje na rzecz zrównoważonego zużycia energii. Głównym celem tych działań było utworzenie infrastruktury zapewniającej kompleksowe wsparcie potencjalnym inwestorom oraz promowanie wymiany informacji, co zwiększa szanse na zdobycie funduszy na realizację projektu. Bałtycka Agencja Poszanowania Energii (BAPE) pełniła funkcję punktu PSF na Pomorzu (Polska), które liczy 2,2 mln mieszkańców i dysponuje relatywnie starymi zasobami mieszkaniowymi, ma więc duży potencjał w zakresie obniżania zużycia energii. Agencja BAPE zaoferowała władzom oraz spółdzielniom i wspólnotom mieszkaniowym możliwości modernizacji budynków na szerszą skalę, zapewniała praktyczną pomoc w identyfikacji zakresu projektów i opracowaniu ich dokumentacji oraz wspierała realizację projektów termomodernizacji, w tym izolacji ścian zewnętrznych i dachów, wymiany okien, modernizacji systemów ogrzewania i instalacji z ciepłą wodą, a także montażu systemów energii odnawialnej.

Wyniki

Łącznie w ramach projektu Clearsupport udzielono pomocy w przygotowaniu w 5 krajach 230 projektów z zakresu budownictwa energooszczędnego oraz upowszechniono wiedzę na temat kluczowych barier w realizacji takich projektów. Ponadto opracowano nowe instrumenty przyspieszające wdrażanie tego typu projektów — m.in. wypromowano instrument do zarządzania funduszami obrotowymi zapewniający lepsze finansowanie projektu przez zespół projektowy. Interakcje między partnerami uczestniczącymi w projekcie Clearsupport pozwoliły też stworzyć nowe, innowacyjne mechanizmy finansowania. W Polsce agencja BAPE zrealizowała 72 projekty, które pozwolą obniżyć zużycie energii o 17 tys. MWh rocznie. 54 projekty dotyczyły budynków z sektora publicznego, takich jak szpitale, szkoły i ośrodki zdrowia, w których udało się obniżyć zużycie energii o ponad 14 tys. MWh. Pozostałe 18 dotyczyło budynków wielorodzinnych, w których obniżono zużycie energii o 3 tys. MWh.

Możliwości powielenia koncepcji

Koncepcja punktów PSF wspierających samorządy lokalne i inwestorów w przygotowywaniu tego typu projektów wydaje się oferować skuteczną odpowiedź na potrzeby rynku. Aby zapewnić udane powielenie tego podejścia, konieczne są szkolenia dla pracowników, a także nowe standardy, programy komputerowe, procedury i wytyczne dotyczące oceny wpływu na środowisko oraz opłacalności przedsięwzięcia, jak również wskazówki dotyczące najważniejszych elementów efektywnego projektu.

W ramach projektu Clearsupport udostępniono zestaw narzędzi, analizy finansowe oraz katalog techniczny, które ułatwiają powielenie tego pomysłu i które można pobrać z niżej wymienionych serwisów internetowych. Wdrożenie koncepcji punktów PSF w innych regionach UE pozwoliłoby osiągnąć znaczne sukcesy w zakresie wdrażania projektów budownictwa energooszczędnego.



London is burning less energy

RE:FIT (London Development Agency, UK)

RE:FIT is a cost-neutral procurement initiative which allows the public sector to retrofit existing buildings with energy-conservation measures, reduce carbon emissions and achieve substantial annual energy cost savings. It aims to overcome the two biggest obstacles facing the public sector – capital and capacity.

The 'spend-to save' programme transfers the risk of energy savings from improvements onto the energy-service company (ESCO) and guarantees a return over an agreed period.

The programme streamlines the procurement process by providing pre-negotiated, EU-regulation compliant framework contracts through which a group of prequalified ESCOs can undertake the design and implementation of energy-conservation measures. This standard contractual model makes it easier for public sector buyers but also reduces supplier bidding costs and time and therefore drives down costs for both parties.

RE:FIT is 'ready to use' as an existing framework of ESCO suppliers, considerably reducing procurement time and cost whilst its sustainable nature offers a permanent solution that offers year-on-year savings. It allows the public sector to implement retrofitting in three to six months whereas traditional procurement might take up to 18 months.

Results

RE:FIT is the creation of a viable commercial and technical model with terms that suppliers are willing to work with, such as standardised tools, guidance and templates.

Several leading agencies, including Transport for London, the London Metropolitan Police and the London Fire Brigade, took part in a first phase which implemented energy-saving measures in 42 buildings with some 146 000 m² of occupied space. Around £ 7 million (€ 8.1 million) of investment was made by these public-sector participants, yielding annual energy savings of £ 1 million (€ 1.16 million) and a reduction of over 5 000 tonnes in carbon emissions.

University of London, Newham University Hospital, Royal Botanical Gardens (Kew), Waltham Forest Primary Care Trust and the London Fire Brigade

have successfully appointed ESCOs to install energy conservation measures with a total value £ 1.7 million (€ 1.97 million). There is a further £ 30 million (€ 35 million) of work in the pipeline, funded either from the organisations' resources or from borrowing. RE:FIT is targeting at least 40% of public-sector buildings – 11 million m² – to cut carbon emissions by 2.5 million tonnes of CO₂ by 2025.



More information

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Budget

£ 3,925,107
(including the funding from
ELENA for the procurement of
the Programme Delivery Unit)

Replicability

RE:FIT is a UK-wide framework available for three years with an option to extend for a fourth year. If all public-sector buildings in London used this model, they could save around £500 million (€580 million) in energy costs; and the model can be replicated across the UK – and further afield.

Outside London, Leeds and Sheffield are currently using the framework. Southampton, Portsmouth, Milton Keynes, Reading and Oxford have all signed Memorandum of Understanding to proceed with RE:FIT.

And at European level, the RE:FIT team is currently talking to other cities in Europe with similar issues of retrofitting existing buildings. Recently, RE:FIT presentations have been given in Madrid, Rotterdam, Stockholm, Hamburg and Paris.

The London Development Agency and the Greater London Authority have now made a successful application to the European Commission for £ 2.67 million (€ 3.1 million) to drive the take up of RE:FIT further. This ELENA funding will enable them to provide a Programme Delivery Unit (PDU) that will manage the RE:FIT framework and facilitate the uptake by London-based public-sector organisations.

Winner of the
ManagEnergy Award
2011 'Technical
Projects' category

District heating and biomass cut monastic carbon footprint

Energy efficiency in Abbey St. Ottilien
(Research Center for Energy Economics, Germany)

Ever-rising costs and environmental concerns persuaded the monastery village of St. Ottilien to cut carbon emissions by 90% through decreasing use of fossil fuels – some 700 000 litres of heating oil a year. It carried out a programme of insulation and installed a highly efficient district heating system serving 45 buildings including a school and the monastery itself. A thermographic analysis of the building stock led to energy-efficient renovation by insulation and change of windows, measurement and optimisation of the heating system and steam generation, installation of a centralised heating supply including two wood pellet boilers, and installation of a biogas combined heat-and-power (CHP) plant providing 90% heat use and nearly 100% of the monastery power supply.

Results

In 2007, the monastery village had annual CO₂ emissions of 2 500 tonnes; in 2009, there were only about 500 tonnes; and in 2010, after the start-up of the biogas plant, this is expected to drop to 250 tonnes per year. Continuous refurbishment action means energy demand will continue to decrease and less oil will be needed for peaks, ensuring CO₂ emissions will be nearly zero in 2020.

Funding came from a KfW bank loan and specific steps were supported by the Bavarian Ministry for Economy and the Bavarian Environmental Agency for CO₂ reduction, with the measurement and concept prepared by the Research Centre for Energy Economics (FfE).

The overall investment was € 6.1 million. The KfW Bank gave a credit of € 3.3 million with a real interest rate between 3.5 and 4.5%. The compensation for electricity fed into the grid produced by a combined heat and power plant will be 23 cent per kWh.

Replicability

This project can serve as a basic concept for other villages which have to heat several buildings, partly under listed building protection. The refurbishment of buildings which leads to lower energy consumption in combination with the installation of a CO₂-neutral heating system based on the new calculated energy demand will guarantee a high level of oil or gas savings. It is important to calculate based on the decreased energy consumption after insulation to avoid oversizing.



More information – Weitere Informationen

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Budget

€ 6.1 million – Millionen

Fernwärme und Biomasse verbessern CO₂-Bilanz eines Klosters

Nominee for the
ManagEnergy Award
2011

Energieeffizienz im Kloster St. Ottilien (Forschungsstelle für Energiewirtschaft, Deutschland)

Zunehmende Kosten und Umweltbedenken veranlassten das Klosterdorf St. Ottilien dazu, seine CO₂-Emissionen durch Senkung des Verbrauchs von fossilen Brennstoffen (rund 700 000 Liter Heizöl im Jahr) um 90% zu reduzieren. Das Kloster führte ein Wärmedämmprogramm durch und installierte ein hocheffizientes Fernwärmesystem, das 45 Gebäude, einschließlich einer Schule und des Klosters selbst, versorgt. Eine thermografische Analyse des Gebäudebestands führte zu einer energieeffizienten Renovierung. Hierbei wurden Wärmedämmmaßnahmen durchgeführt, Fenster ausgetauscht, das Heizsystem und die Dampferzeugung gemessen und optimiert und eine zentrale Wärmeversorgung mit zwei Holzpelletkesseln sowie eine mit Biogas arbeitende Kraftwärmekopplungsanlage installiert, die 90% der Wärmeversorgung und 100% der Stromversorgung des Klosters abdeckt.

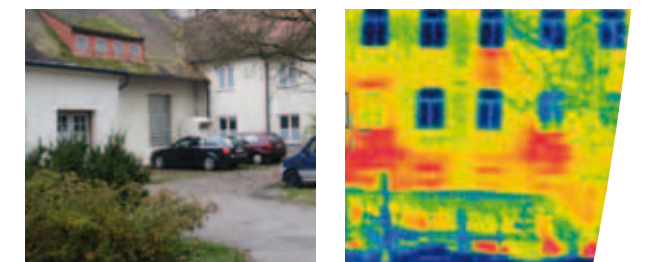
Ergebnisse

2007 verzeichnete das Klosterdorf jährliche CO₂-Emissionen in Höhe von 2 500 Tonnen. 2009 waren es nur noch etwa 500 Tonnen, und 2010 ist nach der Inbetriebnahme der Biogasanlage mit einem Rückgang auf 250 Tonnen im Jahr zu rechnen. Durch ständige Modernisierungsmaßnahmen wird der Energiebedarf weiter zurückgehen, und es wird weniger Heizöl für Spitzenlasten benötigt. Dadurch werden die CO₂-Emissionen im Jahr 2020 gegen null gehen. Finanziert wurde das Projekt mit einem KfW-Kredit, und bestimmte Maßnahmen zur CO₂-Reduzierung wurden vom bayerischen Wirtschaftsministerium und vom Bayerischen Landesamt für Umwelt unterstützt. Für die Messungen und das Konzept zeichnete die Forschungsstelle für Energiewirtschaft verantwortlich.

Die Gesamtinvestitionssumme belief sich auf 6,1 Millionen €. Die KfW-Bank gewährte einen Kredit über 3,3 Millionen € mit einem effektiven Zinssatz zwischen 3,5 und 4,5%. Die Netzeinspeisevergütung für Strom aus der Kraftwärmekopplungsanlage wird 23 Cent pro kWh betragen.

Nachahmbarkeit

Dieses Projekt kann als Grundkonzept für andere Dörfer dienen, in denen Gebäude zu heizen sind, die teilweise unter Denkmalschutz stehen. Die Modernisierung von Gebäuden, die zu einem niedrigeren Energieverbrauch führt, und die Installation eines CO₂-neutralen Heizsystems, das für den



neu zu kalkulierenden Energiebedarf ausgelegt ist, wird für erhebliche Einsparungen von Heizöl oder Gas sorgen. Um eine Überdimensionierung zu vermeiden, ist es wichtig, bei den Kalkulationen von dem niedrigeren Energieverbrauch nach Durchführung der Dämmmaßnahmen auszugehen.

Port city targets energy-saving investments

Ostend, region for clean energy (Power-Link, Belgium)

Following participation in the Covenant of Mayors, the City of Ostend established a separate entity entitled EOS (Energy saving Ostend) in 2007 to co-ordinate actions on reducing energy costs and greenhouse gas emissions in private households in the area. Its energy experts visit 700 households a year, carry out energy scans and produce reports on how to reduce energy consumption in the most efficient way. EOS offers interest-free loans of up to € 10 000 per household to fund green investment. The City also limits consumption of energy in its own buildings with the help of the Federal Energy Services Company (Fedesco).

Furthermore, the Port of Ostend and Ghent University have joined forces in developing Plassendale industrial zone as a pre-eminent Flemish innovation region. In the outer port of Ostend, 20 acres have been dedicated as a science park, with Greenbridge Incubation and Innovation Centre as a high-tech starters facility and the Power-Link energy knowledge platform as the driving force.

Results

From 2007 until the end of 2009, more than 1 465 energy scans were completed by EOS. Calculations have shown that the total savings resulting from the scans was 6.75 thousand MWh/year – a reduction of 2.35 million kg in annual CO₂ emissions. This provides an overall saving of € 597 000 annually. In the last two years, 591 interest-free energy loans have been granted, totalling € 3.38 million, resulting in energy savings of 3.1 thousand MWh, 470 thousand kg of CO₂ emissions and € 179 000 every year. The demand for energy loans continues to increase.

At the CO₂-neutral Greenbridge science park, a variety of different research projects dealing with sustainable energy has been launched by the energy knowledge platform Power-Link. These actions contribute indirectly to employment in the green product and installation sector.

Replicability

The success of Ostend in encouraging practical energy-saving investments by households acts as an example for other cities in Flanders, while the experience gained through co-operation with Fedesco in dealing with the energy efficiency of buildings can be used in similar applications in other cities. For instance, Ghent University's Power-Link renewable energy platform facilitates project initiation and quantifies the results and experience gained. The close co-operation between research (Power-Link, Ghent University), industry and government (EOS/City of Ostend) could be replicated in other cities.



More information – Meer informatie:

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www.oostende.be/eos

Budget EOS

€ 250 000 (City of Ostend – *Stad Oostende*)
€ 170 000 (federal – *federaal*)
€ 80 000 (regional – *regionaal*)

Budget Power-Link

€ 430 000 (EFRO, Flemish region government
and the province of West Flanders – *EFRO,
Vlaamse overheid en de provincie West-Vlaanderen*)

Havenstad gericht op energie-besparende investeringen

Oostende, regio voor schone energie (Power-Link, België)

Met oog op deelname aan het Burgemeestersconvenant heeft de stad Oostende in 2007 het autonome gemeentebestuur EOS (Energiebesparing Oostende) opgericht, dat de acties coördineert om de energiekosten en de uitstoot van broeikasgassen door gezinnen in de regio te reduceren. Jaarlijks brengen de energie-experts een bezoek aan 700 gezinnen, voeren ze energiescans uit en stellen ze rapporten op over hoe het energieverbruik op de meest doeltreffende manier kan worden beperkt. EOS biedt renteloze leningen tot € 10 000 per gezin, waarmee ze energiebesparende maatregelen kunnen betalen. Met de hulp van Fedesco (het federale Energiedienstenbedrijf) beperkt de stad ook het energieverbruik in haar eigen gebouwen. Bovendien hebben de Haven Oostende en de Universiteit Gent de handen in elkaar geslagen om de industriezone Plassendale te ontwikkelen als een prominente regio voor Vlaamse innovatie. Hiertoe werd ca. 20 ha achterhaven als wetenschapspark bestemd, met het Greenbridge Incubatie- en Innovatiecentrum als startersfaciliteit en het energiekennisplatform Power-Link als drijvende kracht. De synergie tussen beide haveninitiatieven vormt een R&D hub in de Oostendse cleantech regio van Vlaanderen.

Resultaten

Van 2007 tot eind 2009 heeft EOS meer dan 1 465 energiescans uitgevoerd. Uit berekeningen blijkt dat de totale besparingen als resultaat van deze scans 6.75 duizend MWh/jaar bedragen – een reductie van 2.35 miljoen kg van de jaarlijkse CO₂-uitstoot. Jaarlijks levert dit een besparing van € 597 000 op. In de laatste twee jaar werden 591 renteloze energieleningen toegekend, voor in totaal € 3.38 miljoen, wat een jaarlijkse energiebesparing opleverde van 3.1 duizend MWh, 470 duizend kg CO₂-uitstoot en € 179 000. De vraag naar energieleningen blijft stijgen. In het CO₂-neutrale Greenbridge wetenschapspark heeft het energiekennisplatform Power-Link verschillende onderzoeksprojecten over duurzame energie opgestart. Deze acties dragen onrechtstreeks bij tot de tewerkstelling in de sector van milieuvriendelijke producten en installaties.

Herhaalbaarheid

Het succesverhaal van Oostende in de aanmoediging van praktische energiebesparende investeringen voor gezinnen is een voorbeeld voor andere Vlaamse steden, terwijl de ervaring opgedaan bij de samenwerking met Fedesco in het omgaan met energiezuinigheid van gebouwen kan worden gebruikt bij gelijkaardige toepassingen in andere steden. Zo maakt Power-Link, het platform voor hernieuwbare energie van de Universiteit Gent, het makkelijker om projecten op te starten en houdt het platform de resultaten en de opgedane ervaring



bij. De nauwe samenwerking tussen onderzoekers (Power-Link, Universiteit Gent), de industrie en de overheid (EOS/Stad Oostende) kan worden herhaald in andere steden.



Smart energy monitoring changes family behaviour

Smart-metering domestic energy saving
(Sabadell Local Energy Office, Spain)

A domestic energy-saving campaign in the city of Sabadell promoted co-responsibility of citizens in greenhouse gas (GHG) reduction. There was a two-month open call in 2009 to get households involved. Volunteers received smart meters for a six-month period providing instant information in terms of kWh, kg of CO₂ equivalent and costs in Euros. This enabled families to monitor consumption and implement energy-saving practices. The 29 family dwellings involved were 76 to 100 m², with a contracted power/tariff of 4.4 kW and provided with a natural-gas heating system and air conditioning, consuming 8.8 kWh daily on average, or GHG emissions of 3.32 kg of CO₂. Smart meters were used to characterise energy use and promote awareness raising as they are reusable and affordable at around € 90/unit. Funding came from two main sources: the municipality and the Catalan regional government.

Results

Savings achieved by families during the six-month period came to 11.8% on a weekly comparison between the first and last weeks of the campaign. On a monthly basis, the savings were 14.3%. Expected annual CO₂ savings for all 29 households is estimated to be 4.1 tonnes; projected CO₂ emissions savings for 2020 are 180.6 tonnes. The project will be developed in sequential phases with an average of 30 dwellings per phase.

Replicability

This campaign has shown extremely positive results in implementing energy saving projects to final domestic energy users. It can be replicated anywhere anytime, so it is universal as families or inhabitants have to improve their energy profiles by themselves. With energy market liberalisation within EU countries, this campaign is specially oriented to guiding individual energy users for tariff comprehension and selection. When replicating this experience, it would be helpful to get 'associated' households or families that have previous contacts to multiply the impact on daily behaviour.



El seguimiento inteligente de la energía cambia el comportamiento de las familias

Nominee for the
ManagEnergy Award
2011

Ahorro energético de los hogares con contadores inteligentes
(Oficina Municipal de la Energía del Ayuntamiento de Sabadell, España)

El Ayuntamiento de Sabadell ha llevado a cabo una campaña de ahorro energético a nivel local sobre la responsabilidad conjunta de los ciudadanos respecto a la reducción de los gases de efecto invernadero. Se abrió un plazo de dos meses en 2009 para que los hogares participaran. Se instalaron contadores inteligentes en los hogares participantes durante un periodo de seis meses. Estos dispositivos proporcionan información instantánea en términos de kWh, Kg de CO₂ equivalente y costes en euros. Esto permitió que las familias controlaran el consumo e implementaran prácticas de ahorro energético. Las 29 viviendas participantes tenían una superficie de entre 76 y 100 metros cuadrados, con una potencia contratada de 4,4 kW, sistema de calefacción con gas natural y aire acondicionado, y con un consumo medio diario de 8,8 kWh o 3,32 Kg de CO₂ de emisiones de gases de efecto invernadero. Los contadores inteligentes se utilizaron para definir el perfil de consumo energético y promover la sensibilización de los ciudadanos, ya que son reutilizables y tienen un precio asequible de 90 €/unidad. El Ayuntamiento de Sabadell y el gobierno regional de la Generalitat de Cataluña financiaron el proyecto.

Resultados

Comparando el consumo semanal, las familias consiguieron un ahorro de 11,8% durante el periodo de seis meses entre la primera y la última semana de la campaña. A escala mensual, el ahorro fue del 14,3%. El ahorro anual previsto de CO₂ para los 29 hogares se ha estimado en 4,1 toneladas. El ahorro de emisiones de CO₂ previsto para 2020 es de 180,6 toneladas. El proyecto se desarrollará en fases secuenciales con una media de 30 viviendas por fase.

Replicabilidad

Esta campaña ha arrojado resultados realmente positivos respecto a la implementación de proyectos de ahorro energético en los consumidores finales de energía en los hogares. Este proyecto se puede aplicar en cualquier lugar y en cualquier momento. Se trata de un proyecto universal, puesto que las familias y los ciudadanos deben mejorar sus comportamientos energéticos por sí mismos. Con la liberación del mercado de la energía en los países de la UE, esta campaña está especialmente dirigida a orientar a los consumidores de energía privados en la elección de la tarifa. Al replicar esta experiencia, sería útil contar con familias u hogares «asociados» que hayan tenido un contacto previo a fin de multiplicar el impacto en el comportamiento diario.



More information – Más información

Contact – Contacto

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Budget – Presupuesto

€ 9 059 (68% municipal –
por el Ayuntamiento de Sabadell)
32% (Catalonian regional government –
por el Gobierno de la Generalitat
de Cataluña)



Gentle persuasion communicates the energy-saving message

Switch Off Campaign (Codema, Ireland)

The Switch Off campaign was established to encourage all 1 500 staff in the Dublin City Council Civic Offices building to switch off lights and appliances such as computers, printers and photocopiers when not in use to help the council improve its energy efficiency. Elaborated within the frame of 'MINUS 3%' project, funded by the IEE programme, the aim was to show city authorities can save 3% energy each year. The Switch Off campaign strategy included the creation of promotional material such as posters, stickers, mouse mats and brochures, and the organisation of promotional Switch Off days which included an employee competition and survey. To maintain awareness, regular emails were sent to all staff with tips and reminders; the emails used different images and themes – such as Christmas and summer – to maximise interest.

Results

Switch Off was organised by Dublin energy agency Codema which calculates that this campaign has achieved observable energy savings of 23% – the equivalent to saving over € 11 000 annually, or 70 tonnes of CO₂. A behavioural survey of over 500 Dublin City Council employees showed that 97% agreed that the campaign had a positive effect in raising energy awareness. Therefore, the campaign was seen as a success and was rolled out to the other three local authorities in Dublin.

Replicability

Achieving behavioural change for energy saving requires an interesting and informative approach with encouragement for staff to provide their own energy-saving tips. As all European citizens should be aware of saving energy – be it in the home, workplace or commuting between the two – the simple, clear messages in the Switch Off campaign means it has vast replication potential. In addition to being adopted already in neighbouring Dublin local authorities, the campaign received great interest from other local councils around Ireland.

The Switch Off campaign was included in the Sustainable Energy Action Plan 2010 and so was signed off at management level by the Environmental and Engineering Strategic Policy Committee and by



the Lord Mayor of Dublin through the Covenant of Mayors. Throughout the campaign, Codema had the support of Dublin City Manager and the Lord Mayor of Dublin.

More information – Tuilleadh eolais:

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Budget – Buiséad

€ 20 000
(including MINUS 3% and staff budgets –
lena n-áirítear LÚIDE 3% agus buiséid fhoirne)

Cuir teachtaireacht na coigilte fuinnimh ina luí ar dhaoine go séimh

Feachtas Lasc As (Codema, Éire)

Cuireadh an feachtas Lasc As (Switch Off) ar siúl chun na 1 500 ball foirne ar fad i bhfoirgneamh Oifigí Cathrach Chomhairle Bhaile Átha Cliath a spreagadh chun soilse agus fearas amhail ríomhairí, printéirí agus gléasanna fótachóipeála a lascadh as nuair nach mbíonn siad in úsáid, chun cabhrú leis an gcomhairle feabhas a chur ar a héifeachtacht fuinnimh. Tarraingíodh suas an feachtas laistigh de fhráma an tionscadail "LÚIDE 3%", maoinithe faoin gclár IEE, agus ba é an aidhm a bhí leis ná a thaispeáint gur féidir le húdaráis na cathrach 3% d'fhuinneamh a choigilt gach bliain. Mar chuid de straitéis an fheachtais Lasc As, cruthaíodh ábhar bolscaireachta amhail póstaer, greamáin, mataí luiche agus bróisiúir, agus eagraíodh laethanta fógraíochta Lasc As a chuimsigh comórtas agus suirbhé fostaí. D'fhoill feachtas a chothabháil, seoladh ríomhphoist go rialta chuig gach ball foirne le leideanna agus meabhrúcháin; bhain na ríomhphoist úsáid as íomhánna agus téamaí éagsúla – ar nós na Nollag agus an tsamhraidh – chun go mbeidís chomh suimiúil agus ab fhéidir.

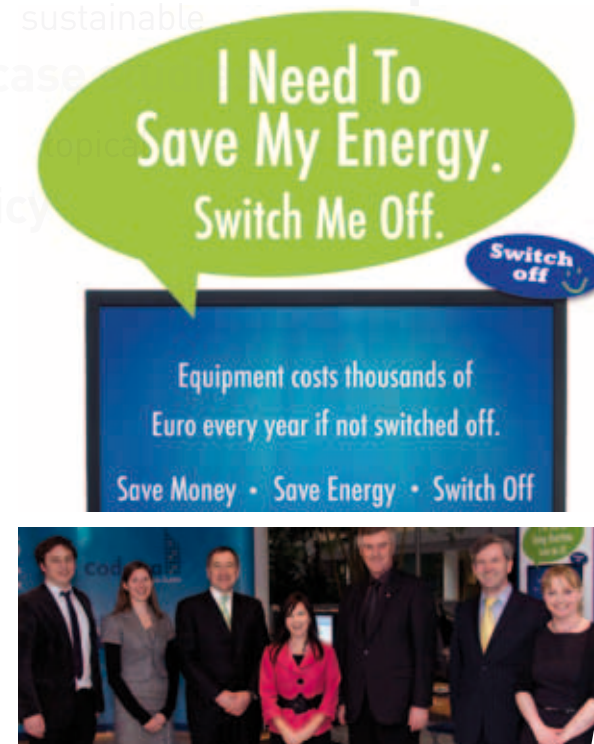
Torthaí

An ghníomhaireacht fuinnimh Codema ó Bhaile Átha Cliath a d'eagraigh Lasc As; measann Codema gur féidir a fheiceáil gur choigil an feachtas 23% d'fhuinneamh – ionann agus níos mó ná € 11 000 a choigilt go bliantúil, nó 70 tonna CO₂. Léirigh suirbhé iompraíochta ar níos mó ná 500 fostaí Chomhairle Cathrach Bhaile Átha Cliath gur aontaigh 97% go raibh tionchar dearfach ag an bhfeachtas ó thaobh feachtas ar fhuinneamh a mhéadú. Dá bhrí sin, measadh go raibh rath ar an bhfeachtas agus tosaíodh ar é a chur i bhfeidhm sna trí údaráis áitiúla eile i mBaile Átha Cliath.

Macasamhlú

D'fhoill athrú iompraíochta a bhaint amach maidir le coigilt fuinnimh, teastaíonn cur chuige suimiúil faisnéiseach a spreagann an fhoireann chun leideanna dá gcuid féin a sholáthar maidir le fuinneamh a choigilt. Toisc gur cheart go mbeadh saoránaigh uile na hEorpa ar an eolas maidir le fuinneamh a choigilt – bíodh sé sa bhaile, san ionad oibre nó ag taisteal idir an dá cheann – ciallaíonn na teachtaireachtaí simplí soiléire san fheachtas Lasc As go bhfuil acmhainneacht ollmhór ann chun an feachtas a mhacasamhlú. Chomh maith le bheith glactha cheana féin ag údaráis áitiúla Bhaile Átha Cliath máguaird, chuir comhairlí áitiúla eile ar fud na hÉireann suim mhór san fheachtas. Cuimsíodh an feachtas Lasc As sa Phlean Gníomhaíochta le

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hAghaidh Fuinnimh Inbhuanaithe 2010 agus dá bharr sin chuir An Coiste Polasaí Straitéisigh um Chomhshaol agus Innealtóireacht síniú leis ag leibhéal na bainistíochta agus chuir Ard-Mhéara Bhaile Átha Cliath síniú leis trí Chúnamant na Méaraí. Le linn an fheachtais, fuair Codema tacaíocht ó Bhainisteoir Cathrach Bhaile Átha Cliath agus ó Ard-Mhéara Bhaile Átha Cliath.

Neighbourly competition cuts domestic energy use

Energy Neighbourhoods
(Consortium of energy agencies and NGOs coordinated by B&SU, Germany)

The objective of the Energy Neighbourhood Project was to inspire and encourage communities to reduce energy consumption through changes in behaviour. Some eight to twelve households formed a team, the so-called Energy Neighbourhood. Each Neighbourhood accepted a challenge set by the city: to win, the Neighbourhood had to achieve an energy saving of at least eight per cent within six months compared with the previous year. Each team was coached by an Energy Master who had been trained by the local energy agency to provide assistance, to use an energy savings toolkit, and to measure the savings. Successful Neighbourhoods were awarded a prize.

Results

Almost 600 Energy Neighbourhoods, representing more than 5 000 households from nine countries including old and new Member States across the EU, took up the Energy Neighbourhoods challenge. On average, teams achieved energy savings of 10% (37% was achieved by the winning team from Sweden) through simple and cost-effective measures such as using energy saving lamps, disabling the standby function on electric appliances and changing their heating habits by reducing thermostat settings and making better use of the time clocks on their heating systems. The success of the initiative was largely due to the active involvement of public authorities, cities and municipalities, in addition to their energy agencies, which organised regular meetings and awareness-raising events, building confidence amongst householders and local businesses.

Replicability

The project is based upon the forerunner initiative "Klimaatwijken" that was successfully organised by the project's Belgian partners in the Flanders region for over five years. As a European project, it has been proven that the project idea can be successfully transferred to other European regions. Following the success of this initiative, Energy Neighbourhoods will be replicated again as an IEE project in 16 countries starting in May 2011. Factors for the successful replication of the project include strong support from Energy Masters and cities, primarily the environmental and climate protection departments,



teamwork among participants acting as a group to save energy, and constant updates from project partners and cities providing energy saving tips and stirring up competition. Challenges encountered included the recruitment of participants – a crucial phase of the project – and maintaining participants' motivation levels over the lifespan of the campaign.

Energie-Nachbarschaften: Energieeinsparwette zwischen Städten und Bürgern senkt Energieverbrauch in Haushalten

Energie-Nachbarschaften (ein Projekt von Energieagenturen und Nichtregierungsorganisationen, koordiniert von der B.&S.U. mbH, Deutschland)

Das Projekt „Energie-Nachbarschaften“ unterstützt Haushalte beim Energie sparen und zeigt, dass bereits mit einfachen Verhaltensänderungen im Alltag Energieeinsparungen von durchschnittlich 10% möglich sind. Freunde, Arbeitskollegen, Vereinsmitglieder oder Nachbarn aus neun europäischen Ländern schlossen sich zu sogenannten Energie-Nachbarschaften zusammen und wetteten gegen ihre Stadt, dass sie es innerhalb von sechs Monaten schaffen, 8% Energie im Vergleich zum Vorjahr einzusparen. Ein Energie-Coach aus den Reihen der Energie-Nachbarschaften stand den Haushalten dabei zur Seite, gab Ratschläge zum Energieeinsparen und motivierte die Gruppe. Die erfolgreichsten Energie-Nachbarschaften, die ihren Energieverbrauch um mehr als 8% reduzieren konnten, erhielten einen Preis von ihrer Stadt.

Ergebnisse

Fast 600 Energie-Nachbarschaften, die über 5 000 Haushalte in insgesamt neun EU-Mitgliedstaaten repräsentierten, nahmen an der Energiesparwette teil. Im Durchschnitt erzielten die Teams durch einfache Verhaltensänderungen und kostengünstige Maßnahmen, wie den Einsatz von Energiesparlampen, der Ausschaltung der Standby-Funktion von Elektrogeräten oder der Änderung ihrer Heizgewohnheiten, Energieeinsparungen von 10%. Das Gewinnerteam aus Schweden schaffte es sogar, seinen Energieverbrauch um 37% im Vergleich zum Vorjahr zu reduzieren. Der Erfolg der Initiative war dem Engagement der teilnehmenden Haushalte, aber auch der aktiven Beteiligung der Städte und Energieagenturen zu verdanken, die regelmäßig Informationsveranstaltungen organisierten, Tipps zum Energiesparen gaben und als Ansprechpartner für die Nachbarschaften fungierten.

Nachahmbarkeit

Das Projekt basiert auf der Vorgängerinitiative „Klimaatwijken“, die von dem belgischen Projektpartner BBLV in der Region Flandern seit bereits fünf Jahren durchgeführt wird. Die Ergebnisse des europäischen Projekts Energie-Nachbarschaften haben gezeigt, dass die Projektidee erfolgreich auf andere Regionen in Europa übertragen werden kann. Das Projekt Energie-Nachbarschaften wird nun ab Mai 2011 in 16 Ländern als IEE-Projekt neu aufgelegt. Wichtige Faktoren für eine erfolgreiche Umsetzung der



Energie-Nachbarschaften sind die Energie-Coaches, die ihre Energie-Nachbarschaft kontinuierlich begleiten, sowie eine gute Kooperation zwischen Projektpartnern und Städten, die den Wettbewerb anregen und gemeinsam die Teams beim Energiesparen unterstützen. Die Rekrutierung der Teilnehmer – eine entscheidende Projektphase – und die Aufrechterhaltung eines hohen Motivationsgrads während der gesamten Kampagne gehörten zu den Herausforderungen, die es zu meistern gilt.

More information – Weitere Informationen

Contact – Kontakt

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Budget

€ 1 198 331 (50% funded by the
Intelligent-Energy Europe programme –
davon 50% aus dem Programm
Intelligent-Energy Europe (IEE))



Central management and education cut energy consumption

Energy management in public buildings and educational campaign in schools in the city of Maribor (Energy Agency of Podravje, EnergaP, Slovenia)

The Energy Agency of Podravje (EnergaP) set out to reduce energy consumption in public buildings and raise awareness of the importance of energy saving among pupils, teachers and other building users in Maribor, Slovenia. Central energy management system (CEMS) software has been installed in 70 public buildings. This offers a 2 to 3% potential energy saving through monitoring and an 8% cost saving in the first year by identifying errors in billing and in the metering system. At the same time, the CEMS data from local primary schools is used in an educational campaign aimed at the pupils and teachers in these schools, allowing them to monitor the impact of their energy saving actions on energy use.

Results

CEMS enables the online monitoring, processing, analysis and verification of energy data, making it possible to identify cost anomalies, mistakes and weak points in the buildings. Savings can be used for future energy investments. CEMS has already helped the municipality to reduce energy costs by €160 000 annually. In the first year, the reduction in energy use was around 3% (805 109 kWh and 1 365 tonnes CO₂), purely through organisational measures. In addition to being used to manage energy use, the CEMS data is also used for educational purposes. CEMS and energy bookkeeping improve user awareness of the importance of reducing energy consumption, particularly when coupled with an educational campaign encouraging teachers and pupils as well as their parents to become more responsible energy consumers. During school "Energy days", EnergaP demonstrates the system of energy bookkeeping and CO₂ emission calculation, and sets the pupils exercises on how to calculate their home energy use and emissions. EnergaP is also involved in the ongoing training of caretakers, financial officers and head teachers.

Replicability:

The results are very encouraging; we see slow but long-lasting positive changes in attitudes towards energy use, not only in workplaces but also in homes and in society as a whole. Of the city energy balance for 2010, it can be seen that the savings made in public buildings totalled 4.5%. Effective information and education campaigns raise awareness of both energy issues



in public buildings and the maintenance costs incurred by the city administration and building managers. The campaign has become well known, both in the city among a range of sectors and targeted groups and in Slovenia more broadly, where the system has already been installed in many buildings and has been shown to work. It is now being demonstrated in other EU countries and cities through new IEE projects. The software system used in CEMS is merely the instrument; co-operation between people is the most important element. It is therefore likely that all cities could implement this initiative.

More information – Več informacij:

Contact – Stik

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Budget – Vrednost projekta

€ 250 000 (75% municipality of Maribor,
25% European Commission –
75 % financira občina Maribor,
25 % Evropska komisija)

Zaradi centralnega upravljanja in izobraževanja se zmanjšuje poraba energije

Nominee for the
ManagEnergy Award
2010

Upravljanje energije v javnih zgradbah in izobraževalne kampanje v šolah v Mariboru (Energetska agencija za Podravje, EnergaP, Slovenija)

Energetska agencija za Podravje (EnergaP) želi zmanjšati porabo energije v javnih zgradbah in povečati ozaveščenost učencev, učiteljev in drugih uporabnikov javnih zgradb v Mariboru v Sloveniji o pomembnosti varčevanja z energijo. Programska oprema sistema za centralno upravljanje energije (CEMS) je bila nameščena v 70 javnih zgradbah. Ta oprema omogoča, da se poraba energije zaradi njenega spremljanja zmanjša za 2 do 3% ter da se stroški za energijo v prvem letu zaradi prepoznavanja napak pri obračunavanju in merjenju njene porabe zmanjšajo za 8%. Hkrati so podatki CEMS, zbrani v osnovnih šolah, podlaga za izobraževalno kampanjo, namenjeno učencem in učiteljem v teh šolah, saj jim omogočajo spremljanje učinkov varčevalnih ukrepov.

Rezultati

CEMS omogoča spletno spremljanje, obdelavo, analizo in preverjanje podatkov o energiji ter prepoznavanje nepravilnosti v zvezi s stroški in šibkih točk zgradb. Prihranke je mogoče uporabiti za načrtovanje energetskih naložb v prihodnosti. CEMS je že pomagal občini zmanjšati stroške za energijo za 160 000 EUR na leto. V prvem letu se je poraba energije samo zaradi izvajanja organizacijskih ukrepov zmanjšala za okoli 3% (805 109 kWh in 1 365 ton CO₂). Poleg upravljanja porabe energije se lahko podatki CEMS uporabljajo tudi za izobraževalne namene. CEMS in energetske računovodstvo pomagata zagotavljati večjo ozaveščenost uporabnikov v zvezi s pomembnostjo zmanjšanja porabe energije, zlasti v povezavi z izobraževalnimi kampanjami, ki učitelje in učence ter njihove starše spodbujajo k odgovornejši rabi energije. Med šolskimi "Dnevi energije" je EnergaP prikazala sistem energetskega računovodstva in izračun emisij CO₂ ter učencem pokazala, kako lahko izračunajo porabo energije in emisije v domačem okolju. EnergaP sodeluje tudi pri stalnih izobraževanjih skrbnikov, finančnih uradnikov in ravnateljev.

Ponovljivost

Rezultati so zelo spodbudni; opaziti je mogoče počasne, vendar dolgotrajnejše pozitivne spremembe v odnosu do uporabe energije ne samo na delovnem mestu, ampak tudi v gospodinjstvih in družbi kot celoti. Iz energetske bilance mesta za leto 2010 je mogoče ugotoviti, da je skupna vrednost prihrankov v javnih zgradbah 4,5%. Učinkovite informacijske in izobraževalne kampanje zagotavljajo večjo ozaveščenost o energetske problematiki v javnih zgradbah in stroških vzdrževanja, s katerimi se soočajo mestna uprava in upravniki stavb. Kampanja



je postala v mestu prepoznavna v različnih sektorjih in ciljnih skupinah, pa tudi na drugih območjih v Sloveniji, kjer je tak sistem že nameščen v zgradbah in se je že pokazala njegova učinkovitost. Zdaj se prek novih projektov IEE predstavlja v drugih državah članicah in mestih v EU. Programska oprema, uporabljena v sistemu CEMS, je le instrument; najpomembnejši element pa je sodelovanje med ljudmi. Zato je zelo verjetno, da bi lahko to pobudo izvajala vsa mesta.

Renewable energy grants ensure sunny view

I can have solar collectors too!
(REGEA – North-West Croatia Regional Energy Agency, Croatia)

This project aims at encouraging households to install solar energy systems and at creating a sustainable financing model at regional level to support the investments with 40% grants. The project has been running from 2009 to 2011 in four counties and several cities and municipalities in Croatia. The main funding came from county and national Environmental Protection and Energy Efficiency Fund budgets. Solar thermal collectors were selected according to proven efficiency and technological simplicity. Participating citizens could choose the manufacturer that they preferred and received a refund after the installation had been completed. The grants significantly reduced investment payback periods. REGEA was in charge of managing the scheme and inspecting the installed solar systems.

Results

After the first phase in 2009, a wider range of RES technologies was available for financial support in 2010: photovoltaic systems, small wind turbines and geothermal heat pumps. So far, 255 solar thermal systems have been installed with grant support. Households are expected to lower their energy consumption costs for hot water by up to 65%. Annual energy savings are estimated to be around 1 million kWh. Moreover, at least 20% of the solar systems are manufactured in Croatia – a welcome boost to the local economy. All systems were installed by local companies with a sizeable impact on employment.

Replicability

This pilot project proved so successful and sustainable that other regions in Croatia have already introduced similar schemes. Grants proved key to creating interest from the general public. A strong media campaign was necessary to raise awareness of energy efficiency. With pressures on municipal budgets across Europe, it is crucial to involve partners from financial institutions such as banks and revolving funds.



Poticanje korištenja obnovljivih izvora energije osigurat će sunčani pogled

I ja mogu imati solarne kolektore!
(REGEA – Regionalna energetska agencija sjeverozapadne Hrvatske, Hrvatska)

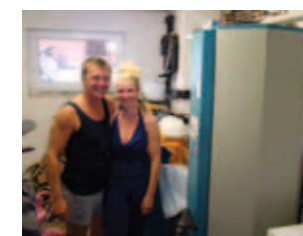
Cilj je projekta potaknuti kućanstva na ugradnju sustava za obnovljivu Sunčevu energiju te uspostaviti održiv model financiranja na regionalnoj razini radi sufinanciranja ulaganja u iznosu od 40%. Projekt se provodi od 2009. do 2011. u četiri hrvatske županije te nekoliko gradova i općina. Projekt se najvećim dijelom financira iz proračuna Županije i nacionalnog Fonda za zaštitu okoliša i energetske učinkovitost. Solarni termalni kolektori odabiru se prema dokazanoj učinkovitosti i tehnološkoj jednostavnosti. Građani koji sudjeluju u programu sami odabiru proizvođača, a nakon ugradnje dobivaju povrat sredstava. Sufinanciranjem se znatno skraćuje razdoblje povrata uloženi sredstava. Za upravljanje natječajem i provjeru ugrađenih solarnih sustava odgovorna je REGEA.

Rezultati

Nakon prvog natječaja, provedenog 2009. godine, program za 2010. godinu obuhvatio je širi opseg tehnologija za obnovljive izvore energije: fotonaponske sustave, male vjetrogeneratorske sustave i geotermalne dizalice topline. Dosad je uz financijsku potporu projekta ugrađeno 255 solarnih termalnih sustava, dvije geotermalne dizalice topline te jedan fotonaponski sustav. Očekuje se da će se troškovi energije u kućanstvima za pripremu tople vode smanjiti i za 65%. Prema prosječnoj potrošnji energije u hrvatskim kućanstvima procjenjuje se da će se godišnje uštedjeti otprilike milijun kilovat-sati. Najmanje 20% solarnih sustava, k tome, proizvedeno je u Hrvatskoj, što dodatno potiče lokalno gospodarstvo. Sve su sustave ugradila lokalna poduzeća, pa je program time bitno utjecao na zaposlenost.

Mogućnost primjene projekta u drugim područjima

Pilot-projekt pokazao se tako uspješnim i održivim da su i druge hrvatske regije već uvele slične programe. Sufinanciranje se pokazalo ključnim za poticanje zanimanja javnosti. Za podizanje svijesti o energetske učinkovitosti nužna je bila snažna medijska kampanja. Budući da su općinski proračuni u cijeloj Europi vrlo ograničeni, nužno je uključiti partnere iz financijskih ustanova, kao što su banke i obrtni fondovi.



More information – Dodatne informacije

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Budget – Proračun

€ 990 000 (75% from the Environmental Protection and Energy Efficiency Fund;
25% from counties involved –
75% iz Fonda za zaštitu
okoliša i energetske učinkovitost,
25% iz županija sudionica)



Co-operative approach generates local support for off-shore wind farms

Hvidovre Offshore Wind Turbine Co-operative (Hvidovre Vindmøllelaug, Denmark)

This project proved a new concept for the construction of wind turbines, where energy utilities and a co-operative – an NGO – form a partnership. The utilities constructed the turbine in collaboration with the NGO and immediately, all shares were sold – passing ownership of the turbine to the co-operative.

During 2009, two 155 m high 3.6 MW turbines able to produce 11.9 GWh a year were set up in shallow water close to the city of Hvidovre. One turbine is owned by the utilities, the other by the co-operative. Oversized blades – 120 m in diameter rather than the standard 107 m – means they can be seen from most parts of the county. Public acceptance from the 50 000 inhabitants was essential to obtain consent for construction; it was obtained in early February 2009. From the start, the concept was that shares should be sold to private shareholders with local residents having priority during the first month.

Results

The communications strategy was clear: the co-operative managed the information campaign towards the local population with the energy utilities supplying technical data. Few protests were registered and, a year later, the general opinion is very positive even by people negative to the project from the beginning who have even bought their own shares. Having individuals involved as investors has also been a success as 10 700 shares were acquired by 2 268 individuals and organisations of which 437 were mostly private people from Hvidovre. The climate-friendly attitude of the inhabitants in Hvidovre was crucial for acceptance of the project. Other co-operatives had already constructed offshore wind farms but new initiatives will copy the model to build near-shore wind farms with private individuals as investors organised in co-operatives

Replicability

This successful model for co-operative ownership can be replicated around Europe. Local ownership has the advantage that initial planning starts even before the official planning process and acts as a bottom-up approach involving ordinary people as well as professional planners at an early stage where changes can be introduced without problems. All stakeholders get involved early-on and problems such as visual impact are solved while concerns about noise and shadows can be minimised.



However, the ownership structure has to be adapted to national rules as well as local taxation rules for profit. Simple rules for power purchase agreements are also required.

Vindmøllelaug har lokal opbakning til havvindmøller

Hvidovre Vindmøllelaug, Danmark

Lauget er et græsrodsinitiativ og dette projekt afprøver et nyt koncept for opførelse af vindmøller, hvor energiselskabet og lauget danner et partnerskab. Energiselskabet opfører vindmøllen i samarbejde med lauget og møllen sælges straks videre til lauget, når alle andele er solgt.

I løbet af 2009 blev to 155 meter høje 3,6 MW vindmøller opsat i lavt vand nær kysten i Hvidovre og kun få kilometer fra hovedstaden København. Hver mølle producerer ca. 11,9 GWh om året. Den ene mølle ejes af energiselskabet og den anden af lauget. Brugen af nyudviklede vinger på 58,5 meter, hvilket giver en vingediameter på 120 meter mod de normale 107 meter – betyder at møllen kan ses fra det meste af Hvidovre kommune og fra Vestegnen. Den lokale opbakning fra de ca. 50 000 indbyggere har været afgørende for at få godkendelse til opførelsen. Den blev givet i februar 2009. Helt fra starten var det meningen, at andelene skulle sælges til private andelshavere og den første måned havde lokalbefolkningen fortrinsret til at købe andele.

Resultater

Kommunikationsstrategien har været helt klar fra starten: Lauget styrede informationskampagnen overfor lokalbefolkningen, mens energiselskabet leverede de faglige data. Der blev kun indgivet få klager overfor møllerne og et år senere er den almindelige holdning positiv – selv hos de personer, som oprindeligt var modstandere; de har endda selv købt andele i lauget.

Involveringen af privatpersoner som investorer har også været en succes, idet 10 700 andele blev solgt til 2 268 enkeltpersoner, mindre virksomheder og organisationer, hvoraf 437 hovedsagelig var privatpersoner fra Hvidovre. I det hele taget har Hvidovre-borgernes og borgmesterens klimavenlige holdning været afgørende for opbakningen til projektet. Andre laug har tidligere opstillet havvindmøller, men fremtidige initiativer vil helt sikkert kopiere modellen med at opsætte kystnære vindmøller med privatpersoner som investorer og ejerskabet organiseret i laug.

Mulig kopiering

Denne succesrige model på folkeveje kan kopiere i hele Europa. Lokalt ejerskab har den fordel, at den indledende planlægning begynder før den officielle planlægningsproces og det fungerer som en omvendt fremgangsmåde, hvor almindelige mennesker og professionelle planlæggere involveres på et tidligt tidspunkt og ændringer kan foretages uden problemer. Alle andelshavere



involveres tidligt, så problemer med visuel påvirkning kan løses, og bekymringer omkring støj og skyggekast kan minimeres. Modellen med folkeejede vindmøller skal dog tilpasses efter nationale love og skatteregler. Det er også påkrævet med enkle regler for køb af elektricitet.

More information – Yderligere oplysninger

Contact – Kontakt

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Budget

€ 7.16 million – 53,44 millioner kroner

Wind-powered community fund generates energy savings

Hadyard Hill Community Energy Project (Energy Agency, Scotland)

The Hadyard Hill Community Energy Project in South Ayrshire was established in December 2006 to increase energy efficiency, decrease fuel poverty and obtain maximum benefits in the local community. It was funded by Britain's biggest wind farm: the Hadyard Hill wind farm which consists of 52 turbines of 2.3 MW each. The total output of 120 MW generates enough electricity over a year to power 80 000 homes. It was built and is owned by Scottish and Southern Energy.

The Hadyard Hill wind farm set aside €350 000 of its profits in a fund to be spent on energy-efficiency advice and free insulation for the local community. The community around the wind farm is not connected to the UK natural gas supply, many properties are old, on high ground and exposed, with the result of higher than average fuel bills. Before the project started, the majority of houses were poorly insulated. Fuel poverty is also high in the area. South Ayrshire Council was approached by Scottish and Southern Energy to manage the fund and it proposed that the Energy Agency run the project.

Results

The project mainly dealt with energy efficiency: providing advice and insulating buildings. To raise maximum awareness, there were posters in local shops, meetings with the community councils, a launch event in the community hall and direct mail sent to all properties involved. Regular updates were issued to the local press, households and community groups throughout the project.

An average increase of 21% in energy efficiency was achieved amongst 800 local households and small businesses. Households received energy-efficiency advice with 469 benefiting directly from insulation measures paid for by the energy-efficiency fund.

The fund also permitted thermal images to be taken as well as the organisation of doorstep surveys by trained surveyors enabling energy efficiency rating to be calculated.

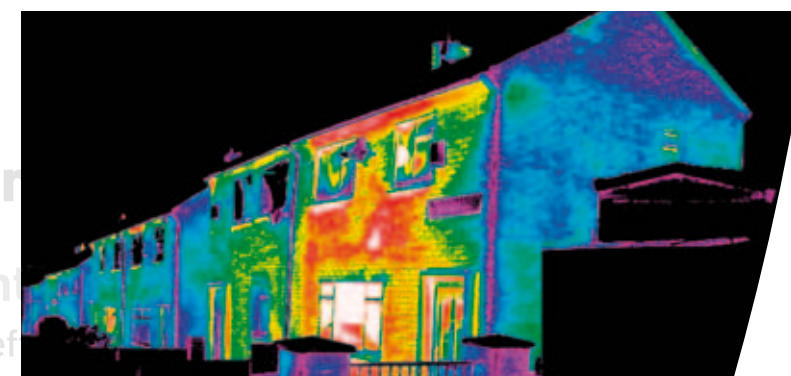
Altogether 90% of the community took part, with resulting energy savings reducing the level of fuel poverty in the community by 13%. Insulation measures were installed between March and August 2007. At the same time, photovoltaic generators were installed in three local schools to provide renewable energy and raise awareness amongst local children and their families.



Replicability

There is a huge potential for replication in Europe. The success strengthened the role of this local energy agency which has already successfully repeated the project in other communities in Scotland and actively seeks funding for further replication. The impressive results show geographical concentration has operational, financial and marketing advantages. Such an approach enables maximum carbon savings by ensuring all, including those 'able to pay', receive free measures.

The area-based nature of the project allowed for intensive marketing and community engagement which helped increase awareness and trust locally. Moreover, all measures were free for everyone, removing any financial barriers to participation both from those who are able to afford a contribution but do not want to, and from those who cannot contribute. For successful replication, a core fund is required to cover management costs and part payment for energy-efficiency measures together with a willing community.



More information

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Budget

€ 557 548
(including energy agency
funding, grants and
householder contributions)

Heat pumps and renewables ensure carbon-free football

The first CO₂-neutral stadium in the world (Lechwerke, Germany)

The stadium of German second division football club FC Augsburg – opened in 200 – is top of the league in climate protection. Exclusively renewable energies and bioenergy from renewable raw materials are used for heating and cooling the whole stadium. Normal fossil-fuel heating would have required some 10 000 litres of oil to prepare the pitch heating for a match day in winter. However, the installation of two groundwater heat pumps, backed up by a peak-load bio natural gas boiler in the case of particularly low temperatures, has eliminated the need for oil. And the electricity to operate the system is generated from renewable energies. Utility companies Lechwerke AG and Stadtwerke Augsburg developed the concept together and operate it for FC Augsburg under contract.

Results

Operating costs for the stadium have been significantly reduced thanks to the energy concept. The combination of groundwater heat pumps, peak load bio natural gas boiler and the use of power from renewable energies ensures the stadium is CO₂ neutral in terms of energy provision. This saves some 752 tonnes of CO₂ a year, meaning a total CO₂ saving of 11 280 tonnes over the 15-year contract.

Replicability

The project is a role model in several regards. The energy concept makes the FC Augsburg stadium the first CO₂ neutral stadium in the world. Depending on the geological conditions, the whole concept or parts of it can be transferred to other large construction projects – not just football stadiums. The concept for energy provision for the stadium is also a reference throughout Europe regarding the environmentally friendly and efficient heat-pump technology. It is one of the first projects where heat pumps have been used in such dimensions and with such enormous requirements for power. The determining factor for replication is the local availability of sufficient groundwater resources as this constitutes the main energy source for this type of heat pump.



More information – Weitere Informationen

Contact – Kontakt

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Budget

Just under €1 million
Knapp unter 1 Million €

Wärmepumpen und erneuerbare Energien sorgen für CO₂-neutralen Fußball

Das erste CO₂-neutrale Stadion der Welt (Lechwerke, Deutschland)

Das 2009 eröffnete Stadion des deutschen Fußballzweitligisten FC Augsburg ist in Sachen Klimaschutz einsame Spitze. Zur Heizung und Klimatisierung des gesamten Stadions werden ausschließlich erneuerbare Energien und Bioenergie aus erneuerbaren Rohstoffen verwendet. Bei Verwendung herkömmlicher fossiler Brennstoffe hätte man für den Betrieb der Rasenheizung bei einem Spiel im Winter rund 10 000 Liter Öl benötigt. Aber durch die Installation von zwei Grundwasserwärmepumpen, die in Spitzenlastzeiten bei besonders niedrigen Außentemperaturen durch einen Bioerdgaskessel unterstützt werden, wird kein Heizöl mehr benötigt. Und der Strom zum Betreiben des Systems stammt aus erneuerbaren Energien. Die Energieversorger Lechwerke AG und Stadtwerke Augsburg haben das Konzept gemeinsam erarbeitet und führen es im Auftrag des FC Augsburg durch.

Ergebnisse

Die Betriebskosten für das Stadion konnten mit diesem Energiekonzept deutlich gesenkt werden. Die Grundwasserwärmepumpen, der Bioerdgaskessel für Spitzenlastzeiten und der Strom aus erneuerbaren Energien sorgen gemeinsam für eine CO₂-neutrale Energieversorgung des Stadions. Dadurch werden jährlich rund 752 Tonnen CO₂ eingespart. Das bedeutet eine CO₂-Einsparung von insgesamt 11 280 Tonnen während der 15-jährigen Vertragslaufzeit.

Nachahmbarkeit

Das Projekt hat in mehrfacher Hinsicht Vorbildcharakter. Das Energiekonzept macht das Stadion des FC Augsburg zum ersten CO₂-neutralen Stadion der Welt. Je nach den geologischen Voraussetzungen lässt sich das Konzept vollständig oder in Teilen auf andere große Bauprojekte – und beileibe nicht nur Fußballstadien – übertragen. Das Energieversorgungskonzept für das Stadion ist hinsichtlich der umweltfreundlichen und effizienten Wärmepumpentechnologie außerdem ein Referenzmodell in ganz Europa. Es handelt sich um eines der ersten Projekte, bei denen Wärmepumpen in dieser Größenordnung und bei einem so gewaltigen Energiebedarf eingesetzt worden sind. Die entscheidende Voraussetzung für die Nachahmbarkeit sind ausreichende Grundwasservorkommen vor Ort, denn diese bilden die Hauptenergiequelle bei diesem Wärmepumpentyp.



Electric bikes clean up urban traffic

Electric bicycles (Comune di Verona, Environmental Department, Italy)

Local and regional public authorities funded this project to encourage private citizens in Verona to use electric bicycles as an alternative to traditional vehicles, without changing their transport routines. The aim was to encourage citizens to try eco-friendly means of transport. Funding covered both price reductions on the bikes and follow-up activities.

The main objective was to decrease the number of motorbikes, especially the oldest and the most polluting models, to reduce greenhouse gas emissions. The primary target audience was those who wanted to move around quickly in the urban area – without too much effort, without polluting the environment and while simultaneously lowering transport expenses – primarily the elderly and professionals. The partners involved were the Verona municipality and the Veneto Region, as well as bicycles sellers and producers.

Vendors and producers were contacted, and agreements signed on the procedures to follow in order for them to provide the bicycles at a reduced price and subsequently receive a reimbursement of the discount given. The project was advertised at a press conference and via the project website. Bicycle vendors and producers were also engaged to help promote the project. Citizens were consulted for their views on the project and their feedback was then used to improve the scheme.

Results

According to vendor records, some 1 649 electric bicycles were sold from 2002 to 2009. Around 65 % of beneficiaries were over 50 years old, with 15% over 70. According to the feedback received, the electric bikes helped users, especially older citizens, to maintain mobility habits. The programme also helped those without a driving licence to remain independent without using other forms of transportation. The use of the electric bikes was high; beneficiaries were found to use traditional vehicles – cars, buses or motorbikes – less after buying an electric bike.

The result was successful, both in stimulating the use of electric bicycles and in reducing pollutant emissions.

The most efficient means of communication were advertising in the local newspaper and word of mouth promotion within social groups. The initiative has now come to an end, but it is likely that it will be repeated in the future.

Replicability

The economic incentive offered helped raise public awareness of and interest in electric bicycles, as well as encouraging a change in urban mobility habits. In the long term, the initiative will contribute to a reduction in fuel consumption, as well as in air and noise pollution.



The project could easily be replicated in every town and small city in Italy and in the rest of Europe: the procedure is simple and easy to communicate, and could be applied to any eco-friendly means of transport.

More information – Per ulteriori informazioni

Contact – Contatti

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Budget

€ 409 895 (partly funded by the regional authority and the municipal authority – in parte finanziato dall'ente regionale e municipale)

Biciclette elettriche per decongestionare il traffico cittadino

Biciclette elettriche (Comune di Verona, Ufficio Ambiente, Italia)

Le pubbliche autorità locali e regionali hanno finanziato questo progetto per incoraggiare i privati cittadini di Verona ad utilizzare le biciclette elettriche come alternativa ai tradizionali veicoli, senza dover modificare le proprie abitudini per quanto riguarda gli spostamenti. Lo scopo era incentivare i cittadini a provare mezzi di trasporto ecologici. Il finanziamento ha coperto gli sconti applicati alle biciclette.

L'obiettivo primario era ottenere la diminuzione del numero di motociclette in circolazione, in particolare dei modelli più vecchi ed inquinanti, per ridurre le emissioni di gas che aumentano l'effetto serra. I principali destinatari dell'iniziativa erano i cittadini con necessità di spostamenti veloci all'interno dell'area urbana, che non implicassero troppo sforzo fisico, inquinamento dell'ambiente e che comportassero una diminuzione delle spese di trasporto: essenzialmente professionisti e persone anziane. I partner coinvolti erano il Comune di Verona e la Regione Veneto, oltre a venditori e produttori di biciclette.

Dopo essere stati contattati e avere firmato una serie di accordi sulle procedure da seguire, rivenditori e produttori hanno fornito le biciclette a prezzo ridotto e hanno successivamente ricevuto un rimborso per lo sconto effettuato. Il progetto è stato pubblicizzato durante una conferenza stampa e tramite un apposito sito web. Anche i rivenditori e i produttori di biciclette sono stati coinvolti nella promozione del progetto. È stata inoltre richiesta l'opinione dei cittadini sull'iniziativa e il loro feedback è stato utilizzato per migliorare il modello predisposto.

Risultati

In base ai registri dei rivenditori, dal 2002 al 2009 sono state vendute 1 649 biciclette elettriche. Il 65% circa degli utenti aveva un'età superiore ai 50 anni e il 15% superava i 70 anni. In base a questi dati, si evince che le biciclette elettriche hanno aiutato gli utenti, in particolare i cittadini più anziani, a conservare le proprie abitudini in quanto a mobilità. Il programma ha consentito inoltre alle persone senza patente di guida di rimanere indipendenti, senza dover utilizzare altri mezzi di trasporto. L'utilizzo delle biciclette elettriche è stato elevato e, dopo averle acquistate, gli utenti hanno fatto sempre meno ricorso a veicoli tradizionali come auto, autobus o motocicletta. Il progetto ha avuto successo, sia nell'incoraggiare l'uso delle biciclette elettriche, sia nella riduzione delle emissioni inquinanti. Tra i mezzi di comunicazione, si sono rivelati più efficienti la pubblicità sui quotidiani locali e il passaparola all'interno dei diversi gruppi sociali. L'iniziativa è ora terminata, ma è probabile che venga replicata in futuro.

Replicabilità

L'incentivo economico offerto ha consentito di aumentare la consapevolezza pubblica, l'interesse nelle biciclette elettriche e di incoraggiare una modifica delle abitudini relative agli



spostamenti in città. Nel lungo periodo, l'iniziativa contribuirà a una riduzione del consumo di carburante, oltre che dell'inquinamento atmosferico ed acustico. Il progetto può essere replicato agevolmente in qualsiasi città di piccole e medie dimensioni, in Italia e in Europa: la procedura e la relativa promozione sono semplici e possono essere applicate a qualsiasi mezzo di trasporto ecologico.



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