

Awarded Projects within the Climate Star 2002

19 projects and 24 cities and towns working towards climate protection

The Climate Alliance invited all European cities and municipalities to participate in the award "Climate Star 2002" with their climate protection activities. The goal was to document experience and success at the municipal level and to illustrate the various local benefits of active climate protection efforts.

In the municipalities, where people live and work, is where the energy is consumed that is the prime factor in greenhouse gas emissions. It is here that awareness can be raised and people motivated to make their own contributions to protecting the world's climate. Cities and municipalities have numerous powers, options for intervention and opportunities to cooperate with the private sector. It is clearest at the local level that climate protection serves not only global goals but also yields local benefits as job creation, pollution and noise abatement as well as incentives for innovation.



**CLIMATE ALLIANCE
KLIMA-BÜNDNIS
ALIANZA DEL CLIMA e.V.**

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The citizens will fix it

"We have to explain what climate protection really means", declares Wolfgang Mehl, head of Climate Alliance Austria.

U&G: How can municipalities encourage their citizens to engage in climate protection?

Mehl: People will only be in favour of what they understand, as the award-winning project of Greußenheim and many more have proved. We have to make people aware of the reasons why everyone has to do something for earth climate and what they get out of it. The behaviour of municipal officials is highly decisive, especially in small municipalities. If mayors themselves go by bike or on foot, the citizens will think about the reasons for this behaviour.

U&G: Where are the municipalities to start?

Mehl: They should explain the benefits of climate-friendly behaviour to their citizens. Everyone who wants to build a house must see how much money they can save in the long run by using solar power and the proper insulating materials. Commuters must understand that public transport will spare them traffic jams, the search for parking space, and paying the ever increasing fuel prices; but most important is the fact that they keep clean the air we all are breathing.

U&G: What's the best ways to get that message across?

Mehl: There is no magic formula, but many forward-looking projects target this problem. The municipalities' newsletters play an important role, but we can do more. Local schools and organizations should undertake projects promoting climate protection. Many of the submitted projects already included this important aspect. The people behind Langenegg's project came up with the brilliant idea of installing a representation of all municipality buildings - just press a button and LEDs will flash to mark the buildings where energy-saving measures have been realized.



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Joining forces to make a change

In Denmark, five municipalities have combined their efforts to fight for the environment. Albertslund, Ballerup, Fredericia, Herning and the capital Copenhagen are collaborating in the project Dogma 2000.

Environmental management for a sustainable city: Albertslund has initiated the cooperative project Dogma 2000, which aims at a close and binding cooperation of municipalities for sustainable development. The costs of the project have been incorporated in the budgets of the municipalities.

Albertslund wants to reduce CO₂ emissions by 50% from 1986 to 2010. The town's energy-saving plan provides that residential and industrial buildings be connected to the district heating system. Many additional environmental projects have been implemented. Albertslund has proven to be a pioneering town in the field of energy (in 1983 its solar energy system was the largest in Europe). The town had its district heating plant EMAS certified and makes a great effort to promote environmental protection.

Ballerup aims at cutting CO₂ emissions by 20% from 1988 to 2005 by concentrating its efforts in various fields: ecologic and energy-saving construction, renovation of buildings, low-energy buildings, solar collectors (from 4 to 75 m² for each house) to supply hot water, new lighting systems for public buildings, natural gas supply, and district heating.

Fredericia wants to reduce CO₂ emissions by 20% from 1997 to 2005. A district heating system covers about 80% of the town's heat demand.

In **Herning** a waste incineration plant, a landfill gas plant, and a biogas plant produce gas, electricity, and heat. The local district heating system is fired with alternative fuels, such as wood pellets, wood chips, biogas, landfill gas, and straw. The project Safe Cycling intends to animate people to go by bike rather than by car.

Copenhagen wants to cut CO₂ emissions by 35% from 1990 to 2010. District heating plants provide 96% of the city's heat supply, and waste incineration covers 26% of the heat consumption. 20 offshore wind turbines, which have become a famous sight, stress Copenhagen's role as Environmental Capital of Europe and contribute 3% to the city's electricity supply. 850,000 t of CO₂ emissions per year could be avoided by changing over to district heating and natural gas and by offering energy advice.



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"Dogma 2000 for Municipalities and the Environment"

Danish members of the Dogma project: Albertslund (29,000 inhabitants), Ballerup (46,000), Fredericia (48,000), Herning (58,000), Copenhagen (500,000)
Awarded with the Climate Star in category 3

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Car(e)-free holidays

Werfenweng and Bad Hofgastein, two destinations in the province of Salzburg, offer their guests a car-free holidays - and mobility.

A host of alternative vehicles. Ecological thinking rules: "soft" mobility and car-free tourism have boosted the number of overnight stays in the Pongau region. Within this region, the hotels and pensions of Werfenweng and Bad Hofgastein united in an association promoting car-free tourism have achieved a 7.5% increase in overnight stays.

Everyone who stays at one of these hotels and pensions may use eco-friendly electric cars, electric bicycles, scooters, and a charge-free shuttle bus to and from the railway station. Guest also receive vouchers for reduced admissions and can travel free of charge. The principle of ecological mobility works around the clock: Werfenweng offers a charge-free night bus, Bad Hofgastein provides a free bus-service and tourists can borrow bicycles. A mobility centre helps future guests with booking, transfer, and information on means of transport. The service includes electronic timetables, ordering tickets, advice on mobility, and other information.

Success proved the initiative right: overnight stays at Werfenweng's and Bad Hofgastein's eco lodges are far above local average. The number of regular guests who come to Werfenweng by train has almost tripled during the last three years. Traffic equivalent to 1.2 million km driven by car and the emission of 375 t of CO₂ have been prevented.



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"Car-free tourism, high mobility"

Werfenweng (800 inhabitants) and Bad Hofgastein (6,700), Austria
Awarded the Climate Star in category 1

Results: Overnight stays in the two municipalities have increased considerably, the increase by far exceeds the Austrian average. In 2000/01 already 25% of regular guests came to Werfenweng (21 eco lodges) by train, in 1997/98 it were only 9%. Bad Hofgastein (22 eco lodges) has established a pedestrian precinct and initiated school projects.

Support: Austrian ministry of environment and agriculture, ministry of transport, ministry of the economy, the provincial government of Salzburg, the municipalities of Bad Hofgastein and Werfenweng and the European Union; within the EU project "Alps Mobility", the Pongau region has found 5 partners in the Italian Alps.

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Sun-kissed Barcelona

The municipality of Barcelona prescribes the use of the one type of energy that is abundant in sunny Spain almost throughout the year. And what is more, it does not cost a thing.

A vision becomes reality. In the future everything in Barcelona will hinge on solar power: whoever wants to build or renovate a house has to cover 60% of the hot water demand with solar energy. The Barcelona City Council prescribes and promotes the use of solar energy. The key legal instrument to achieve this aim is the Ordenanza Solar Térmica, the Plan for Energy Improvement in Barcelona (PMEB). A consortium called Barcelona Energy Agency implements the PMEB and promotes and monitors its observance. Experts draw up and constantly update a detailed survey on the energy situation. So far, 54 projects have been carried out under the PMEB; some of the public-private initiatives within this partnership have already been successful, like the project Go Solar for sports centres and schools. Barcelona's aims are ambitious. The goals the partnership for renewable energy Barcelona Renewable 2004 wants to achieve until the beginning of 2004 include photovoltaic systems with an overall performance of 1.35 MWp, 10,000 m² of solar collectors, biomass for district heating and cooling systems, urban planning and design of buildings along the principles of bioclimatic architecture. Barcelona wants to cover 100% of its energy demand with renewables.



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"Barcelona goes solar"

City of Barcelona (1,460,000 inhabitants), Spain
Awarded with the Climate Star in category 3

Project: Optimization of solar energy – public initiatives become law.

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Clear air, clear conscience

In the vanguard of climate protection: Gornji Grad in the Slovenian Alps has decided to use a biomass district heating system, which has proven to be a success.

Environmental and climate protection are very important issues in Gornji Grad because this scenic municipality has specialized in soft tourism. And that is why the municipality built a sewage plant and introduced separate collection of garbage in 1994. Joining the Climate Alliance in May 2000, Gornji Grad was the first Slovenian municipality to enter this partnership. Forestry and wood processing are among the most important traditional branches of Gornji Grad's economy, since 65% of the municipality's surface of 90 km² is covered with woodland. Now wood waste from the local wood processing enterprise is being used to fire a heating plant with two boilers in the neighbouring municipality of Vransko. The heating plant went in operation in 1998, half a year later it supplied the first 50 households in Gornji Grad. Municipal buildings with a massive heat demand, such as the primary school, the nursery school, and the health centre, were next. By now the heat main is 8 km long, and 86% of all buildings in the municipality have been linked to the district heating network.



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"Biomass district heating system in Gornji Grad"

Gornji Grad (2700 inhabitants), Slovenia
Awarded with the Climate Star in category 1

Project: Thanks to the heating plant, which is equipped with state-of-the-art filter systems, the air quality in the region has improved considerably and CO₂ emissions have been reduced by 30 to 40%.

The Slovenian Ministry of the Economy and the EU's PHARE programme each have contributed 25% of the costs of the heating plant and the heat main (4.1 million euros). 15% of the money is provided by the Austrian national environmental fund.

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Out of the frying-pan - into the petrol tank

Public busses in Graz run on bio diesel recovered from cooking oil used in restaurants.

Cooking can be sustainable, too. A substance potentially dangerous for the environment is best dealt with when it is re-used as a valuable resource: Graz, the provincial capital of Styria, has set an excellent example by collecting old cooking oil charge-free from 250 restaurants and, with the help of the local corporations BDI (Biodiesel International) and SEEG, recycling it into renewable bio diesel.

160,000 kilos of old cooking oil per year are recycled into clean-air fuel. 56 of the more than 100 busses engaged in public transport in Graz are already running on bio diesel recovered from cooking oil, the rest of the fleet will be switched to this eco-friendly fuel until the end of next year.

The advantages are obvious: apart from greatly reducing emissions, old cooking oil will not pollute the environment, nor will it end up in the city's sewerage or sewage plant.



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"Bio diesel business"

Graz (230,000 inhabitants), Austria
Awarded the Climate Star in category 3

Costs (since 1999): About 60,000 euros.

Prevented emissions per year: 2,500 t of CO₂, 2.9 t of CO, 1.0 t of particles, 2.7 t of SO₂,

3.0 t of hydrocarbons.

Positive effects: Cheaper bio diesel fuel for public transport, new jobs created for collecting and recycling, awareness of environmental issues heightened.

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Slowing down the greenhouse effect

Alternative energy galore: the citizens of Greußenheim, Germany, are targeting climate change with a host of projects.

In Greußenheim, it is the citizens who call the environmental shots. They participate in workshops, informal citizens' meetings and various other events, and edit pro-eco publications to express their very own ideas about how the greenhouse effect could be slowed down. These activities have been inspired by Agenda 21, the United Nations environmental programme adopted at the Rio conference in 1992, which encourages municipalities to assume responsibility for sustainable development.

Many ideas were translated into a host of workable projects centred on climate protection and alternative energy.

70 ha of intensive farming land were turned into a Streuobstwiese, a natural meadow where citizens cultivate fruit trees in a traditional way; as a result, the drinking water's nitrate content has been reduced by 50%.

The new Eselsweg settlement is served by a central heating plant, which operates on cold-pressed vegetable oils and has replaced oil-operated heating. That vegetable oils (rape-seed oil) are also used in private cars guarantees stable incomes for the local farmers who provide them. More innovations include photovoltaic systems for private homes and a heating system operating on wood chips, which supplies nine public buildings and even more homes with heat and warm water. As a consequence, the demand for heating oil has been reduced by 70,000 litres per year.



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"Alternative energy mix"

Greußenheim (1,700 inhabitants), Germany
Awarded the Climate Star in category 1

Projects: Heating power plant (vegetable oils), wood chips heating system, solar power systems, photovoltaics, geothermal heat systems, low-energy buildings, cars fuelled with vegetable oil, water reserve with nature trail, ecologically sound village planning.

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A major project of green architecture

Ecologically responsible housing: Germany's Hannover provides for low-energy housing in a new residential district for 12,000 people.

A green paradise within the city: in Kornsberg, a part of Hannover, 6,000 eco-friendly flats are under construction. Innovations include a low-energy design for the flats, short-distance heat supply, the use of renewable energy, and an energy-saving programme. The ambitious goal: reducing CO₂ emissions by 80% and rubbish output by 50% compared to other settlements.

A quality assurance and qualification programme makes sure that this goal is indeed achieved.

Approximately 3,000 flats, key infrastructure like nursery and primary schools and a health centre have already been built, and 2,000 jobs created. A plant supplying short-range heat, a solar power plant and a wind farm will follow soon. But green architecture means even more: rain waters are held back and emitted with the typical delay of natural land. The earth excavated during construction was used to erect two small hills to offer residents their own vantage points, noise barriers, and dry biotopes. Otherwise, 100,000 lorry-loads would have been necessary to remove the excavated earth.



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"Sustainable architecture for the future"

Hannover (515,000 inhabitants), Germany
Awarded the Climate Star in category 3

Goal of the project: Reducing CO₂ emissions by 80% due to the extensive use of low-energy design, short-range heat supply through a cogeneration plant, implementation of an energy-saving programme, reducing rubbish output, saving drinking water, natural land rain water system, reduction of the number of lorry-loads by using the excavated earth on-site.

Costs: Additional costs of about 8 to 10% for the implementation of the eco-friendly measures.

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A large-scale green electricity project

A convincing idea: in Heidelberg, Germany, the city council decided to cover a quarter of the city's energy demand with green electricity.

This intelligent project yields profit – both for the environment and the city. Is it possible to avoid the emission of 4,400 t of CO₂ and save money at the same time? Of course. In spring 2001 the Heidelberg city council decided that a quarter of the municipal buildings' electricity demand should be covered with alternative energy. This amounts to 7 million kWh per year. Thus, the city avoids the emission of 4,400 t of CO₂ and has probably become the biggest buyer of green electricity in Germany.

Green electricity costs Heidelberg 325,000 euros more than conventional electricity. The Stadtwerke Heidelberg AG, the city's power supplier, invests this money to promote green electricity or to erect new green power plants. Schools and municipal sports centres benefit most from this project. They are equipped with photovoltaic systems and the schoolchildren deal with these projects in their lessons. Currently a biogas combined heat and power plant is being built in the zoo of Heidelberg. It will be fuelled with animal faeces, rests of fodder, and fruit waste from juice production, and the plant will also be used for educational purposes. Furthermore, Heidelberg allows private persons to erect communal solar energy systems on the rooftops of municipal buildings.



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"Certified green electricity for municipal buildings"

Heidelberg (139,000 inhabitants), Germany
Awarded with the Climate Star in category 3

Project: A quarter of the city's electricity demand, about 7 million kWh, is covered with certified green electricity. The additional costs for the green electricity are invested in new green power plants. Buying green electricity under a bundled contract allows for favourable conditions of delivery. Thus the city not only compensates the additional costs of 325,000 euros but even saves 100,000 euros.

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Let the sunshine in

Schoolchildren at the Schickhardt-Gymnasium in Herrenberg, Germany, deal with environment-friendly architecture in practically orientated classes.

Tomorrow's ideal home. Where shall we construct the building? Which materials should we use? How do we provide heat and water? And what about the garden? These are only a few of the problems the schoolchildren at the Schickhardt-Gymnasium deal with during their classes. Together with architects, biologists, town planners and experts in other fields, the schoolchildren planned and constructed tomorrow's ideal home; they investigated on-site, discussed alternatives, weighed up different factors, decided on every idea's feasibility and thereby gained valuable first-hand experience.

The benefits are obvious: the schoolchildren acquire expert knowledge, practise how to manage financial resources and see the difference between sustainable and non-sustainable decisions.

A photovoltaic system with a maximum output of 30 kWp was installed on their school's roof and went into operation this summer. The system generates about 27,000 kWh of solar energy per year and helps avoiding approximately 16 t of carbon dioxide emissions. Output, profits, and saved carbon dioxide emissions are made public on illustrated charts and by means of a data logger.

About 70 citizens of Herrenberg have financed the photovoltaic system with the purchase of 100 W shares, which they rented out to the town's energy supplier for a period of 20 years. The supplier has agreed to operate the solar power plant and to pay the running costs. Depending on the type of financing and the current market rate, the shareholders can expect a share of the profits and a yield.

The local open-air pool also profits from the climate-friendly attitude: 400 m² of solar absorber panels attached to the neighbouring stadium roof heat the pool's water.



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"Solar powered home"

Herrenberg (30,500 inhabitants), Germany
Awarded the Climate Star in category 2

Project: Virtually planning and erecting a feasible home for tomorrow taking into account sustainability criteria. Participation of the citizens, gaining experience in the use of solar energy, promoting solar energy. Climate protection, reducing CO₂ emissions, energy saving, photovoltaic system on the school's roof, solar system on stadium roof.

Positive effects: 150,000 kWh of natural gas and roughly 40 t of CO₂ less per year.

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Solar collectors made from valuable waste

A climate-conscious inventor from Kirchberg an der Pielach, Lower Austria, developed a solar collector made from industrial refuse.

A pioneer of solar energy. Twenty years ago, Josef Turon, a dentist from Kirchberg in Lower Austria, built a solar water heating system – with his patented solar collectors he ranks among the pioneers of solar collector technology. These solar collectors are distinguished by the materials used and by the techniques applied to construct them. The heat absorbing surface consists of recycled aluminium sheets, an industrial waste product. These aluminium sheets are pressed together with a copper tube to form a single, composite absorbing unit. The mount and the framing of the solar panels are made of indigenous woods, such as spruce and larch. Sheep wool and cellulose fibres are used for insulation.



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Environment-friendly production. The product is perfect even in the details: the glass covering consists of three parts and can easily be repaired at a low cost, for example if hail damages the collectors. No welding and soldering is required to produce Turon's patented absorbers. The elements are fitted and pressed together exactly and tightly to form a uniform copper-aluminium surface. Should it nevertheless be necessary to dispose of the durable collectors, the materials can easily be separated and recycled. The solar collectors from Kirchberg are suitable for residential buildings and also for large-scale solar energy systems.

"Solar collectors made from waste"

Kirchberg an der Pielach (3,200 inhabitants), Austria
Awarded with the Climate Star in category 1

Project: Solar collectors made from recycled waste and environment-friendly raw materials. The components are fitted together by pressure without soldering or welding.

Kirchberg an der Pielach is a Climate Alliance pioneer, has undertaken great efforts in the field of biomass heating, operated one of the first district heating systems of Lower Austria, is a model municipality in the field of energy efficiency.

Per capita CO₂ emissions for each year: 5 t in Kirchberg.
Austrian average: 7.5 t.

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Hunters and collectors of organic waste

The biogas plant of Kristianstad is the first in Sweden to co-digest solid urban waste, sewage, and other biomass into energy and organic fertilizer.

A model project: the municipal government, farmers, industrial enterprises and consumers of Kristianstad, Sweden, combine their environmental efforts. Five years ago the municipal waste company Kristianstads Renhållnings AB (KRAB) put into operation a biogas plant in Karpalund, and the citizens of Kristianstad collect their organic waste in paper bags to fire it. The plant can also process sewage and organic waste from the food industry. The biogas produced there is burnt in the central district heating plant and it is also used to fuel busses and other vehicles.

The public transport company Skånetrafiken introduced biogas as a fuel for urban transport and has been operating 22 busses fuelled with biogas since October 2002. The town administration is adapting its vehicles for the use of biogas, and even private businesses use this alternative fuel, although the special cars are still relatively expensive. A marketing programme has been launched in cooperation with local car dealers and the enterprise Sydgas to increase the number of busses, lorries and cars fuelled with biogas.



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"Biogas Plant Kristianstad"

Kristianstad (74,500 inhabitants), Sweden
Awarded with the Climate Star in category 2

Project: In Kristianstad organic waste and biomass are processed into biogas. Biogas production in the sewage plant has constantly been augmented since 1999, and biogas production in Karpalund will be doubled to 40,000 MWh.

The overall potential of biogas production will be 44,000 MWh in 2003.

Costs: About 12 million euros.

Biogas Kristianstad is likely to inspire similar projects since its scope ranges from biogas production and marketing to recycling waste into fertilizer.

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Everyone gets their Fifty

An annual ticket and a bio diesel car shared among its citizens are Langenegg's contribution to sustainable mobility.

An unusual idea. How do you convince people in a rural area to switch to means of public transport? Langenegg offers an unusual answer: the municipality bought an annual ticket valid for the Bregenzerwald region, transferable to anyone who wants to use the ticket for one euro a day. The initiative's huge success prompted the municipality to buy an additional ticket.

Moreover, the municipality purchased a bio diesel car and named it Fifty. Driving 15,000 km a year in the eco car means a reduction of costs, pollutants and energy consumption by 50% in comparison to normal-car use.

A representation of all municipality buildings gives credit to those citizens who installed energy-saving equipment in their homes, such as wood-fired heating, solar power systems, or short-range heat supply. Just press a button and LEDs will flash to mark the buildings where energy-saving measures have been realized.



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"Citizens lauded for energy-saving efforts, annual ticket, bio diesel car"

Langenegg (1,028 inhabitants), Austria
Awarded the Climate Star in category 1

Costs: Representation with LEDs 1,100 euros, annual ticket 610 euros, the costs of the bio diesel car will be compensated if citizens drive 15,000 km a year over a period of 6 or 7 years.

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I want to ride my bicycle

The citizens of Linköping, Sweden, have discovered their enthusiasm for cycling to help reduce CO₂ emissions.

A survey in Linköping concluded that each and every day people used their cars to cover 40,000 distances of less than 6 km. This result prompted the local politicians to encourage the city's citizens to travel short distances by bike.

Only three years later the politicians' vision has come true and even turned out to be a huge success. Linköping is Sweden's bicycle city of the year and its citizens will go by bike for all distances less than 6 km.

The programme relies on improved infrastructure for bikers, a pro-bike campaign and a better legal standing for all bikers. Local newspapers, radio stations and bike clubs have informed people about road safety and the positive effects cycling has on a person's health; bike parties including contests and historical parades were organized. Although the number of distances travelled by bike has increased by one third, the number of bike accidents in which people were injured dropped by 27%.

And if travelling by bike is not an option (rainy days, heavy shopping bags), one can still use another climate-friendly means of transport: the city's 60 busses and 25 taxis run on natural gas produced at a local facility. A newly built filling station allows private persons to fill-up their cars with renewable natural gas.



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"Cycling city and bio gas busses"

Linköping (134,000 inhabitants), Sweden
Awarded the Climate Star in category 3

Effects: 31% of all distances are travelled by bike; 350 km of cycleways.
The natural gas facility (opened in 1998) produces 3,300,000 m³ of natural gas per year.
The district heating grid was extended to supply an additional 1,100 private homes, several schools, and businesses.

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Perpetuum mobile for the environment

Modena reduces heating costs for public buildings by using modern condensing boilers.

The saved money is invested in further energy-saving measures. Thus, environmental protection finances itself. An experiment carried out seven years ago by the department of energy management of Modena has developed into a programme for the modernization of heating systems in public buildings. 28 outdated heating systems, mostly natural gas boilers, have been replaced by condensing boilers. After six years, the project has turned out to be more successful than expected: the new boilers have helped to save 175,000 euros per year and to reduce the fuel demand by 26%. A large-scale use of these new boilers for urban heating could reduce Modena's natural gas demand by 1,500,000 m³ until 2005. This would cut the CO₂ emissions caused by heating by 2%.



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"Modern Condensing Boilers for Public Buildings"

Modena (178,000 inhabitants), Italy
Awarded with the Climate Star in category 3

Project: Modernization of heating systems in public buildings. 26% of natural gas could be saved by replacing outdated burners. The city administration offers a free advisory service for energy efficiency in buildings and has also established an energy efficiency website and an e-mail service:
<http://www.comune.modena.it/impianti/>

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A real-life project

The schoolchildren at the Lessing-Gymnasium in Norderstedt, Germany, planned and constructed a solar power system.

Environmental education need not be dry. The Lessing-Gymnasium in Norderstedt launched a special project to teach its schoolchildren courage, perseverance, and ecological knowledge: the schoolchildren were asked to participate in the planning and construction of a photovoltaic system to gather first-hand experience under realistic conditions.

At first, only a small solar power system was planned, which was to provide some of the energy required for the school's cafeteria. The project was still in the planning stage when it became clear that it was impossible to run a small solar power system economically and soon the idea to build something really big emerged.

Different working groups were concerned with technical, financial, economical and legal questions. Specialists scouted the availability of grants and helped to attract financial contributions.

The effort has worked out well: since April 2001 the solar power system feeds electricity into the town's grid. During its first 12 months, the system contributed almost 25,000 kWh and exceeded earlier projections by 4.6%.



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"Photovoltaic system"

Norderstedt (73,300 inhabitants), Germany
Awarded the Climate Star in category 2

Project: Generation of solar energy, ecological education, planning and implementing by the schoolchildren themselves, exemplary effects on the whole town, higher awareness of the importance of solar energy, including the population in accordance with Agenda 21 stipulations.

Costs: Approximately 250,000 euros.

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Within walking distance

A historic project: the residential district of tomorrow is built in Ostfildern.

Where once US troops were stationed, now the residential district of the future is being erected. 3,500 flats for 8,000 to 10,000 residents will cover an area of 150 ha in the centre of Ostfildern, Germany. The settlement at Scharnhauser Park, how the district is called, will be constructed as a compact unit to make sure that all stops of the town's tram are within 500 m walking distance. Another important feature of the new settlement is the urban railway, which is linking Greater Stuttgart to Ostfildern since September 2000, with Scharnhauser Park as one of the stops.

Energy saving has also been high on the agenda: profiting from its south-facing position, the settlement will be largely supplied with solar energy. Erecting low-energy buildings and installing numerous solar collectors has been an integral part of this project. A power plant fired with wood chips will provide 80% of the energy needed for district heating in the area and will provide up to 50% of the energy demand by cogeneration.



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"The residential district of tomorrow"

Ostfildern (32,068 inhabitants), Germany
Awarded the Climate Star in category 2

Project: Realization of a new residential district for 8,000 to 10,000 people incorporating state-of-the-art techniques of construction according to ecologic principles, taking into account sociologic and aesthetic requirements.

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Knock on wood

Landscape protection through the use of a "new" fuel in the rural district of Rybnik.

Rybnik, a traditional coal region in Poland, promotes heating systems fired with renewable fuels. Rybnik is situated in one of Poland's most industrialized regions, its economy is dominated by heavy industry. Coal mining has shaped social life and has financed the social infrastructure. Outdated coal-fired heating systems pollute the air of the district and of neighbouring regions in Poland and the Czech Republic.

One third of the area around the town Lyski is covered with woodland, nine of the town's public buildings border the forest. They are property of the district, the municipality, the church, or of enterprises. Six buildings are heated with coal, three with oil. The pilot project Biomass for Central Heating intends to replace these heating systems with biomass boilers. The local authorities of the region alone would not be able to pay the entire costs of 50,000 euros for the new biomass boilers and their installation, but the investment pays, since the new boilers save 8,500 euros per year. The heating systems are monitored by local institutions for research and development.

Polish rural districts have no income of their own and very limited budgets (the 2002 budget of Rybnik was 3.75 million euros). The districts have to maintain interregional roads, which means that it is also their responsibility to cut back the trees along these roads. Thus, they obtain free biomass for ecological heating.



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"Wood Instead of Coal"

District of Rybnik (74,600 inhabitants), Poland
Awarded with the Climate Star in category 2

The project Biomass for Central Heating is based on the Polish law for environmental protection and a proposed programme for environmental protection in Rybnik.

In nine public buildings, central heating systems fired with coal and oil have been replaced by biomass boilers that are fired with wood, which is available for free in the region. Thus, 8,500 euros of fuel costs can be saved per year. Biomass for Central Heating is a model project that could make biomass more popular with local authorities, enterprises, and private households.

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Energy from the landfill

In Thessaloniki landfill gas is used to produce green energy, putting a climate-friendly end to citizens' complaints.

The local authorities of greater Thessaloniki have managed to kill two proverbial birds with one stone. Many citizens had complained about the gases produced in landfills, so the local authorities came up with a brilliant solution. The landfill gas, which is harmful to the climate, is collected in pipes where it is pre-processed. A combustion engine transforms the gas into energy that is fed into the public grid.

The local authorities also want to root sustainability firmly in the minds of the next generation. Distinguished scientists and environmentalists come to the schools to make the youngsters aware of environmental issues. This educational programme was launched three years ago and consists of several phases: creation of awareness, excursions to natural habitats, group work, and presentation of the results.



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"Landfill Gas"

Thessaloniki and surroundings (2,000,000 inhabitants), Greece
Awarded with the Climate Star in category 3

Organized by the Association of Local Authorities of Greater Thessaloniki (ALAT).

Project: Landfill gas is collected, an engine burns 164 m³ of gas per hour (methane content: 45% – 50%). The resulting energy is fed into the public grid.

Costs of the system: 500,000 euros.

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All (solar) power to the people!

Green energy instead of nuclear energy: in Zwischenwasser, Austria, climate-conscious citizens have invested in a communal photovoltaic system.

Once again the citizens of Zwischenwasser in the Austrian province of Vorarlberg are in the vanguard of climate protection. Even by 1997 citizens participated in the construction of a 5.5 kWp communal photovoltaic system. 364 people bought shares at 72 euros each. This project has inspired the whole region, 16 municipalities have copied the idea.

This year another spectacular initiative has been launched: in April the municipal council could be won over to mount a large photovoltaic system (30 kWp) on the rooftops of two public buildings, to provide advance financing, and to do the administrative work involved. After a short time, climate-conscious citizens had bought all shares at 6,800 euros each. The system went into operation this summer.



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"The Citizens' Solar Power Plant"

Zwischenwasser (3,056 inhabitants), Austria
Awarded with the Climate Star in category 1

Project: The initiative replaces nuclear electricity with solar energy, which helps to create energy awareness. 30 citizens financed the costs of 205,000 euros. The administration of the communal photovoltaic system is financed on a loan basis. The loan is paid back with the money obtained from feeding the electricity into the grid.

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