Highlights and Results of the conference

Local Renewables Freiburg 2007

13 – 15 June 2007
Freiburg im Breisgau, Germany

Communities leading the way
Introduction

This report captures the outcomes and highlights of the Conference Local Renewables Freiburg 2007. It is aimed at informing and supporting European, national and community decision-makers who address the interconnection between sustainable energy, climate protection, security of energy supply, as well as sustainable local development and using resources at a community level.

Over the course of the international conference – held from 13 to 15 June 2007 – about 200 local government decision-makers and energy experts from 34 countries discussed these issues, shared examples and highlighted the need for supportive framework conditions to support the transition to a sustainable energy future.

Practical experiences of local governments and their implementation partners show how communities have pursued their vision of a sustainable energy reality. Local Renewables empower the energy revolution! The ‘Freiburg Outreach’ is the main result from the conference, calling local governments to action, and calling on national and European bodies to solidify a framework that supports action.

The event took place within the framework of the German EU Presidency, and under personal patronage of Mr. Sigmar Gabriel, German Federal Minister for the Environment, Nature Conservation and Nuclear Safety (BMU), as well as support from the State of Baden-Württemberg. The event was co-funded by the Intelligent Energy Europe (IEE) Programme, which has as objective to contribute to secure, sustainable and competitively priced energy for Europe.

Communities leading the way

By generously hosting the Local Renewables 2007 event, the city of Freiburg is further expanding its cooperation with other ambitious local governments and also inspiring more communities to become active and change their energy activities.

In the following pages, you will discover more about Freiburg’s actions alongside several other excellent examples presented at the conference. The tours on page 14 are another highlight of the conference!

Freiburg – a Local Renewables model community

The City of Freiburg is often referred to as the environmental capital of Germany. This ecological profile of Freiburg is shaped by:

- a deep-seated environmental awareness among the city’s citizens,
- a local environmental policy with a long-term perspective as part of sustainable urban development, and
- a network of institutions promoting environmental protection (scientific, socio-economic, non-profit actors).

Freiburg is a Model Community in ICLEI’s Local Renewables Initiative – an international network of cities collaborating on sustainable energy. With the help of ICLEI – Local Governments for Sustainability, Freiburg is actively supporting cities around the world to improve their energy policies.

Freiburg is also an active Cities for Climate Protection (CCP) participant.
We must act now!

Current reports by the United Nations (UN) send a clear message on climate change. Summarised, the UN states: We do not stand at the start of a climate catastrophe, but are rather in the middle of one – which is proceeding even faster than original predictions.

What can people in cities and towns do to reduce their impact on climate change? Considering that climate change is a global phenomenon, it is a global challenge. On the other hand, it is also obvious that local action is needed, but that local decision-making and responsibilities are restricted by community boundaries. A good starting point to address this wide-scale issue is by taking small steps in every household and office, steps that reflect the scarcity and value of energy as a resource.

So the time to act is now. At a community level, the readiness of citizens to respond to efforts of climate protection is higher than ever. There is a level of openness to discuss the challenges, and a willingness, both among citizens and political decision-makers, to consider strategies and actions.

An effective local climate protection strategy requires many approaches and tools. These range from urban planning to financing mechanisms, from traffic policy to cooperation with various stakeholders. Only with such collaboration can we achieve ambitious CO2 reduction targets.

The Local Renewables 2007 Conference is a step in this direction. It has created a new quality in the cooperation between the City of Freiburg and ICLEI! I want to thank everyone who helped to make this conference a great success for their excellent cooperation, and urge you to take the next steps towards a sustainable energy future!

Dr. Dieter Salomon
Lord Mayor of Freiburg

Climate protection is a priority

The German Parliamentary State Secretary of the Environment, Michael Müller, commended local governments on their active role in climate protection. At the Conference his message was very clear:

„Only by motivating as many citizens as possible can we rapidly increase energy conservation, energy efficiency and the use of renewable energies, thereby limiting climate change and the rise in temperature to 2°C."

Given the escalation in extreme weather events and the rising pressure for global action to protect the climate, Müller called for an increased tempo in talks on follow-up of the Kyoto Protocol. The G8 agreement of Heiligendamm (June 2007, Germany) was an important step in this context. Now, further advancements need to be made at the climate protection conference in Bali in December.

Michael Müller
Parliamentary State Secretary of the Environment
German Federal Ministry for Environment,
Nature Conservation and Nuclear Safety (BMU)

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

The Local Renewables 2007 Conference is a step in this direction. It has created a new quality in the cooperation between the City of Freiburg and ICLEI! I want to thank everyone who helped to make this conference a great success for their excellent cooperation, and urge you to take the next steps towards a sustainable energy future!
European policy addresses modern energy challenges

The EU responds

The world today is facing energy and environmental challenges, an acute reality shared by all Member States throughout Europe. Key issues include how to secure competitive and clean energy for Europe against a backdrop of climate change, escalating global demand in energy, and future supply uncertainties. If one Member State fails to meet this challenge, other Member States will be affected, and if problems arise outside the European Union (EU), these can have an impact on the whole EU. Europe needs a strong energy policy – the European Commission’s Strategic Energy Review is an important step in this regard.

On 10 January 2007, the European Commission (EC) unveiled an integrated energy and climate protection policy in its communication “An Energy Policy for Europe”. The objective is to further Europe’s competitiveness, protect the environment, and secure future energy supplies. This policy is relevant to all 27 Members States and their inhabitants.

Current energy challenges

Communities today face a number of challenges regarding energy availability and use. Responses need to be developed at all levels and by many different actors around the globe to reduce their vulnerability in a changing world.

Some challenges:

- Depleting fossil fuel resources and increasing demand are raising the cost of energy.
- Securing the local energy supply to minimise the impact of volatile fossil fuels prices.
- Reducing CO2 emissions resulting from energy to curb global climate change.
- Managing a rising demand for energy in expanding urban areas.
- Ensuring access to affordable energy as a cornerstone for development and local economic growth.

“One of the key risks facing industry, households and local governments today is the energy risk – of increasing prices and reduced availability. By taking responsibility for their own energy provision, using energy more efficiently and changing to renewable energy sources, they can reduce the risk, predict or fix the price over time, and even generate an additional income from selling excess energy generated by their own RES.”

Rian van Staden – Principal Consultant, Intelligent RE

www.intelligent-re.com
The Freiburg Outreach – highlights

Participants of the conference adopted the ‘Freiburg Outreach’ declaring Local Renewables to be of utmost importance for local governments. The Outreach argues that 100% sustainable energy is already a reality in several model communities. It encourages community leaders to use Local Renewables, and urges them to step up the pace on local sustainable energy action. The Freiburg Outreach also calls for an improved support framework by national government and European Union (EU) levels.

Why focus on local governments?

- To reach the EU’s sustainable energy and climate protection targets, a combined effort by many different actors is needed. This includes local governments, as the closest level of government to citizens, but also as community leaders and administrators, and as owners or managers of assets and infrastructure.
- Participatory processes (such as Local Agenda 21) are needed to involve and guide citizens in providing their contribution to EU energy targets.
- Action at the local level must start right now, and address improvements in many areas, using policy, ambitious targets and effective step-by-step implementation. A wide range of actions can be taken – from energy use in buildings to changing local energy supply and transportation – and need to focus on both climate change mitigation and adaptation, using a combination of tools including action plans, integrated urban planning and sustainable procurement.

Eight arguments for community leaders to use Local Renewables

- Renewable energy sources (RES) are mature, available and ready for use today.
- Using local resources to produce energy locally establishes a solid foundation for decentralised, secure energy supply – thereby also making communities more resilient.
- Financial benefits are inherent, both in terms of saving money and generating an income over the short- to long-term.
- A steady transition from fossil fuels to Local Renewables will reduce CO2 emissions and contribute to climate protection.
- Switching to Local Renewables supports local job creation and stimulates the economy.
- Local Renewables give an impulse to sustainable urban development, and encourage technical and social innovation.
- Local action is critical in achieving national and international targets on sustainable energy and climate protection.
- Local Renewables imply the involvement of local stakeholders, using synergies to create change.

“One example that highlights the potential had the market been in place: if all European public authorities bought green electricity today, 18% of the EU’s Kyoto commitments could be met.”

Gino Van Begin – Regional Director for Europe
ICLEI – Local Governments for Sustainability
www.iclei-europe.org
Renewable energy solutions – ready for use

A wide range of sustainable energy technologies are mature and ready for widespread implementation. Considering the diversity of products and applications, communities should identify the combination most appropriate for their situation, also taking local resources into account. This is a key component of their transition to sustainable energy.

Passive solar energy
Using solar radiation to reduce the need for electricity, heating or cooling through smart building design. This means using locally available environmental resources for light, air and comfort (natural ventilation, natural cooling/heating, daylighting).

Photovoltaics (PV)
This is an active solar technology where solar cells or solar photovoltaic arrays (solar panels) are used to harness energy from the sun, converting it into electricity.

Solar thermal
Systems that rely on the heat of the sun to warm up water contained in a dark vessel, which is then used for domestic hot water, space heating in residential and commercial buildings, as well to support district heating, solar assisted cooling, industrial process heat, desalination and heating swimming pools.

Advanced Technologies
- **Concentrating solar power (CSP)** focuses sunlight through mirrors or lenses to heat a fluid to a sufficiently high temperature to produce electricity.
- **Fresnel Process Heat Collector**: Prisms that make up a Fresnel lens bend and magnify light rays, creating a single, concentrated beam of light that can be used for solar cooling and heating. This advanced technology offers excellent possibilities for the future for large-scale solar thermal power stations (operating temperatures of up to 200°C), and for smaller applications of process heat.

Wind energy
Airflows are used to turn giant blades that spin powerful generators, converting the wind’s energy into electricity.

Geothermal energy
Heat below the earth’s surface is accessed, either by directly exploiting the substratum aquifers, or by using geothermal heat pumps. This is used for electricity generation through steam, as well as for district heating, and heating or cooling buildings.

Small hydropower
Water is used as a resource for providing hydroelectric power on a scale serving a small community or industrial plant. A capacity of up to 10 MW total is the generally accepted norm for small hydropower.

Bio-energy
Bio-energy is produced from living or recently living biological material. The waste-to-energy process is also included in this energy category (e.g. using household or restaurant waste to produce biofuels).
Sustainable buildings

Passive housing standard

Passive housing is currently the most effective construction approach to reduce the need for energy in buildings. Passive houses provide comfortable conditions during both winter and summer, without the need for traditional heating and active cooling systems. Instead, they are highly insulated and airtight, while a good indoor air quality is guaranteed by a mechanical ventilation system with highly efficient heat recovery. On-site renewable energy can cover a significant part of the energy balance.

Large-scale passive housing renovation was done by a group of TRECO European Housing Associations, that adopted the passive housing standard for a share of their building stock. TRECO is a project network that includes social housing organisations around Europe. Each partner identified a construction or renovation project to be sourced according to sustainability principles. These projects aim to achieve higher standards of energy efficiency.

One good example is found in Alingsås in Sweden, where 100% of the building stock was renovated, improving prefabricated concrete elements that had poor insulation and ventilation.


All EU-27 countries must implement the European Directive 2002/91/CE on energy performance in buildings (EPB Directive). The ECO_ABITA project was the first large-scale implementation thereof, affecting around 800 000 buildings – both new and existing houses – and 4 000 000 inhabitants in the region of Reggio Emilia, Italy.

The Province of Reggio Emilia and its municipalities have tested this new directive by taking a series of measures, providing incentives and implementing it with the support of different stakeholders. The project illustrates that a win-win situation is possible for everyone. In particular, initially hesitant building contractors who have to consider the Energy Certification of Buildings now see this process also as an economic opportunity.

The commitment of public authorities has been an essential element – helping to create the necessary demand for low energy housing, to boost markets through extensive communication campaigns, and by training designers, building contractors and civil servants. Effective incentives used include a reduction on property tax when achieving high-energy savings, and providing credits for avoided CO2 emissions, which could then be sold to the main gas supplier.

Freiburg in action – built environment

One example of an energy saving measure employed in Freiburg is a regulation stipulating that all new residential buildings constructed within the city’s jurisdiction must comply with low-energy standards (1/3 less energy consumption than stipulated by German law).
Local clean energy generation

Green electricity from wind and photovoltaics

Wind and solar energy have excellent potential for local energy generation, as is illustrated by many different examples in and around Freiburg. Impressive results in the Freiburg region stem from the combination of good wind potential and excellent solar radiation, committed and involved citizens, assertive local politicians, as well as support from companies and non-profit organisations such as FESA (förderverein energie- und solaragentur regio freiburg e.V).

For example, 15 medium and large co-generation district heating plants are generating electricity and heat in Freiburg, covering approximately 50% of the city’s demand in an eco-friendly and economical manner. This example clearly shows that local inhabitants can directly influence the use of renewables in their region – from lobbying for political support to creating cooperatives that invest in ‘green’ energy.

Polygeneration in Växjö, beneficial for customers, the energy company and the environment

Växjö in Sweden is one of the most advanced communities in the world regarding CO2 reduction targets and climate protection actions. The city is currently implementing its ‘Fossil Fuel Free Växjö’ programme, which includes a wide variety of actions to reduce emissions by 2050. These include the use of biomass-based district heating and power generation, smaller scale district heating and district cooling, biomass boilers for households, energy efficient street lighting and construction, solar panels, cycling paths, environmentally friendly cars, biogas production, and large scale bio-DME (Dimethyl Ether) production.

Using RES for district cooling is one of the new technologies demonstrated within the EU CONCERTO project ‘Sustainable Energy Systems in Advanced Cities’ (SESAC). The objective is to provide new knowledge of heat-driven cooling technology coupled with a biomass-fired combined heat and power (CHP) plant, thus creating polygeneration based on RES. Two cooling projects are included: an existing network for the Växjö University, and cooling from a lake for the Växjö Central Hospital.

Contact
Andreas Markowsky, Director
Ökostrom Erzeugung Freiburg GmbH, Germany
www.oekostrom-freiburg.de

Contact
Lars Ehrlén
Manager District Heating-Cooling
Växjö Energy Ltd, Sweden
www.veab.se
www.vaxjo.se
www.concerto-sesac.eu

Each year 3.14 million Euro is invested in renewable energy, climate and water protection

Badenova, the regional energy utility, promotes RES with 2.4 million Euro each year through its Energy Research Funds. One of the Badenova energy products “Regiostrom” uses RES to produce electricity. Over 11,000 “Regiostrom” customers have chosen this option, helping to reduce carbon emissions by 15,000 tons.

Masterplan for climate protection

The City of Freiburg uses 10% of the licencing fees, which it receives from Badenova for the use of local infrastructure, towards climate protection. This amounts to about 1.3 million Euro annually.

The Freiburg energy supply concept for heat and power consists of three focal points, namely saving energy, the development of RES, and energy efficiency in generation.

www.badenova.de
Sustainable transportation

Large-scale procurement for alternative fuel vehicles

The EU aims to substitute 20% of oil-based motor fuels with biofuels by 2020. This will require a substantial effort in infrastructure development and large-scale deployment of Alternative Fuel Vehicles.

The PROCURA project, supported by the Intelligent Energy for Europe (IEE) Programme, develops procurement models with a focus on centralised buyer pools (e.g. private and public fleets, rental agencies), permitting centralised infrastructure, maintenance and repair, as well as stronger purchasing power. PROCURA will assess and develop incentive systems to compensate for higher purchase prices.

Biofuel Cities – A European Partnership

A European Partnership for biofuels is under development, aimed at demonstrating the broad-scale use of new and innovative biofuel technologies, and bringing together diverse stakeholders to exchange, learn and identify opportunities for cooperation.

Biofuel Cities covers the complete chain from feedstock to biofuels production, distribution to use in vehicle fleets. Join the platform today!

L-Bank, the State Bank for Baden-Württemberg

Environmental and climate protection rank among the most important activities, both now and in the future. Their significance in municipal projects has risen considerably over the past years, and are now included as a standard approach in the extension and conservation of local infrastructure.

In this regard, one of the most important targets is the reduction of CO2 emissions through retrofitting existing buildings. Municipalities as well as enterprises, housing construction companies and private builders need stable support for this, which only an investment bank can provide. One example where L-Bank addresses the energetic retrofitting of buildings is by offering lower interest rates to municipalities. In 2006, the L-Bank supported more than 425 projects in the field of municipal environmental protection. L-Bank also assists the industry and construction sector with the application of renewable energies. The demand for such support is steadily increasing to address environmental and climate protection.

Freiburg in action – integrated transport network

The City of Freiburg has an excellent integrated transport system, linking public transport options, such as trams, buses and rail, to cycling and pedestrian networks. Local public transport is run by a regional transport association and offers a network almost 3000 kilometres (km) long, for light rail transport, buses and urban railways.

The city’s population covers more than a quarter of their entire travel distance by bicycle every year – and not only the students! Freiburg cyclists have access to a bicycle traffic network almost 500 km in length, and some 9,000 bicycle parking places, including a bicycle garage at the central railway station with space for 1,000 bikes.
Local policy improvement

ROMA per Kyoto – the Italian capital’s approach

Rome initiated its “Roma per Kyoto” programme to reduce CO2 emissions by 6.5% by 2012 (compared to 1990), according to the Kyoto Protocol goals set for Italy. Strategies were developed to guide energy efficiency and RES measures into the high-level environmental policy framework, addressing three focal areas, namely Environmental Action Programme, Local Agenda 21 Forum of Rome, and the Town Planning Scheme.

Between 1998 and 2003, the 19 Municipios of the Rome city district considered diverse participative strategies and the use of local resources such as air, energy, water and waste. The Agency RomaEnergia, an organisation that addresses sustainable energy use, played an important role in the strategy development and implementation phases. The following key actions were addressed:

- Emissions assessment from 1990, and a forecast up to 2012. The starting point in this was the 5-milestone methodology of ICLEI’s Cities for Climate Protection (CCP) Campaign.
- Identify reduction strategies through structural actions such as electricity from RES, energy savings, solid waste management, and sustainable mobility measures.
- Implement pilot actions within a Municipio and departments of the City Administration, to test the effectiveness of measures.
- Involve stakeholders throughout in a participative process.

A Finnish cluster reducing energy consumption in the Helsinki Metropolitan Area

Greenhouse gas (GHG) emissions and energy consumption of the Helsinki Metropolitan Area are increasing more rapidly than its population. The main sources of emissions are heating (43%), electricity consumption (28%) and transport (23%).

To address this in a comprehensive manner, a vision for climate protection was developed for the region – comprising Helsinki, Espoo, Kauniainen and Vantaa – an area with a population of just over one million people.

This vision focuses on improved energy efficiency and the moderated use of natural resources to reduce GHG emissions in the region and to improve competitiveness. Six sectors are primarily considered for strategies and activities, namely:

- Transport
- Land use
- Construction and buildings
- Electricity
- Energy generation
- Consumption and waste

Increasing investment in sustainable energy

New investment in RES and energy efficiency technologies have set a new record in 2006 – with more than $70.9 billion (an increase of 43% over 2005).


http://ren21.net
http://sefi.unep.org
Partnerships

Solar Info Center Freiburg – a successful building and business concept

The Solar Info Center (SIC) is a 15,000 m² low-energy office building, housing a variety of businesses and organisations involved in sustainable energy.

Organisations based at the SIC focus on research, development, design, consulting and education. The business model combines cooperation and healthy competition between the tenants. The SIC Service Centre plays an essential role in this by providing potential clients with a central access point. Other services include public relations and marketing, coordinating requests and generally encouraging a productive co-existence.

The building construction is an effective combination of energy efficiency, RES and ecological building materials – with costs similar to an average office building. The building uses a combination of mature technologies and state-of-the-art building strategies:

- Solar thermal systems and photovoltaic panels – solar power and regulated shading
- Ventilation, including night cooling in summer, with excellent insulation of the building envelope – the walls, roof and windows
- Geothermal energy, using an earth probe that is 80 meters deep
- Heat recovery system

The SIC is the first office building that has a 100% emissions-free thermal heat supply. It is a model for other technology centres around the world.

The City of Freiburg supported the development of SIC by providing land at a low cost, with the provision that it be used to foster the sustainable energy sector. Both parties benefitted, from the agreement with international visitors drawn to the city to visit the SIC.

Local Renewables Resource Centers in India

The Cities of Bhubaneswar and Nagpur are partners in the “Local Renewables Model Communities Network”, and have developed Resource Centres to focus their community activities related to RES and energy efficiency.

A strong component of local action is cooperation between the municipalities and local businesses, as well as other stakeholders. The Resource Centres are used as platforms for interaction – to exhibit local materials and products, to raise awareness among the public on sustainable energy solutions, and to develop local capacity of various stakeholders.

The two cities are also exemplary Model Communities in development, with several Indian cities observing developments and the implementation actions.

Freiburg in action – a solar economy

The environmental policy of Freiburg, as part of a lasting city development concept, has led to substantial growth of the environmental economy of the Freiburg region. This field, which included research, solar technology, and environmental consulting, has an annual turnover of 500 million Euro. This has resulted in more than 10,000 jobs, and has supported the economic stability and growth of the city.
Capacity development

Training craftsmen to develop much-needed skills

An interesting Italian approach was taken to develop the capacity of craftsmen in installing and maintaining solar systems. This resulted from cooperation between the sister-cities of Freiburg and Padova. More than 500 Italian craftsmen have received training thus far, and also joined study tours to Freiburg. Further training courses were provided by the Gewerbeakademie in Freiburg, where they also learned about project development and useful components of solar installations.

The Italian Solar Infocentre that organised these training sessions also recognises the importance of reducing its own energy consumption (CO2 and energy costs) and acts as a role model for its trainees. The Infocentre decided to transform its headquarters into a low energy building, and reduce energy consumption by 90%. They have achieved a reduction in energy use from 250 to 25 kWh per square meter!

Practical tools for low-energy building design

Simulation software tools are needed to support architects and engineers with the design of low energy buildings, by evaluating the energy load and comfort level (dynamic thermal simulation).

The software “Comfie-Pléiades”, developed at the Centre d’Énergétique, helps to optimise the architectural design and addresses building orientation, window glazing, near shading and inertia. It can also help to evaluate the performance of new materials, energy efficient systems or the application of renewable energy technologies. The software has a user-friendly interface, and quick results can be obtained when running a simulation.

The tool was used in the design of several low energy buildings in France, including the renovation of a social residential building near Paris – with the target of reducing CO2 by 25% compared to a standard building (European project Regen Link).

Contact
Matteo Benetello
Technical Manager
Italian Solar Infocenter S.r.l.
Padova, Italy
www.isicenter.it

Contact
Alain Guiavarch
Research Engineer
Centre d’Énergétique (ARMINES),
France
www.cep.ensmp.fr

Investing in climate protection – innovative concepts for a sustainable regional energy supply

As the largest independent financial institution in the Freiburg region, Sparkasse not only feels responsible for its customers and the local population, but also for the environment. Therefore, Sparkasse is proud to have co-sponsored the conference ‘Local Renewables Freiburg 2007’. Sparkasse Freiburg-Nördlicher Breisgau understands that sustainable protection of the environment is a fundamental aspect of corporate responsibility. True to our values, we form associate financial partnerships to support many concepts on renewable energy. In our own institution, we also place a high value on ecology and energy saving. Specific emphasis is placed on using ecological and energy-saving materials and standards in new building constructions, as well as retrofitting existing infrastructure to ensure optimal energy efficiency.

Horst Kary
Chief Executive, Sparkasse Freiburg-Nördlicher Breisgau
www.sparkasse-freiburg.de
The City of Freiburg im Breisgau is an internationally-known role model for local government policy on environment and sustainable urban development. The Region of Freiburg also shows a diversity of interesting and exemplary projects and activities of sustainable energy use. Every year, thousands of experts from all around the world travel to Freiburg to see examples of sustainable local development in urban planning, buildings, district energy, transportation, waste and management, water supply as well as nature conservation and forestry. The City of Freiburg organises trade visits, seminars, and training sessions, and provides information on all fields of the city’s environmental policy.

During the conference “Local Renewables Freiburg 2007”, ten technical tours were offered as part of the programme, showcasing some outstanding examples of RES in practice. Highlights are presented below.

<table>
<thead>
<tr>
<th>Tour</th>
<th>Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure, decentralized energy supply (Tours 1 and 5) – see on map 1</td>
<td>The solar powered soccer stadium is one of the most prominent local photovoltaic (PV) installations, on the roof of the Badenova Stadium! The stadium forms part of the Regional Solar Power Plants, a network of small and large-scale PV installations in different locations. The stadium also boasts a solar thermal system with 8 collectors, providing warm water for the stadium showers, and stirring motors that are used to heat the building and lawn of the pitch. A view of local wind turbines can be gained from here. Another element of local energy supply is a small hydro power plant on the Dreisam river that intersects the City of Freiburg.</td>
</tr>
<tr>
<td>Solar buildings and low energy districts are cool! (Tours 2 and 6) – see 2</td>
<td>The Quartier Vauban is a model project for urban development addressing sustainable and ecological goals, by embracing concepts of sustainable mobility, RES, energy efficiency, citizen participation and business involvement. Once a military barrack area, Vauban has been reshaped into an attractive, family-friendly housing district with a high quality of living, in close proximity to the city centre.</td>
</tr>
<tr>
<td>Business meets renewables (Tours 3 and 7) – see on map 3</td>
<td>The Solar Info Center is the first office building with an emission-free heating system in Germany. The building is a model for financially-sound, intelligent transfer of the newest energy-efficient building techniques, housing a variety of sustainable energy organisations, a novel combination of business and solar!</td>
</tr>
<tr>
<td>Solar energy research (Tours 4 and 8) – see on map 4</td>
<td>The Fraunhofer Institute for Solar Energy Systems (ISE) is Europe’s largest solar energy research institute. The institute conducts research on the technology needed to supply energy efficiently and on an environmentally sound basis in industrialised and developing countries. The main research &amp; development topics at the Fraunhofer ISE are photovoltaics, energy efficient buildings, and hydrogen technology.</td>
</tr>
<tr>
<td>Geothermal energy in office buildings (Tour 9) – see on map 5</td>
<td>Geothermal energy offers enormous potential for heating and cooling buildings. UniVersa house in Freiburg provides a good example of surface geothermal energy. The building with its 3700m2, saving 35 tonnes of CO2 per year – a better performance compared to traditional heating systems.</td>
</tr>
<tr>
<td>Renewable energy powers Freiamt, a village near Freiburg (Tour 10)</td>
<td>Freiamt, a village near Freiburg, is entirely self-sufficient in terms of energy. It produces around 14 million kWh annually through RES, about 3 million KW/h more than needed by the 4.300 inhabitants and local enterprises. Excess energy is sold at a premium rate to the grid operator. This example shows a combination of energy solutions, among others 121 PV panels generating 900.000 kWh; 150 solar thermal systems providing hot water; numerous wood-chip and pellet heaters; 4 wind turbines installed by 300 private investors; 3 small hydropower plants that produce energy for two saw mills and a bakery; surface geothermal power for space heating of residences; and 1 biogas plant generating 1.6 million kWh.</td>
</tr>
</tbody>
</table>

The Solar Fabrik is the first zero-emission factory for solar modules, and among the European leaders in solar technology. The company has worldwide trade relations and strategic partners in Singapore, Malaysia, India and California. The building design combines interesting elements of solar architecture and high-technology, and is well worth a visit – from a building and modern factory perspective.

Waste to energy: The biogas and compost operator „BKF Biogas- and Kompostbetriebe Freiburg“ is a joint venture between private and city owned waste management companies. Organic waste produced by Freiburg households is collected and processed into biogas and compost.

For more information please contact
City of Freiburg
Mayor’s Office / International Affairs Division
Contact person: Nicole Horstkötter
Rathaushausplatz 2-4
D-79098 Freiburg im Breisgau
Phone: +49(0)761-201-1025
Fax: +49(0)761-201-1098
nicole.horstkoetter@stadt.freiburg.de
Support for local governments to switch to sustainable energy

ICLEI – Local Governments for Sustainability

ICLEI is a worldwide membership organisation of 650+ local governments and their associations working to achieve tangible improvements in global environmental and sustainable development.

As an international local government association, ICLEI has Observer status with the United Nations Framework Convention on Climate Change (UNFCCC), and is the lead organisation representing local governments at the UNFCCC international climate negotiation meetings (Conference of the Parties – COPs), e.g. Bali 2007.

ICLEI’s Cities for Climate Protection (CCP) Campaign

The CCP Campaign was initiated in 1993 as an international campaign to bring together committed local governments that are actively reducing greenhouse gas (GHG) emissions.

Currently 800 local governments around the world participate in this campaign, of these over 160 participants representing 16 countries in Europe.

The Campaign provides a network and framework for action – engaging local governments to accelerate the integration of sustainability and GHG reduction targets into their decision-making and implementation processes. Through clear GHG reduction targets and a plan of action CCP participants can take effective steps in support of climate protection and also to improve community resilience against inevitable climate change.

www.iclei-europe.org/ccp

Local Renewables Initiative (LRI)

ICLEI works with local governments around the globe to promote the local generation and use of renewable energy sources and energy efficiency in the urban environment.

The initiative has three main aims, namely:

- The development of a network of cities and towns around the world that have shown exemplary activities or are developing into model communities.
- Policy improvement to support local sustainable energy development and implementation actions using local resources.
- The involvement of local stakeholders

Through various project LRI is working with cities supporting the development into Local Renewables Model Communities. The Initiative unfolds in regional projects managed by ICLEI offices world-wide. They initiate work with a small group of cities and use the momentum to further develop the initiative.

www.local-renewables.org

"Join us – become active in the field of sustainable energy!"

Gino Van Begin
Regional Director, ICLEI European Secretariat
Evaluation of the conference

Basic figures
- Registered participants: 227
- Countries represented: 34
- Participants from outside the host country: 162
- Weblinks by external organisations to the conference website: 166
- Visits to the website between March and June 2007: 3433

An evaluation survey was carried out to obtain feedback from participants with a scale of evaluation from 1 to 5. One (1) represented “excellent” and five (5) “disappointed”. The participants generally rated the conference as excellent, with high rates particularly given for the programme, logistics and event preparation.

Participant quotes
- Your Lord Mayor's behaviour should be the model for Italian and European politicians.
  Prof. Rosario Lanzafame, University of Catania
- Preparation was very good, I learned a lot from your organisation. Tours were a great feature.
  During the conference you get a lot of information, and the tours show it in practice.
  Wouter Leduc, PhD student
- The conference has reinvigorated me and made me more determined to achieve energy efficient projects, having learned from others.
  John Davey, Guildford Council, UK
- Perfectly organised, well structured. Hope to find many presentations on the website because I could not write fast enough!
  Holger Jensen, Consultant

Climate legacy
Each conference inevitably contributes greenhouse gas (GHG) emissions as participants travel to the conference venue and significant amounts of natural resources are used during the event (e.g. electricity, paper, food).

To off-set these emissions for this conference each participant contributed 15 Euro, with funds collected used to pay for a solar thermal heating system at a hospital in Bhubaneswar, India. This project was selected due to its potential GHG reduction, the quality of data provided by Bhubaneswar, and financial savings for a public facility that primarily serves local inhabitants with a low income.

The system will provide 200 litres of hot water per day for sterilisation and hygiene purposes. Currently an electric heater provides hot water for the hospital. The new solar thermal system will reduce the need for electricity by about 9000 kWh/year, and will reduce GHG emissions accordingly. In addition, it will also reduce the hospital energy bill, which at this stage is a staggering 12% of its total operating costs.

Bhubaneswar is a partner in the Local Renewables Model Community project, and has made a commitment to become a regional leader on sustainable energy.
Organisers

City of Freiburg
Mayor’s Office
International Affairs Department
Rathausplatz 2-4
D-79098 Freiburg
Germany
Tel. +49-761/ 201 10 25
Fax +49-761/ 201 11 97
E-mail: buergermeisteramt@stadt.freiburg.de
www.freiburg.de / www.solarregion.freiburg.de

ICLEI – Local Governments for Sustainability
Conference Secretariat
ICLEI International Training Centre (ITC)
Leopoldring 3
D-79098 Freiburg
Germany
Tel. +49-761/368 92-20
Fax +49-761/3689 2-29
E-mail: local-renewables@iclei.org
www.local-renewables2007.org

Freiburg Outcomes

The Freiburg Outreach is included as an insert in this report. Additional copies are available on request: local-renewables@iclei.org or visit www.local-renewables2007.org

Presentations and abstracts are available on the event website, and a video is in production.

Upcoming conferences

ROVIGO 2008: European Climate Conference
The Province of Rovigo will host a conference on Climate Protection and Renewable Energy: Medium and Small Communities facing the Challenge. Join us there!

Date: 2 – 4 April 2008
Venue: Rovigo, Italy
Contact: rovigo2008@iclei.org
www.iclei.org/rovigo2008

FREIBURG: Local Renewables 2008
The City of Freiburg together with ICLEI is also planning to make Local Renewables an annual event.

Local Renewables Freiburg 2008 will take place in autumn next year.

For information and date, please visit our website www.local-renewables2007.org.

Endorsers

Co-Sponsors

Intelligent Energy Europe

www.local-renewables2007.org