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Foreword

"Concerto is a very good, concrete initiative from the EC that promotes renewables and energy efficiency. The SESAC project will give us the necessary experience and exchange of knowledge that we need to build a sustainable energy system in European cities. Everybody is a winner in Concerto."

Carl-Olof Bengtsson, Mayor of Växjö

Introducing SESAC

Overview

This Concerto project, which started in May 2005, is a large undertaking that will address three main areas of activity, namely research and innovation actions, dissemination and training. Each city that is involved has a unique situation that will be taken into account when addressing the problems, requirements and solutions.

Local stakeholders in three European cities, namely Delft (NL), Grenoble (FR) and Växjö (SE), will demonstrate how a more sustainable local energy economy can be achieved. This will be done through incorporating innovative approaches to the implementation of energy efficiency (EE) measures in new and refurbished (renovated) buildings, together with an increased use of renewable energy technologies (RETs) and systems for electricity supply, as well as for heating and cooling.

In addition, three municipalities from the New Member States, namely Kaunas (LT), Miskolc (HU) and Vastseliina (EE) will study the results and work-methods and make a local energy flow analysis.

Within this project tools will be developed for effective policymaking, implementation, monitoring and management of the sustainable energy processes. Researchers will analyse and ensure the quality of the measures, whilst city networks will make the results available to others.

Three areas of action:

a) Research and innovation actions

The SESAC RTD and innovation actions will be used to develop knowledge through:

Validation of promising, but not yet fully established, technologies and solutions,
 Accessing and transferring the best practices for early use of new technologies and solutions,
 Development and analysis of energy systems and their technological and market/economic risk assessments,
 Early promotion and broad application of state-of-the-art technologies and solutions.

b) Dissemination actions

Experiences will be shared and know-how transferred within each project, as well as with other Concerto projects, to encourage widespread dissemination.

The two city networks, Energie-Cités and ICLEI - Local Governments for Sustainability, will be actively involved in disseminating the results. Of particular interest is the planned market interaction campaign that will be developed to create a "closed loop" between the regulatory authorities, public opinion and industry.

c) Training

To enable the necessary chain of policies, regulations, actions, monitoring and support spreading of results - thereby moving the whole energy system towards sustainability - training actions will be implemented. These will also contain study tours and seminars.

The target groups will include politicians and officials, to enhance the capacity of the organisations involved in the development of energy policies for local and regional energy schemes. However, the training will not only be restricted to the partner cities and consortium members, but will be open to other city representatives that wish to gain knowledge in order to develop their own sustainable energy schemes.

Are you interested in joining us for a study tour or a seminar? The events are scheduled for later in the project, but you can indicate your interest as from now! Please do so by sending us an email with your contact details to [ICLEI](#) or to [Energie-Cités](#)

Introducing the Project Consortium

A large team will be working together to achieve the aims of the project, with representatives from the following organisations involved:

[Växjö Kommun](#), Sweden

[Växjö Energi AB](#), Sweden

Kommunfastigheter AB, Sweden

[Energy Agency for South East Sweden](#)

Kungliga Tekniska Högskolan, Sweden

[Gemeente Delft](#), The Netherlands

[Delfts Energie Agentschap](#) (Delft Energy Agency), The Netherlands

[Stichting Volkshuisvestingsgroep Woonbron-Maasoevers](#), The Netherlands

[Ville de Grenoble](#), France

Société d'Aménagement Grenoble Espace Sud (SAGES), France

Electricité de France (EDF), Délégation Régionale Rhône-Alpes, France

[Office Public d'Aménagement et de Construction de l'Isère](#) (OPAC), France

[Gaz Electricité de Grenoble](#), France

Grenoble Alpes Métropole Métro, France

[Energie-Cités](#), Europe

[ICLEI](#), Local Governments for Sustainability, European Secretariat, Germany

[Miskolc](#) Municipality, Hungary

[Vastseliina](#) Rural Municipality, Estonia

[Kaunas](#) City Municipality, Lithuania

Brief Overview on City Actions

Delft, The Netherlands

The city of Delft aims to reach an annual reduction of 33.500 tonnes CO2 by 2012 compared to 1999. To reach this aim the city council has adopted the 3E Climate Plan 2003-2012, with one major project addressing the use of low temperature residual heat in several building locations.

The demonstration projects in Delft are comprised of two major blocks of work:

- ▶ Decreased energy intensity through utilisation of residual industrial heat through heat pumps and a new distribution grid for a total of 596 new and refurbished ecobuildings.
- ▶ Erection of 396 new eco-building dwellings and the refurbishment of another 200 ecobuilding dwellings in the areas of Harnaschpolder and Poptahof.

The first phases in the refurbishment program will take place at the demonstration sites of Poptahof and the new dwellings in the Harnaschpolder area. Different actions are planned in with four primary areas:

a) Renewable energy supply (RES): residual industrial heat and PV

Low temperature residual industrial heat will supply the building sites. A dedicated Heat Transport Company will transports heat from the industrial site to the building locations, while heat distribution and back-up will take place within individual buildings. In Poptahof a 10 kWp photovoltaic (PV) system will be mounted on the southern façade of one of the demonstration apartment buildings.

b) Energy efficiency in buildings (Rational Use of Energy - RUE)

In the CONCERTO demonstration areas Poptahof and Harnaschpolder, specific final energy demands are specified by CONCERTO constraints. Designers use specific insulation values and are free to choose further measures to reach these targets. The targets reached in the CONCERTO demonstrations are beyond future Dutch regulations. The renovation of the social housing dwellings reaches an energy performance equal to the present national standard for new dwellings. A feedback and monitoring system for the occupants further stimulates energy savings and cost cutting.

c) Integration of RES and RUE

By integrating RUE measures, all 396 of the new and 200 of the renovation dwellings will be suited for the use of low temperature based district heating.

d) Specific innovations

Innovative cooperation in an Energy Service Company (ESCO) and a Public Private Partnership enables high-energy savings in the liberalised Dutch energy market.

Grenoble, France

Within a natural Alpine context - a narrow polluted junction at the bottom of 3 valleys - the Grenoble Metropolitan Community plans a high quality social, architectural and environmental Concerto project in line with the Grenoble Climate Plan.

a) Renewable energy supply (RES)

- ▶ Two PV plants of 1000 sqm each (100 kW) will be built. One will be embedded in a high-energy efficiency multi-activity centre. The second one, using semi-transparent modules, will be embedded in the roof of the stand of the new Grenoble Metropolitan Stadium, together with high-energy efficiency lighting for the sport activities.
- ▶ A 2,7 MW mini-hydro power plant, in a dense urban area, will be installed downstream in a canal crossing the district. The annual electricity production will be up to 15 GWh. Targeting the district inhabitants, an information program will be carried out and an information point on renewable energy will be realised along the cycle path running beside the hydro-power plant.

b) Energy efficiency in buildings (RUE)

Based on the French HQE approach (High Environmental Quality) and cooling with environmentally friendly solutions instead of using current standard air-conditioning, new buildings will be erected with an energy performance that is far better than the existing French regulation. In new dwellings, the space heating demands will be cut by 44% and other energy demands by 23%, compared with current regulations. The cuts for the new school will be 37% for space heating and 50% for other energy demands. This approach is to be promoted for all of the city's new developments

c) Poly-generation

Mini natural gas co-generation plants will provide heating for 8 new domestic buildings. The objective is to demonstrate on-site distributed mini co-generation with a total power of 360 kW, in order to establish the first import/distribution market chain for mini-cogeneration in France, and thereby to stimulate a future growth in the market.

d) Integration of RES and RUE

All Concerto buildings will be supplied either by natural gas co-generation with solar thermal panels or by district heating from biomass.

e) Specific innovations & urban stakeholders training

The French National Environment Agency and the Local Environment Agency will introduce an incentive and mobilization program of accompanying measures aimed at public and private building owners, in order to encourage them to implement RUE/RES improvements to their properties. The aim is to create a real sustainable development culture in the building sector.

Vaxjo, Sweden

The city of Vaxjo aims at becoming free of fossil fuels. In support of this aim it has reduced its fossil CO2 emissions by 20% since 1993, down to a level of 3.7 tonnes per capita and year. The Concerto area that has been identified connects the university to the city with new developments comprising energy efficient dwellings and commercial buildings supplied by district heating from forestry waste materials.

The following activities are planned under this project:

a) Renewable energy supply (RES) - rebuilding of oil boiler to 50 MW biomass CHP

To meet the energy demand from the new buildings in the Concerto area and others, a new large-scale production of RES is needed. An old co-generation plant at the energy utility, that currently is used for peak loads and fuelled by oil, will be rebuilt to use biomass.

b) Energy efficiency in buildings (RUE)

► New buildings will be erected with an energy performance that goes well beyond the existing Swedish regulation, demonstrating a reduction of approximately 33% in space heating energy demands and a similar reduction in the other energy demands compared with current regulations. This energy efficient way to build will be included in the quality programs as standard for new future developments in the city.

▣ By individual measuring in 400 apartments, data from heat, electricity and water, will be transferred to the consumer to influence them to be more energy efficient (DSM).

► Wooden Ecobuildings - energy efficiency in LCA perspective (Support for and marketing of low energy wooden houses). The construction and real estate sectors are responsible for approximately 40% of the total energy consumption, 30 % of the CO2 emissions and 40% of the waste. To reduce the consumption of resources and the impact on our climate we do not only have to reduce energy consumption in the construction phase but also during the rest of the life cycle and transfer the use of energy to renewably energy sources. In a bio-based economy, biological, renewable production provides the base of raw materials for production as well as for energy. Wood from sustainable managed forests is such a material, with large environmental advantages compared to other building materials. Wood is very favourable considering lifetime energy performance, use of finite resources, CO2 emissions and waste.

c) Poly-generation

Energy utilization of biological waste material will be optimised through increased methane gas production combined with poly-generation and RUE at the sewage treatment works. Biogas vehicle fuel will be used in technical service vehicles in the Concerto area.

d) Integration of RES and RUE

All Concerto buildings (b) will be supplied with district heating from biomass. Absorption cooling will be integrated in the Combined Heat Power (CHP) and district heating system (e).

e) Specific innovations

By producing cooling from heating via a new technique for absorption chilling, electricity will be produced all year round at the same time as the demand for electricity for cooling is decreased. An existing oil CHP system will be converted to biomass (a). A full-scale chiller on 3.000 kW will be installed at the Vaxjo Central Hospital. Due to lack of space this machine will be cooled by water from nearby the lake. The intention is to use the increased temperature in the lake to improve the recreation possibility at the lake.

What does this all mean in real terms?

As part of this project the intention is to:

- ▶ further develop the cities' energy policies, and demonstrate the impact of progressive policies;
 - ▶ build 1.291 new dwellings, 5 new offices and tertiary localities, 1 school and 4 minor shops/stores, with energy ratios of 20-40% below current and applicable national indices and standards;
 - ▶ refurbish and carry out RES conversion in total of 477 dwellings;
 - ▶ rebuild and convert an existing 75 MW oil fuelled CHP boiler system into a 50 MW RES biomass CHP boiler system;
 - ▶ install 2.700 kW distributed Hydro, 200 kW distributed PV and 1.000 kW distributed CHP;
 - ▶ decrease the energy intensity within existing and new energy infrastructures through the integration of 2.200 kW RES-absorption cooling and 5.350 kW industrial residual heat into the cities' district heating systems. Furthermore 1,000 kW poly-generation from organic waste will be integrated;
 - ▶ elaborate, evaluate and disseminate the large-scale technical and social field experiences, and thereby raise confidence among decision-makers, investors, contractors and end-users - paving the way for more ambitious technological, social, legislative and market-oriented building measures.
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Events & News Snippets

A Future with Zero CO2 Emissions' Conference

Date: 15 - 17 May 2006

Place: Stockholm, Sweden

Web: www.iclei.org/itc/stockholm2006

Join us at this exciting event, hosted by the City of Stockholm. Advanced city strategies and actions will be shared, showing how cities can successfully implement - over the short term, medium and long-term - actions in the fields of energy, climate, transport and spatial planning, to mitigate the impact of and adapt to climate change.

The partner organisations will extend an invitation to cities to formulate long-term targets to radically cut CO2 emissions, with the Reinforced CCP Campaign to be launched to help and encourage further action and increased partnership. For further info contact: [ccp iclei-europe.org](http://ccp.iclei-europe.org)

10th International Conference on Passive Houses

Date: 19 - 20 May 2006

Place: HCC Hannover, Germany

Web: <http://www.passivhaustagung.de>

In Europe more than 5.000 passive house units have been successfully built and completed. Positive feedback from inhabitants has confirmed what had been projected: not only energy costs can be reduced drastically, but also the comfort of living increases significantly by using an energy efficient construction. At this event the exchange of ideas, knowledge, and progress in the field of energy efficient construction and sustainability will be addressed.

Intersolar 2006 - Trade Fair

Date: 22 - 24 June 2006

Place: Freiburg im Breisgau, Germany

Web: <http://www.intersolar.de/>

This event is Europe's largest trade fair for solar technology. The most important innovations and trends in the areas of photovoltaic (PV), solar thermal technology and solar architecture will be presented. All the relevant industry representatives made use of Intersolar as a platform and gave visitors a comprehensive overview.

We invite your comments on the newsletter.

Do you have articles or events of interest relevant to sustainable energy systems in advanced systems or to climate protection? Please pass these on to [ICLEI](#) or to [Energie-Cites](#)

Other projects:

For further information on the CONCERTO initiative and other CONCERTO projects, please visit the CONCERTO homepage www.concertoplus.eu.

Contacts:

- Newsletter Editors: [ICLEI](#) - www.iclei-europe.org - Local Governments for Sustainability, Climate & Air Team and [Energie-Cites](#) - www.energie-cites.eu - The association of European local authorities promoting a local sustainable energy policy.

- Project Coordinator: City of Vaxjo, Sweden - Sarah Nilsson, sarah.nilsson@kommun.vaxjo.se, Manager of International Projects

- Website: www.concerto-sesac.eu

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