

Six New Building Targeted Projects starting with THERMIE Support

In the previous issue of this Newsletter, the THERMIE Programme was presented through an interview with Mr Sampaio Nunes, Director of Energy Technology at the EC's DG XVII. In order to illustrate the Programme, this issue's subject is focused on the presentation of actual projects: six new so-called Targeted Projects have indeed been approved for THERMIE support in the Building sector after the 1995 and 1996 calls, and are now getting up to speed.

More than 80% of the European Citizens nowadays live in urban areas: such a concentration of people and activities imposes severe constraints over the use of finite natural resources and the associated challenges to the economic, social and environmental sustainability of cities. Our future European cities will have to adapt the existing urban situation and the associated complex problems that previous unplanned urbanisation have created over many aspects of people's life. This can only be done within a new concept of sustainable development, defined as the type of development which does allow the satisfaction of the present generation without threatening the capabilities of future generations to meet their own needs.

The European Commission could of course not ignore these important aspects: believing that energy is a key element regulating such a sustainable development, the Directorate-General for Energy, DG XVII, through its THERMIE Programme has launched a special programme of THERMIE Targeted Projects that seek to develop construction and transport energy solutions to build the future of our cities.

THERMIE Targeted Projects are large scale (real size) collaborative demonstration projects of Rational Use of the Energy (RUE), spanning several sites throughout the European Union, most often implemented in urban environments.

The aim is to demonstrate high levels of RUE and energy efficiency through innovative technologies and their implementation. Reduced environmental impact levels will be achieved by the best practices for the implementation of innovative energy technologies at national, regional and/or local level. Such projects should provide valuable, cost-effective examples of efficient integration of innovative



THERMIE's targets are:

- To improve energy efficiency, in both demand and supply sectors.
- To promote a wider utilisation of renewable energy sources.
- To encourage a cleaner and more efficient use of coal and other solid fuels.
- To optimise the exploitation of the EU's oil and gas resources.

energy technologies on a large scale in the Urban Environment. They should provide decision makers with key solutions to the energy related environmental problems which cities are facing today.

The urban dimension of these projects is an essential element, considering that some 85% of European Citizens live and work in Urban Areas and that the Building Sector accounts for 40% of the total final energy consumption within the Union.

A special type of Targeted Projects, called 'Integrated Quality Targeted Projects', aims at further improving current best practices at energy and environment related levels, that is to improve present quality references and standards.

In order to have a definite impact on the energy and environmental situation while improving the industrial competitiveness, these projects should be able to combine the efforts of organisations in different Member States in cooperation and exchange of experiences, in both the phases of implementation and exploitation of the projects. Therefore, the dissemination of project information and results is given the utmost importance.

In the field of Buildings, the current THERMIE Programme supports very many demonstration projects for innovative RUE and REB (Renewable Energy in Buildings) within the Fourth Framework Programme.

Four larger, more ambitious 'Targeted Projects' have received THERMIE support after the 1993 and following calls:

1. EC2000 - Energy Comfort 2000
2. EHEN - Ecology Housing European Network
3. LEINH - Low Energy in New Housing
4. REMMA - Renewable Energy Management for the Mediterranean Area

These Targeted Projects are mostly well advanced, and early results are already available.

Now, six new 'Integrated Quality Targeted Projects' have received THERMIE support after the 1995 and 1996 calls:

1. EXPO Cities - Extensive Energy Planning of Cities
2. GREEN Cities - European Global Renewable Energy and Ecological Neighbourhoods

3. MEDUCA - Model Educational Buildings for Integrated Energy Efficient Design
4. RE-Start - Renewable Energy Strategies and Technologies for Regenerating Towns
5. SHINE - Solar Housing through Innovation for a Natural Environment
6. SUN H - Solar Urban New Housing

The total consolidated cost of the six projects is more than 200 MECU, with the eligible innovative part amounting to 49.5 MECU. Of this sum, the THERMIE support will cover 14.9 MECU.

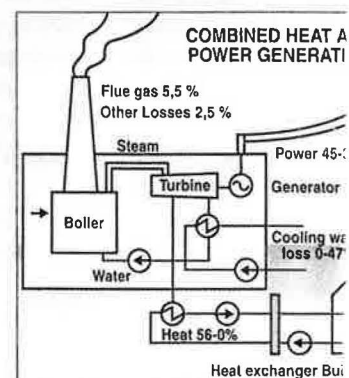
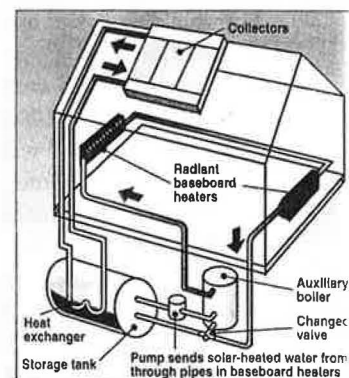
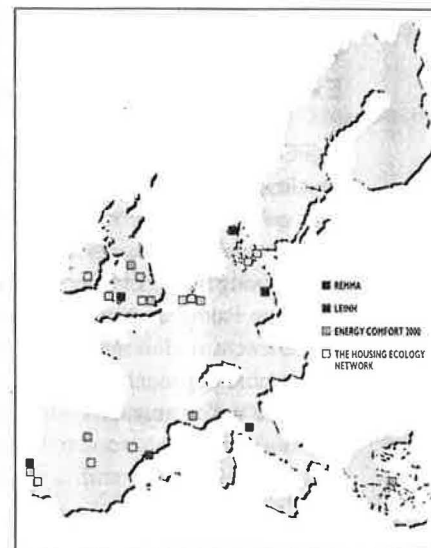
These Integrated Quality Targeted Projects have all started by end of 1996, and are currently running up, most of them being in the design phase. A short description of each is given on the next pages.

As said before, all these Integrated Quality have made their start by end of last year or early this year, and are currently in the first phases of their execution: the story just begins!

A World Wide Web site has been prepared on the EC's server to present information about all THERMIE Targeted Projects: you can find more information there, both on the new projects shortly presented above and on the previous projects now nearing completion. Point your browser to: <http://europa.eu.int/en/comm/dg17/thermie/ttp-home.htm>

More information about THERMIE and projects can also be obtained by contacting the EC's DG XVII THERMIE Programme Manager at the following address:

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EXPO cities

Extensive Energy Planning of Cities

EXPO Cities is an Integrated Quality Targeted Project that will realize four new urban developments serving the growing needs of Lisbon, Hanover, Palma de Mallorca and Utrecht under similar sustainable approaches and with the willingness to identify similar solutions to sustainable development problems.

The objective of the EXPO Cities Project is the implementation of advanced energy saving and energy efficient measures within the framework of sustainable strategies in new built urban developments, in both building design and urban planning.

The four areas will accommodate more than 100.000 new inhabitants and within the Project time-frame, living and working space will be created for almost 10.000 people, whose comfort standards will at least remain at present levels, but with global energy savings of up to 40%. This will be achieved via a set of comprehensive actions in the urban energy planning, efficient envelope materials, optimised electricity systems and HVAC, centralised energy management, upgraded energy standards and important side-benefits

such as water savings and appropriate waste management, integration of renewables and polluting emissions reduction. Other technologies to be included in the construction are: the use of recycled materials, solar assisted DHW, passive solar design and day lighting. As an important spin-off, the Project will validate the first energy planning tool developed as a result of the multi geographic experiences, which will permit future city developers to create sustainable settlements with tested solutions.

Beyond the urban planning activities, the EXPO Cities Project is a commitment to construct the required infrastructure demanded by the new concepts involved (comprehensive energy supply, efficient energy distribution networks, demand-side energy-water-waste management, emission control, roads, traffic links, etc.) and finally the implementation of a first phase housing programme which will secure more than 4.000 residential units and a minimum of two relevant non-residential buildings.

Project Coordinator:
Landeshauptstadt Hanover,
Germany.

GREEN cities

Global Renewable Energy and Environmentally responsible Neighbourhoods and Cities

The European GREEN Cities is a cooperation network between European Cities and Regions, who

aim at introducing energy and environmental standards criteria in their future planning as part of

local green action plans. They will construct 919 solar low-energy dwellings in Denmark, France, Spain, Italy, United Kingdom, Belgium and Austria together with public buildings in Finland and Greece as local demonstration projects in connection to the Targeted Project. All these projects are part of large development plans for new-built or retrofit in the housing area, with a total number of up to 30.000 dwellings. A cooperation with East and Central European cities is also foreseen in the project, in an attempt to transfer project results to these Countries.

For all projects, a total energy optimisation will be carried out with help of a

newly developed design tool, based on "present value" optimisation. Here different energy saving interventions are listed and selected according to their economy. In this way it is foreseen to have a serious financial optimisation as the basis for the energy investments. This should help to create a realistic market in the future in the area of Rational and Renewable Energy Use in Buildings. Guidelines will be developed and an early education process will be established towards city authorities, builders and consultants, focusing at selected target action areas.

Project Coordinator:
Green City Denmark A/S,
Denmark

MEDUCA

Model Educational Buildings for Integrated Energy- Efficient Design

The MEDUCA Project aims at demonstrating that energy-efficient educational buildings, where the requirements for an attractive and healthy indoor environment are fulfilled, can be designed and built. This is to be achieved in new construction and refurbishment combining conventional and innovative technologies in nine different places of seven European countries: Denmark, Germany, Greece, Italy, Spain, Sweden, and Norway.

The aim is to create educational buildings where some of the following concepts are incorporated with a clear diffusion and dissemination approach: super low energy windows, healthy

materials, heat recovery, advanced energy management systems, advanced control systems, natural cooling, optimised day lighting, energy-efficient lighting appliances, photovoltaics, natural and mechanical ventilation, passive solar concepts, biomass, geothermal and heat pumps. It is expected that this collaborative project will have a significant impact on the general perception of energy efficient buildings and in particular will serve as the basis for improved energy standards for educational buildings in the participating countries and in Europe. The expected energy savings are in the range of 50-60 % for heat

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and 30-50 % savings for electricity, while CO₂ emissions will be reduced by an average of 50 %.

RE-Start Renewable Energy Strategies and Technologies for Regenerating Towns

The RE-Start Integrated Quality Targeted Project aims at providing the public authorities, the institutions and the professionals of large industrial European Cities with some "Exemplary Urban Projects", concerning innovative energy-environmental integration on the city scale.

Each RESET City has defined a district where the Targeted Project would take place. These sites are generally located in a downtown area where a regeneration project is starting (areas to be re-converted, former industrial sites, etc.). The area of influence of each City-Project is large enough to allow a strong impact on the decisional mechanisms

Project Coordinator:
Cenergia Energy
Consultants, Denmark.

of the city and a high visibility for the inhabitants. The mix of functions, typical of the complexity of urban situations, is comprised in RE-Start.

The RE-Start project involves eight European Cities and it is foreseen to be acting on over 2500 dwellings, and several commercial, and cultural buildings. Large energy and environmental savings are expected. The cooperation of the RESET Cities within this project should maximise the global results, in terms of available knowledge resulting from a comprehensive demonstration.

Project Coordinator:
SOFTECH, Italy

SHINE Solar Housing through Innovations for a Natural Environment

The SHINE Project is concerned with housing retrofit in Europe on nine sites involving France, United Kingdom, Germany, The Netherlands, Sweden and Italy. The nine developments will demonstrate average energy savings values of close to 60% as compared to standard values and will emphasise the use of friendly, low embodied energy materials using the most advanced

knowledge. During the course of the project, the consortium will retrofit 920 dwellings, all of them using RUE alternatives and RES. The commitment is to demonstrate the relevance of a series of technical measures to reduce CO₂ emissions through the implementation of different RUE and Renewable Energy Sources (RES) techniques. It is expected to avoid the

release to the environment of large quantities of CO, CO₂ and NO_x, while annually saving important amounts of energy: the expected average annual energy consumption for all sub-projects is 105 kWh/m². To achieve this objective, a wide spectrum of innovative retrofitting and energy technologies will be introduced, including: use of new and clean building materials, cogeneration, photovoltaic (PV) systems lighting, advanced, optimized and controlled ventilation, solar

energy use (air systems, water systems, PV), fresh water savings, etc. Besides, for each site where the proposers are Local Authorities or Housing Associations directly linked to their city or urban area, there will be a real effort to integrate unemployed young people and to base the advanced retrofitting on innovative small to medium sized regional enterprises.

Project coordinator:
GEIE- GEST - ArchiMEDES,
France

SUN H Solar Urban New Housing

The Integrated Quality Targeted Project SUN H is focusing on new housing in Europe, and includes ten organizations from eight countries (France, United Kingdom, The Netherlands, Denmark, Norway, Finland, Spain and Portugal). Ten demonstration projects will be built, exhibiting an average energy-saving of 50% and an average reduction of emissions of 50%.

The global project consists of building 81 new houses and 793 new flats in the ten different cities participating in the project.

The aim is to demonstrate the relevance of a series of technical measures to reduce CO₂ emissions through the implementation of different RUE and Renewable Energy Systems (RES) techniques. The expected average annual energy consumption for all sub-projects is 101 kWh/m². To achieve this objective, the consortium will intro-

duce innovative building and energy technologies, like the use of new and clean building materials, advanced envelope materials, energy management systems, low electricity consumption HVAC, active and passive solar energy, natural lighting and fresh water saving. Moreover, the involved local authorities will make a compared. evaluation of the integration of passive and active systems, using the experience of experienced expert architects, and of the costs of different innovative solutions: this will lead to suggestions for partners in the design phase, and it is expected that the municipalities will then take the projects' results into account for current and further legal development in the housing sector.

Project coordinator:
GEIE- GEST - ArchiMEDES,
France