

EUROPEAN GREEN CITIES

Final report

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**European Green Cities; European - Global Renewable
Energy and environmentally responsible neighbourhoods and
cities**

Annex 1 ter to addendum no. 2 - Training process

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1. PREFACE

The Thermie Targeted Project “European Green Cities” started in 1996 comprising low-energy building projects in 11 European cities in 9 EU countries. This document is meant to report activities in relation to addendum no. 2 “Training Process” to the contract - a training process in the 11 cities with the aim to improve benefits from the project.

Demonstration projects:

1	Abruzzo, Italy	54 apartments in housing association	retrofit
2	Brescia, Italy	72 apartments in housing association	retrofit
3	Copenhagen, Denmark	96 apartments in private housing	retrofit
4	Grenoble, France	122 apartments in housing association	retrofit
5	Herning, Denmark	50 youth apartments in housing association	new built
6	Houtvenne, Belgium	23 apartments in housing association	new built
7	Kuopio, Finland	Elementary school	new built
8	Portsmouth, United Kingdom	136 apartments in public housing	retrofit
9	Radstadt, Austria	36 apartments in housing association	new built
10	Vilanova, Spain	80 apartments in private housing	new built
11	Volos, Greece	Old brick work	retrofit

2. PROJECT PARTNER PRESENTATION

Contract partners:

- Abruzzo: Regione Abruzzo
- Brescia: Aler Brescia
- Copenhagen: SBS Byfornyelse and City of Copenhagen
- Grenoble: OPAC 38 – Office Public d’Aménagement et de Construction
- Herning: Herning Boligselskab and Herning Kommune
- Houtvenne: Zonnige Kempen and Provincie Antwerpen
- Kuopio: City of Kuopio
- Portsmouth: Portsmouth City Council; Housing Services
- Radstadt: GSWB - Gemeinnützige Salzburger Wohnbaugesellschaft m.b.H. and Stadtgemeinde Radstadt
- Vilanova i la Geltrú: Ajuntament de Vilanova I la Geltru and Qualitat Promociones SCCI
- Volos: Municipality of Volos - Demekav-Volos

Management team:

- GREEN CITY DENMARK
- Cenergia Energy Consultants
- Institut Cerdà
- Metec Engineering

3. PROJECT AIM AND GENERAL DESCRIPTION

The training process consists of two main parts:

- joint workshop in Denmark for preparing local training processes
- local training in the 11 cities

As a **first** direct result the participants in the training process will be updated with the actual best available knowledge about energy efficient and environmentally sustainable house building principles. Participants will also be able to use practical guidelines for a systematic general assessment about possible improvements for an actual building or building project.

Secondly an expected result is the strengthening of local co-operation between house owners/builders/tenants and involved public departments or private companies etc. for energy supply, urban planning, building project approval, environmental control etc. - to support the local process for a more sustainable urban management.

The **long term** objective is to achieve visible results from implemented low-energy and sustainable house building principles as well as a number of implemented “Green Action Plans” on city level - in line with the characteristics of an environmental conscious “Green City”.

4. PROJECT RESULTS

4.1 Planning a joint workshop for preparing local training in the 11 cities

Planning and completion of joint workshop in Denmark on 22-24 march 1999 formed the basis for following local training activities.

The workshop included the following main activities:

- Introduction to updated knowledge on low-energy and sustainable building principles including building integrated solar energy design, healthy building material/construction design, optimised energy supply systems, total energy and environmental analysis, sustainable solutions for water and waste and sustainable urban planning.
- Presentation of Manual and Guidelines for Urban Ecology Housing Projects systematically going through an actual building or building project for assessment of possible energy and environmental improvements. See also annex 4.
- Site visits for presentation of actual implemented projects, including aspects of urban planning, energy supply, tenants involvement etc.
- Working groups doing the seminar case study and reporting proposals/conclusions - concerning the building initiatives, concerning the local process for involving tenants etc., and concerning the local city level process.

For a detailed programme for the training workshop in Denmark see annexe 1.

4.2 Results from joint preparatory workshop in Denmark 20-24 March 1999

As a first direct result the participants in the training workshop were updated with the actual best available knowledge about energy efficient and environmental sustainable house building principles.

Furthermore the participants got acquainted with the use of practical guidelines for a systematic general assessment on possible improvements for an actual building or building project.

Participants from the 11 cities and the Management Team could reach the following suggestions for how to proceed in the local training process:

- Based on a general paradigm from Green City Denmark (see Annexe 2) - each “team” of the 11 local partners will specify the local “tools” available for local Green Actions - like the way of public influence, possible public incentives/support, other fiscal measures, how to involve political actors/tenants etc. - and also to specify the local needs to ensure maximum benefit from our project.
- Response from each of the 11 local teams will make it possible to set up a local Green Action Plan worked out in a co-operation between the local team and Green City Denmark/the Management Team.
- Arranging of local/regional conferences in the surrounding area for each participating city to present the European Green Cities project by highlighting observed/expected “success stories” and future perspectives etc. related to the implemented local project, by inspiration from maybe Green City database showing low-energy building projects complemented with the 11 local projects, by the “Inspiration Guide” and by presenting the local Green Action Plan.
- Within the individual local Green Action Plans it is suggested to establish training programmes for certain local target groups like schools, housing associations, relevant municipal departments.
- Dissemination of the local “success stories”, Green Action Plans and ideas to future local improvements for the building sector - to all project partners.

The relatively limited EU-budget for the training process will only form the start of individual local training. Hopefully, the local training will be implemented by available local resources in continuation of European Green Cities project.

Participants in the joint workshop in Denmark agreed to prepare for implementing local training/Green Action Plans and for some of them to arrange the above mentioned local/regional conferences.

4.3 Common results from local training activities

From the joint workshop in Denmark March 1999 till next joint project partner meeting in Radstadt/Salzburg in October 1999 local training was initiated and carried out in several partner cities. Others had started before or waited until later.

Some main results referring to local “tools” available for promoting low-energy buildings were presented in the Radstadt/Salzburg meetings, where also EU Technical Consultant Mr. F. Hendriks participated:

1. Who are the primary local “consumers”/partners who will benefit from your project?

- Abruzzo: tenants (will save 2/3 energy costs without investing), local manufacturers, local builders etc.
- Grenoble: tenants (decrease of energy costs important - many unemployed), the housing association (social good effects from lower maintenance costs), the city (decreased pollution).
- Herning: tenants, the municipality, other housing associations, consultants.
- Houtvenne: first social tenants by reducing their energy costs, secondly the community because of the environmental and social aspects, thirdly the managers and technicians of social housing companies and municipalities by extending their technical know-how.
- Kuopio: first and foremost Pirtti School teachers and pupils, and next after evening users in their training and club sessions, then also building owner City of Kuopio and involved partners in design and construction works have familiarised with new energy efficiency technologies and gained experiences to apply these systems in other projects.
- Portsmouth: primarily the 136 families in the renovated buildings, secondly tenants in neighbouring similar buildings.
- Radstadt: owners/tenants (good living comfort, low heating costs), communities (will be supported in energy saving activities).
- Vilanova: tenants, the city (improving standards and CO₂ reduction).

2. Which specific local target groups are you aiming at in the planned training process?

- Abruzzo: tenants, local authorities, manufacturers.
- Grenoble: the housing association, consultants/architects (often considering that renewables have no future).
- Herning: the housing association, other housing associations, the municipality.
- Houtvenne: tenants, other social building companies planning for a total of app. 15,000 new social housing units, training for construction company employees on implementing new technologies and training/information by guided tours to citizens and interested parties.
- Kuopio: the aim is to inspire local businesses, professionals and authorities, but also nation-wide dissemination of innovations and achievements in the project is a target.
- Portsmouth: besides tenants in other City Council apartments the wider target group is the “Major Cities Technical Group” comprising 11 major cities, which all actively support the Home Energy Conservation Act 1995.
- Radstadt: local appointed “energy experts” for individual communities and housing associations etc.
- Vilanova: tenants, citizens.

3. Please specify some of your ideas to useful local Green Actions to support benefits from your project?

- Abruzzo: strengthen the energy funding availability (“energy loans”), developing guidelines for sustainable settlements.
- Grenoble: renewable energy pay back time is often long, so we need to argue about avoiding external costs (social and environmental costs), Green Action initiative could be “external costs calculation method”.
- Herning: annual reporting results and use of gained experience to improve our standards for future projects.

- Houtvenne: setting up a training centre for information and documentation on durable building, introduction of solar energy by demonstrating it in a project and discussion of results in the sector, introduction of the network idea linked to monitoring on a model project.
- Kuopio: further training of authorities in new target setting and procedures in urban planning, building design, supervision, operation, maintenance and facility management. Topics could be life cycle analyses, sustainable development, system requirements and good/best practices in buildings.
- Portsmouth: seminars are planned which will include visits to the project to meet the growing interest in this project, project information will be on Portsmouth City Council web site
- Radstadt: excursions to our project, booklet and video to give inspiration to politicians, housing associations, technicians etc. "Energy experts" shall moderate a further training process in the communities.
- Vilanova: dissemination to citizens as an integrated part of Agenda 21 process.

4. Are there other available local/regional fiscal measures to support low-energy and environmentally sustainable building initiatives ?

- Abruzzo: energy market should be left free - will then privilege the most profitable technologies, authority directives may drug it.
- Grenoble: national agency ADEME will give more financial support to renewables in the next years.
- Herning: periodical city/county initiatives to support demonstration projects etc.
- Houtvenne: photovoltaïcs are subsidised by the Flemish Government, solar energy is subsidised by the electricity supplying company and by some municipalities, and the Province of Antwerp supports durable initiatives.
- Kuopio: no fiscal incentives from local sources available for energy efficiency or environmentally sustainable building initiatives. On the national level there is some funding for auditing and energy efficient reconstruction of housing and other buildings.
- Portsmouth: Home Energy Conservation Act from 1995 is supporting economically from central and local council levels.
- Radstadt: a 10 classes funding system depending on the degree of better insulation used - and the use of renewables.
- Vilanova: 75%/50% reduced license costs to land works/building works in case of a project with renewables and improved energy efficiency.

5. How do you find it possible to involve local/regional political interests for European Green Cities initiatives - and to influence political building sector low-energy strategies in your area?

- Abruzzo: awareness rising from meeting European project partners to stimulate own initiatives inspired from other countries, demonstrating technical and economical feasibility of different energy saving technologies.
- Grenoble: important to convince authorities to have environmental policies to reduce external costs (investment costs are often too high).
- Herning: by close co-operation and involvement between the municipality and the housing association/the builder.
- Houtvenne: when seeing that the idea is successful among tenants, other builders will also convert to the strategy of durable building.

- Kuopio: low energy concepts have so long payback periods and financial risk in return that political influence in system selection is unlikely. The only evident interest is to save investment money in construction and use it elsewhere.
- Portsmouth: demonstrating the tenants' savings in running costs for electricity and gas will convince other citizens, consultants etc. in doing the same.
- Radstadt: we are searching for "energy conscious" communities - and arranging "competitions" between them. Excursions to positive projects shall give positive inputs.
- Vilanova: create energy and environmental conditions that promoters must fulfil (public: by introducing energy conditions into competition and private: by introducing views of energy efficiency into Urban Planning and Building Regulatives).

4.4 Reporting from local training activities in the individual project cities

4.4.1 Abruzzo, Italy:

In September 1998 a conference was arranged related to a joint project partner meeting in L'Aquila. The conference was focusing on low-energy building technologies and renewables - and was attended by approx. 150 Italian representatives from authorities, manufacturers, consultants, builders etc. Furthermore project partner representatives the European Green Cities project participated. Local and national television showed very much interest in promoting our project.



A training programme was introduced to a group of mayors and public administrators at a preliminary conference in May 1999, where the importance of the Abruzzo demonstration project was highlighted as a good opportunity to illustrate and support the regional authority responsibility to locally carry out the national and European directives on energy and environment.

Involved tenants, public administrators and technicians have been shown the technical and economical feasibility of the different energy saving technologies: what were the design intents and expectations of the project, how they have been achieved, what kind of difficulties had to be overcome, and which of the different energy saving measures gave the better results.

Some problems have revealed such as the fact that private housing tenants usually hold a passive role since the lease is normally for four years, so they can be involved in energy investments only on short term conditions. On the other hand low-income public tenancy is indiscriminately exempted from participating in maintenance and retrofit building costs. Such policy creates evident inequality among tenants - and Regione Abruzzo hope that this difference will be modified in the future.

4.4.2 Brescia, Italy:

The project is a solar low-energy retrofit of 72 apartments from 1980, which was meant for using innovative technologies and materials. However, this was not possible due to considered inefficient or too expensive technologies at that time. In the retrofit project some of the low-energy components have been met with difficulties in the local authority approval process.

Training activities have comprised the spreading of a new building practice with application of low energy systems in public residential buildings and also museums, schools, hospitals, taking advantage from the national and regional financial resources.

A public meeting was organised in September 2000 to illustrate the most interesting aspects of the project in Brescia for local institutions at regional and district level, housing associations, building enterprise companies, architects, engineers, energy consultants etc. The local utility ASM Brescia participated with a technical contribution.

Main publications and material for the training process were provided by housing association ALER Brescia comprising manuals for efficient operation of the new low-energy technologies. Tenants were motivated by the possibilities to obtain economic savings and improved indoor air quality and comfort of their apartments. Designers and contractors because they could acquire specific experience about the new innovative technologies.

4.4.3 Copenhagen, Denmark:

Tenants' participation has been a long tradition in Danish house building - and was also part of the normal procedure when this urban renewal project in inner Copenhagen started up. A number of workshops were arranged along with finalising project material so that the final design to a large extent is influenced by tenants living in the housing area.

Thus training activities have been an integrated part of carrying through the project. One main reason for giving much efforts to this tenants' participation is to ensure in the best possible way that tenants' viewpoints considering project details and building costs for tenants are taken into the decision processes.

This may also give a better chance for tenants to be economically able to stay in the renovated apartments. Some of the first major urban renewal projects in Copenhagen resulted in much higher rents, so that tenants had to move out and new tenants with better economic means moved in.

4.4.4 Grenoble, France:

The housing association OPAC38 has initiated a number of activities to disseminate low-energy building technologies including arrangements for tenants, journalists, consultants etc. "Open house" invitations have been advertised among other tenants and citizens to come and visit the new project.

Different energy themes have been chosen for project exhibition linked to inviting tenants etc. And consultants within the project have been explaining about project aim, project benefits and practical details of improvement that will be generally integrated into future projects.

As part of the training a number of special interested groups have been guided to see installations for solar energy and some other main project features. The project has also been a reference for local environment and energy partners.

4.4.5 Herning, Denmark:

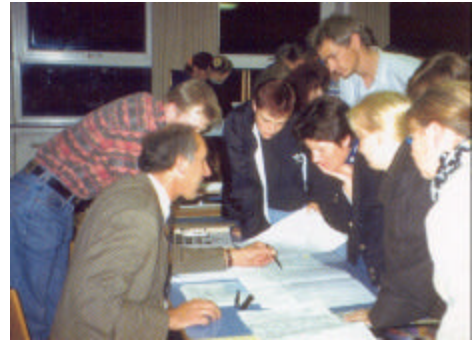
There is a rather big influence from the public on the actual building area, because it is an old industrial estate converted into residential area. The area is part of a national Danish pilot project for environmental conscious project planning and implementation. The builder Herning Housing

Association has involved tenants' representatives right from the start of the project planning - to discuss proposed new buildings for ensuring highly influence on the final design.

Like in the Copenhagen project, there is a long Danish tradition of involving tenants in outlining project proposals right from the beginning. Here on a new built project some of the tenants from other departments within the housing association have been involved - and a very close dialogue with the municipal urban planning, building and environmental departments have been an important part of the project process.

4.4.6 Houtvenne, Belgium:

Zonnige Kempen housing association has performed a number of local training activities to promote awareness amongst tenants for energy savings, water savings, waste segregation and general improved behaviours concerning maintenance of greenings and common recreational places etc. This has also led to positive reaction from Region Antwerp to give financial support for establishing a training centre within the housing association. This has a most promising perspective for disseminating low-energy building technologies more broadly in the region.



Low-income housing with reduced energy costs has been the overall aim for this project. The housing association has a general objective of building houses for low income people at reasonable costs. On a tight family budget reduced energy costs are even more important than in general, so therefore the achieved results will be implemented afterwards in many other dwellings.

4.4.7 Kuopio, Finland:

The project is a new public primary school in modern architecture, which right from the started was highlighted as a good example by the national Finish television. The pupils are participating in energy metering etc. - and from focusing on low-energy building components the project has gradually turned into including environmental programmes for the children's' education. The Schoolmaster has actually been transferred to the municipal administration's school department for working out environmental education programmes, which can be introduced in all the schools in Kuopio as well as international co-operation with other schools.

The training activities have amongst others comprised a number of visits from other schools in order to get inspiration both concerning the building project and concerning how to integrate energy and environment also in the educational programmes and activities. Also technicians and consultants within the building sector have been visiting training activities to rise awareness for energy saving benefits.

4.4.8 Portsmouth, United Kingdom:

Project comprises renovation of a multi-storage municipal owned building, where tenants are primarily low-income families of many different ethnic origins. Awareness campaigns for energy savings etc. is considered not very effective amongst the tenants, but the municipality has instead of this focused more on supporting general Agenda 21 activities in the neighbourhood.

As part of the training a video programme has been produced to present the project objective and achieved benefits for tenants in the renovated building as well as for tenants of other municipal owned buildings, where next years renewal will take place. Training also includes a number of public utility contacts involved in the project and building consultants - to rise awareness and stimulate more initiatives for similar building renewal projects with special taken care of minimising disturbance for tenants that have to move out to "replacement home" during project implementation. Good dialogue and close co-operation with tenants have been most important economically.

4.4.9 Radstadt, Austria:



A major conference was arranged in Salzburg in October 1999 which mobilised approx. 120 Austrian participants representing builders, consultants, manufacturers, authorities etc. apart from project partners from several countries within the European Green Cities. The Radstadt project has become a model for the Salzburg region's revised low-energy building strategy, which ensures a very good dissemination efficiency from this one demonstration project. Local training in November - December 1999 was focusing on educating local area appointed "energy consultants" to be qualified for promoting energy savings and low-energy building principles in a local residential area.

The training of energy experts as advisors for municipalities, communities and housing associations was followed by comprehensive training sessions for many participants with special knowledge in at least one of the 3 areas of energy, buildings and heating systems. It was a highly motivated group of technical engineers, constructional engineers, environmental advisors, architects and people in different positions in communities. The combination of such a mixed team was very important to get different points of views and useful completion in various fields of the discussions.

The training was done in three modules:

1. energy project strategies in communities
2. motivation and moderation,
3. project management and public relation

4.4.10 Vilanova i la Geltrú, Spain:

It was decided to integrate the European Green Cities' local training activities into the Environmental Action Plan / Agenda 21 activities for Vilanova. The builders' consultant Institut Cerdà has performed a number of information meetings for local authority representatives, public departments, builder's staff, involved consultants etc. to promote awareness for low-energy building technologies.

On the political level this project has initiated a decision that building projects without integrated energy and environmental technologies have to pay a higher fee for getting municipal building departments approval to start up a project being implemented. Many excursions to the project have been arranged as part of the training, and project dissemination to other cities with rising interests for sustainable urban development has been jointly implemented with these cities' consultants etc.

4.4.11 Volos, Greece:

The demonstration project comprises renovation and conversion of an old brick work into an exhibition centre and industrial museum. The former disinfections unit will house the newly established Regional Energy Centre - an energy centre for demonstrating low-energy technologies. So two abandoned industrial complexes of remarkable architectural significance are turned into local show cases.

Therefore local awareness rising and training activities are parts of the total design. Visitors in the energy centre are stimulated to be aware of energy saving measures - and they are assisted from the centre when choosing proper energy saving equipment for households or for industries' energy saving initiatives. For Volos the project is seen as a pilot case study to help establish low energy consumption standards at competitive costs for industrial buildings.

First target group for the Regional Energy Centre will be schoolchildren for introducing energy saving behaviours in Volos. A new national law will demand a certificate/energy standard categorising of all existing and new houses. Children will be bring the message to their parents.

4.5 Results showing ways into a more long term direction

A basic characteristics of the Green City concept is close co-operation / integration between public and private partners involved in urban infrastructure solutions like water supply, energy supply, waste management, urban development etc.

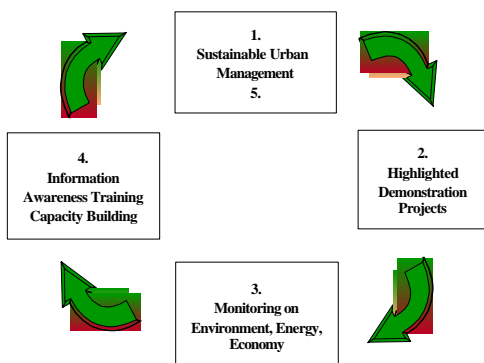
For example within the building sector in Denmark a more than 25 years long tradition for public/private co-operation on research & development, planning, construction, operation, maintenance, administration and financing of all involved infra structural supply lines for urban residential, commercial and industrial building areas - has shown ways to energy & environmental sustainable cities.

Citizens' awareness and influence within local Agenda 21 initiatives etc. and improved quality of daily life conditions and good urban surroundings for citizens' well being are elements in this Green City concept.

“Good housekeeping” is another characteristics of the Green City - and this can be considered of course for your own home, but also on company level or on the total city level. Resulting better economic efficiency is very often one of the significant “drivers” for politicians, companies etc.

For this local training part of European Green Cities' project we have been trying to achieve some steps in the right direction towards a more sustainable and Green City like way of managing urban housing initiatives.

European Green Cities' training model:



Below we can present some of the more visible results achieved.

4.5.1 Houtvenne, Belgium

The demonstration project comprising 23 new energy efficient social housing units was the starting point for Zonnige Kempen Housing Association to develop local training programmes for tenants, aiming at awareness rising considering energy saving, water savings, source sorting of waste etc.

During the project implementation the Housing Association organised a number of “come together” arrangements for tenants in all the established social housing units in order to present the project objectives for energy savings and thus possible economic benefits for the tenants - as energy costs actually counts for a relatively bigger part of household budget for low-income families.

The region of Antwerp has shown a big interest in this project right from beginning - and due to very good process of actively involving tenants, city administrations, financial partners, utilities, consultants and local citizens the Zonnige Kempen Housing Association has succeeded in establishing a local process of awareness rising for sustainable urban housing. The process has gradually spread to regional level comprising also high attention from financial support sources within the region of Antwerp.

This has now resulted in financial support to establish a training centre for tenants, consultants, technicians, citizens etc. to promote more sustainable housing projects in the future.

4.5.2 Radstadt, Austria

The European Green Cities' training model shown above is aiming at highlighting the demonstration project and use it for influencing the local urban process of planning and building future housing units and make them become gradually more energy saving and environmentally sustainable housing units.

Registration of such effects can be more or less clearly registered amongst the 11 demonstration projects within the European Green Cities project.

For the Radstadt project it is also very visible that the good reputation of the project and a well performed local training process initiated co-operation with other federal states in Austria for joined training programmes. Thus training activities were split into three modules carried out in Salzburg, Vorarlberg and Tyrol.

The training ended with issuing a certificate for the community counsellors, which now are involved in a number of projects and can help to spread experiences made in this EU-Thermie project locally, regionally and on an European level through the European Green Cities' network. The "energy experts" are now involved in an information-network and -campaign for communities in Salzburg. Many interesting projects have been initiated that will be implemented during the years to come. As example we can mention an "eco-school" and a biomass district heating system.

Visiting Salzburg in October 1999 for a joined partner meeting it was evident that this local Radstadt project already had been a show case for developing sustainable building strategies within GSWB Housing Association as well as within Salzburg political responsible building authorities.

4.5.3 Kuopio, Finland

As a third visible demonstration project for making the local process of energy conscious building initiatives spread to become generally more broadly used, we can recognise the new built Pirtti Elementary School project as succeeding very well. Kuopio has built one new school every year during the last 20 years and parallel renovated one or two existing schools per year.

First of all it was a challenge in this pilot project to introduce energy efficient technologies to minimise costs of modern architecture, which often causes higher energy costs due to non traditional building expressions and room designs etc.

Then after completing the Pirtti school it suddenly became evident to involve pupils in monitoring the use of energy, water, and waste. Gradually these activities became more and more part of the educational programmes for the children. The success involved transferring the school master to the central municipal school department for developing permanent revised strategies and building concepts for the coming new school and renovation projects. The school master is also supposed to develop and revise educational programmes for other municipal schools in Kuopio to include energy and environmental concerns as permanent part of the programmes.

The school master has along with this work initiated a number of international co-operations to other schools - amongst others as far away as in Australia, where interest goes very much for including renewable energy, first of all utilising solar energy.