European Summary - Pupils` Pilot Project [Stand: 21.04.2010]

General

Young Energy People! (YEP!) is a European Partnership project coordinated from the UK by Severn Wye Energy Agency (SWEA). 50% of the funding has been provided by The European Agency for Competitiveness and Innovation's, Energy Intelligent Europe Campaign.

The project work following a common theme and approach, took place in eight European regions but worked within the realities of the local contexts so that a varied evidence base of best practice could be achieved to help inform wide spread replication.

The rationale behind the concept focused on the needs of schools, young people and work places. Young people are increasingly focused on the relationship between learning and earning and their motivation is greatly increased when their education has a clear link and relevance to their future lives. Secondary schools have a duty to prepare students with experience and skills that equips them for future employment. This is a feature of secondary education in all parts of Europe and in the UK it has a defined place in the curriculum as 'Work Related Learning' (WRL).

Implementation of the project at school

Acquisition of the schools and way of implementing YEP

In many cases invitations were sent to local schools inviting them to participate in YEP! Interested schools were then selected based on various criteria. Some of the YEP partners contacted specific schools by approaching personal contacts or on the advice of the local school authority.

The Italian partners EALP and AEA adopted criteria to evaluate all possible schools, with technically oriented schools specifically approached.

AEA (Italy)
Five technical schools were chosen to take part in the YEP project. All headmasters of the schools were very interested in the project. A schools manager and a main teacher have been identified within each school for the programme.
In general the energy topic has been implemented in scientific subject as chemistry, biology and physics. In some cases energy activities have been carried out in different subjects e.g. economics and drawing.

AER (Spain)
Schools were contacted directly by AER. Initially eight schools joined the programme, but one later dropped out.
AER delivered an initial presentation about the YEP project at one of the schools. After that there was a meeting with teachers in the AER office every three months.
Most of the schools have been actively participating in energy projects.
AER established a working programme used for each participating school with the following tasks:

- Introduction to the YEP project and Students and Teachers Questionnaire fulfilling
- Introduction to renewable energies and energy saving and efficiency
- Introduction to energy audits

EALP (Italy)
All schools in Livorno province area were sent an invitation to participate in the project. Nine schools responded and registered their interest. EALP had to select 5 schools and in order to do this adopted some criteria give each school a score. 4 out of the 5 highest scoring schools were technical schools, with the right skills to carry out audits etc.
Headteachers were met individually in order to explain the projects aims and objectives and to distribute initial documents.

EAP (Bulgaria)
10 professional schools were approached and the YEP project was pitched to the school directors.

The project was implemented in five professional high schools in Plovdiv. The schools wanted something different to add to the curriculum and wanted help in improving their energy efficiency.
A program for all five schools was developed with the following content:

- Energy and environment
- Energy use at school and at home
- Introduction in energy management – data collection and analysis
- RES applications
- Energy surveys for school buildings
- Energy management in SMEs

ESS (Sweden)
The project leader of EASS knew the headmasters of most schools personally and convinced them to participate in the YEP Project. In all schools ESS has met with the whole teacher group or the team of teachers that teach the selected class. They were informed about the possibilities of integrating energy education into the following subjects: Geography, Social science, Religion/ Philosophy, Physics, Biology, Chemistry, Technology, English, Maths, Swedish, Arts, and Athletics.

EBPB (Germany)
EBPB in Berlin presented the project to the local school authority of Pankow (a district of the city) to gain support in selecting five suitable schools. The local administration services were verbally supportive, but did not take action to support delivery. The procedure to select the 5 participating schools was carried out by EBPB. Letters were sent to all 140 schools and follow up telephone conversations were held with each one to discuss the project. There was positive feedback from approximately 35 schools. Then there was a second telephone conversation to confirm their interest and appointments were made with around 20 schools to meet with the head teachers. EBPB presented the YEP concept at school conferences in order to identify teachers interested in working on the project. Based on the levels of response the 5 most interested schools were invited to join the project.
The main selection criteria were the implementation of YEP in other subjects apart from physics and science, as well as motivated and interested teachers to work with.

SWEA (England)
The schools were selected on the basis of criteria devised by the LSG. School must be within the top 20 highest energy consuming schools in the region. They needed to be in rural and urban areas, of different ages and construction type and in the process of renovation in order to compare differences in energy consumption. The schools covered each district within the region and were required to be supportive of the project aims and objectives. 6 schools were recruited. SWEA held preliminary meetings with head teachers to promote the

project and gain senior management commitment to the project. SWEA presented to the schools the project concept and provided job descriptions and application forms for students to be able to apply to join the SEMT. In addition to this the pupils read the job descriptions and completed the application forms. The application forms were assessed by SWEA and then 10 minute interviews were conducted in order to ensure that the pupils were given roles within the SEMT that were most appropriate to their skills (project leader; marketing manager; energy team leader & energy advisors etc,). This process appears to have worked very well.

REAC (Crete)
Schools were selected on the basis of the levels of understanding, and on enthusiasm of the teachers, not the pupils. 6 schools were in Heraklion, and 3 from other areas. There was a variety of schools each with different levels of technical ability.
The project officially started with a first common meeting with all participating teachers of Crete. In addition the Head teachers of the schools and the members of the Cretan LSG attended. During this meeting the first YEP! tools were distributed to the teachers (Energy Book for Teachers, Energy Leaflet for Students, List of related Websites and Bibliography). Additionally the teachers were officially informed (followed by letter) of their obligations, the proposed timetable and the deliverables they should deliver and submit to REAC. Requests by the teachers for the successful start of the project's implementation in schools were easily and very quickly satisfied by REAC. One responsible employee of REAC visited each and every school to deliver presentations-speeches to the participating students. During the first two months the students were being "taught" by their teachers about Energy, RES and Energy Saving. The teaching was based on dialogue and examples. School Energy Management Team was also identified.

Cooperation and communication with the teachers

Teachers are the key players in YEP! Therefore it is vital that they are interested and motivated and to take part. All partners in the YEP Consortium met with the teachers involved on an individual basis, and stayed in contact with them by phone or email throughout the project. In all project regions the starting point was a personal meeting with the responsible teacher/s.

One employee of REAC visited each participating school and presented the project to the teachers and students interested in becoming involved. In Sweden ESS has met the teachers of each participating class to discuss to what extent they want ESS to support them with energy education. AER organised meetings with the teachers every three months to evaluate the process and to assess the teachers´ needs.

SWEA noticed that it has become apparent that the schools who have the full support of the Business Manager have found the project far easier to undertake as the necessary information has been more easily accessible. There was a continuous and successful communication between SWEA and the link teacher at each school.

After agreeing upon cooperation with five schools, EBPB had several meetings with the participating teachers to discuss suitable ways to meet the objectives of the YEP project and how to integrate this agenda in the school's curriculum. EBPB placed special emphasis on subjects different from Science and Physics. For this purpose EBPB had collected educational resources which were provided to the teachers. In some schools energy-related topics could indeed be integrated into subjects like Ethics, Humanities, Geography, and even Physical Education and Art.

Evaluation of the teachers needs

During this first meeting the partners handed out questionnaires to participant teachers to determine the teachers' needs. With the exception of Bulgaria project partners found that participant teachers many of the participant teachers already teach the energy theme to some extent in school be it as part of the school curriculum or as part of their individual studies and personal interest. Those already teaching the energy topic were confident in teaching about renewables (particularly in Sweden where the schools are often well constructed and already heated by sustainable energy from district heating power plants), however energy efficient behaviours was a common theme highlighted by teachers in all project areas as an area in which support was required. In addition both in Spain and the UK project partners found that Building design and fabrication is one of the aspects that are hardly tackled by teachers because they have little information do not in some cases consider it to be interesting enough.

In Bulgaria and Spain EAP and AER found that teachers generally have very little understanding of the energy topic and teachers (especially those for whom Science, Engineering and Technology is not a specialist subject) asked for materials and support for implementing all aspects of energy education. In addition although many of the Cretian teachers already teach energy topics with an emphasis on Energy behaviour, Energy Saving and Renewables, their own training was, so far, part of their individual studies and interest and REACs primary goals was to provide a reliable tool (Energy Book) in which teachers could find detailed information about all Energy themes to enrich their knowledge and enhance their ability to teach.

In response to the questionnaires all project partners developed a number of materials and templates to assist teachers with teaching the areas of the energy topic they required support with and each project partner developed a template to support teachers and students in carrying out school energy audits.

For additional information see appendix 1.

Evaluation of the questionnaire for pupils

To assess pupils' knowledge about energy topics prior to project implementation all partners distributed questionnaires to be completed by the students. Due to the different ages of the participating pupils it was difficult to assess the knowledge base.

Overall first questionnaires indicated that the pupils had a limited understanding of energy issues and environmental topics (even those attending technical schools).

28.3 % correct answers on environmental issues questions

35.1% corrects answers on energy efficiency questions

25.9% corrects answers on energy jobs questions

28.4% correct answers on all questions

The highest score (35.1% on energy efficiency) demonstrated that the students had at least a little knowledge on energy efficiency behaviour while on the contrary very little knowledge about the other issues.

The same questionnaires were issued to students at the end of the project and results showed that overall the students knowledge of energy issues improved by 30%.

Launching an energy team at school and action

In all participating schools energy teams were established. In some cases the energy team were made up of the most interested students from different classes, in the others the energy team was made up of the students of one class. Teams consisted of between 4- 25 students mainly aged between 14 – 18 years. In all cases the most interested students within a class or year group formed the SEMT. Both EALP and SWEA allocated students specific roles within the SEMT, providing them with an opportunity to develop their skills in a particular area of interest e.g. project management, marketing or IT.

At the start of the project, project partners delivered workshops, lessons or energy days to teach students about the importance of energy efficiency and energy management. Project partners then worked with teachers and students to carry out an energy audit of their school building focussing aspects from energy behaviour, heating management, electrical consumption and building construction. Audits were adapted to the individual school. For example SWEA focused on heating and electricity rather than water consumption and the energy team in Perugia`s schools were responsible for the following tasks:

- energy audit of school, evaluating volume, surface and consumption
- observing employees, teachers, pupil's use of the heating system and electrical appliances.
- evaluating energy saving behaviour (kWh, CO2 and money saving calculation)

Following the energy audits SEMTs were required to suggest ways in which the energy efficiency of their school could be improved and the expectation was that these findings and recommendation would be shared with school community as part of an energy efficiency campaign. Project partners adopted different approaches in terms of how this was carried out. Within each UK school the responsible SEMT completed a detailed report containing key recommendations for saving energy. Berlin adopted a similar approach with students publishing the results of their energy survey onto the school homepage.

In most cases the suggestions made were behavioural changes such as turning off the lights, closing windows when the heating is on etc, or low cost investments which could be made to improve energy efficiency e.g. installing thermostatic radiator valves, changing light fittings to more energy efficient ones. AEA encouraged schools to focus their energy saving campaign on the electrical energy, through evaluating the good behaviour potential or through changing electrical appliances/systems as the school heating systems are centralized and the users (pupils, teachers, caretakers, employees) do not have the ability to switch the system on or off. EALP and SWEA encouraged school energy management teams to develop campaign materials such as posters, films, leaflets and power point presentations to be shown to other classes and year groups to encourage them to adopt good energy behaviours. ESS encouraged students to hold energy awareness days in which the school heating was turned off and students were encouraged to come to school in outdoor clothes to raise awareness. This part of the project was very much students led.

See appendix 2 for further details.

Main reduction potential at school

The condition of school buildings within and between the partner regions is extremely varied. The heating systems found in the Bulgarian schools are in bad condition. The schools participating in the project use electricity, coal and oil for heating. There is a lack of knowledge about alternatives and in many of the schools there are no energy consumption records. As a result obtaining consumption data of the schools was difficult and there was no baseline data. In comparison in Växjö consumption data is collected on an hourly basis.

A majority of project partners found that the main reduction potentials were through lighting, either through changing the types of light used to low energy alternatives and/or changing user behaviour by making people aware of turning off the lights when they are not needed. In the case for AER who found that the highest potential in energy saving was indeed on lighting. The possibilities for the pupils are mostly concerned with behaviour and students placed signs on light switches to show which lights they operate. AER recommends that all participating schools in their region should enable the SEMT could to work on the proposal of reduction measures based on the results of the energy audit

In addition SWEA, EALP, EBPB and REAC identify significant reduction potential for energy saving in the central heating systems. EBPB developed a one day campaign and measured the temperature in all rooms of the school. Students found that in most of the rooms the temperature was above 22°C and the windows were open. By checking the heating valves it has been found the valves were on maximum and should be adjusted. EBPB and SWEA also found that encouraging staff to the heating valves to position 3 if possible or open the window just for a short time is a potential way of reducing heat consumption.

The heating system differs however from school to school. In some schools the heating system is centralized and the pupils or teachers don't have the possibility to turn the heating valves, in other schools there is the possibility to turn the heating valves. Where heating system are centralized and the users (pupils, teachers, caretakers, employees) don't have the ability to control the system. In these cases project partners tended to focus on electrical energy, evaluating the good behaviour potential or changes that could be made to electrical appliances e.g. using timers, switching appliances off standby and again through changing light bulbs and switching lights off when not in use. EBPB and EALP had to point out however that unfortunately the expectation of possible reduction was low in their regions as students appeared not to be very interested in this matter.

SWEA, ESS and REAC also identified improving insulation (of roofs, walls, windows or pipe work) in older school buildings would be a significant way to reduce consumption.

Spanish schools include an ecological profile in subjects such as Science and Technology. They organise activities focused mainly on waste issues. Recycling is one of the most general topics. However, energy saving or energy efficient behaviour is not usually included. The YEP project can therefore be seen as a chance to introduce an energy profile.

Implementation of the project at work placements

Acquisition and implementation of YEP! in the work place.

Many of the participant schools throughout each region have pre-established links with local businesses. Where this was not the case project partners (EAR, ESS and REAC) used their own business links (or developed new links with LSG assistance) to arrange student work placements. With the support of the project partners, students visited a variety of workplaces (as part of a longer work placement or as a one day visit) ranging from hotels, offices and small factories and a church. Using tools developed by the project partner such as an

energy survey booklet or questionnaire the students carried out an energy audit of the business (accompanied by a member of the school staff and/or project partner) similar to that carried out in school. Following the audit the students presented their findings to workplace managers and made recommendations for improving energy efficiency in some or all of the following areas:

- Lighting (behaviours, control, types).
- Temperature and comfort (behaviour).
- Electrical equipment (behaviour, control, types)
- Insulation
- Renewable technologies (where appropriate).

Students were extremely motivated by the opportunity to apply their newly acquired skills and knowledge in an out of school context and the work placements proved to be a valuable experience. In additions the suggestions the students made to the company for improving energy efficiency were well received by work places.
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Lessons learned

- Success is highly affected by the planning and organisation of the action
- Students liked the idea of working in a place outside the school
- Meetings and collaboration with the owners or directors of the workplaces is highly recommended for the best preparation and implementation
- If the workplace believes in this project goals (energy saving) the project can be a big success and can be replicated easily.
- Sometimes it is difficult to find an appropriate (mutually convenient) time for the surveys to take place
- In a few cases pupils were not prepared enough to address and speak to other adults. Therefore before visiting the workplace it is vital that the students are well prepared (e.g. by providing them with suitable questionnaires and templates)
- Any support from relevant Associations and Chambers of project activity is a great help and extremely important.
- School have found that this has been a good experience to make contact and form links with the companies to show the pupils' competences.
- It is easier to involve students in practical activities than in theoretical ones.

(See appendices 3 for individual project partner breakdown of workplace implementation appendix 4 for a more detailed overview of how each partner supported the pupils and pupils´ tasks at work placements).

Appendix 1: Evaluation of the teachers needs

In Italy most of the teachers involved are Engineers or technical teachers who are quite confident about teaching the energy theme, but less so in teaching students energy efficiency behaviours. They are nevertheless interested in the issue since they volunteered to take part in this project. They asked for the support of EALP or AEA to integrate energy efficiency behaviours into their lessons to student and so a meeting was prepared with students to teach them how to behave correctly from energy point of view at home, in school and in workplace.

In Sweden the schools are often well constructed and already heated by sustainable energy from district heating power plants. ESS therefore focused on supporting teachers with changing behaviours. After collecting in the completed teacher questionnaires ESS had a discussion with each teacher to determine the extent to which they want ESS to support them with energy education in the project, referring to the obvious needs highlighted in the questionnaire.

In Crete most of the teachers have already taught their student about energy with emphasis on Energy behaviour, Energy Saving and Renewables. Their own training was, so far, part of their individual studies and interest. The first goal of REAC was to therefore provide a reliable tool (Energy Book) in which they could find detailed information about all Energy themes to enrich their knowledge and enhance their ability to teach. Another thing was the teachers' need for training on carrying out Energy Audits. Therefore it was so necessary for the above mentioned templates to be developed by REAC and to be explained to the teachers.

AER reported that many of the teachers' involved in the YEP project had no clear understanding of the energy saving topic. The teachers needed to be guided, so AER produced a guide and list of educational resources. AER recognised that the teachers were not able to use the tools and so developed a template to provide support to the teachers to teach the pupils. Apart from some practical sessions surveying 4 of the 7 schools the teachers did not work with the pupils. 45% of teachers surveyed taught energy related topics, depending on the subject they taught. For example Technology, Geography and Science teachers are more inclined to introduce this topic than those teaching Languages, Literature or History. Those who include energy topics, put emphasis on renewable technologies, energy efficient behaviour and individual impact as part of the solution as there are the topics thought to be better linked to student's interests. Building design and fabrication is one of the aspects that are hardly tackled by teachers because they have limited information on this subject and do not consider it to be interesting enough.

Teachers from Bulgaria needed most of the educational material offered by EAP.

All teachers surveyed by SWEA already taught Energy related topics but generally focus on the global or at least UK patterns. As a result students struggle to make links between the global and local picture. Teachers suggested the focus of teaching should shift to Energy efficient behaviours and building design. This may be because they are more directly influenced by students' lifestyles and students can make a more immediate difference in these areas.

EBPB noticed that most of the teachers involved in the YEP project already taught energy related topics and felt they had at least an average understanding of energy issues. Teachers asked for materials and support for implementing energy education into different subjects apart from Physics and Science, so EBPB created and collected different educational materials they could use for their lessons.

Appendix 2: Launching an energy team at school and action

EALP used the idea of subdividing the class in different sub roles providing students with the opportunity to choose the role in which they felt more comfortable (Senior Project Manager, Project Manager, Marketing Manager, Computer Manager, Energy Consultant).
Each school carried out an energy audit of the school and suggested ways in which energy consumption could be reduced in school through possible structural investments (difficult to be realised) and low cost investments (e.g. installing thermostatic valves at radiators, installing timers to some machines etc) and behavioural changes. The teams then produced campaign materials such as posters, leaflets, self made videos (which possibly could be put into the Internet in 'You Tube' etc) to communicate their findings and suggestions to the other students. Some students also created Power Point presentations to be shown to other classes during this school year (2009/2010) to encourage good behaviours to other students.

In Berlin the energy team worked mainly through voluntary workshops. In the first two months the pupils were taught by their teachers about the basics of energy saving, energy management and energy efficiency. With the support of EBPB the pupils carried out an energy audit of their school building. The pupils got to look at their school building as an energy consumer and tried to highlight the weak points of the building.
In a few cases the results of the energy survey along with a short article were published on the school homepage.

ESS motivated the students in several ways: all participating pupils had an energy-day at Kreativum Science Center. They were also shown energy experiments at school, and were encouraged to take part in energy fares. ESS convinced the pupils that they could cut off the energy supply where possible to show Headmasters, teachers and pupils the effects. The teachers weren't able to continue campaigning for a longer period. 3 – 6 lessons were held with each class. Templates for their school and workplace energy survey were developed.

REAC established energy teams with the most interested students in the participating schools. The number of the students participating in the energy team was dependant on the total number of participating students in each school. The average sized group consisted of 6-7 students.

In Valencia all participating schools have launched a School Energy Management Team. The SEMT is in charge of collecting information through questionnaires provided by AER. There are three areas of study: behaviour, heating consumption and electricity consumption.
The arrangement and organisation of the SEMT was decided by the teachers who decided which members were responsible for collecting the information needed for each questionnaire.

To collect the information the SEMT went on a tour of the school checking equipment, lighting system, etc. Once the questionnaires were completed, the information was processed and analysed by all students involved (not just the SEMT). The SEMT is responsible for the dissemination of the Action Plan and recommendations out forward by all students involved and determines the people involved in the implementation of the measures. The SEMT are also in charge of collecting the information needed for the energy audit in workplaces. The AER provides the SEMT with the questionnaires and provides support to students during their visits to the workplaces.

In Bulgaria the case was a little more complicated. The YEP Project involved schools in Plovdiv that do not have any experience in the field of energy, or a responsible Energy

Manager. Referring to this the team from EAP had to train the teacher and the students simultaneously. The EAP employees accompanied the students and the teachers throughout the project.

In the UK interested students applied to join the SEMT by completing a formal application form. Ten minute interviews were then conducted with each student in order to ensure that the pupils were allocated to a role within the SEMT that best matched their skills (project leader; marketing manager; energy team leader & energy advisors et...). The SEMT was responsible for the following tasks:

- analysing consumption, cost and emissions data and benchmarking the school performance against other schools
- Collecting data during the Energy Survey and analysing the results
- Writing an Energy Report, suggesting and prioritising recommendations and developing an Action Plan
- Presenting the findings and recommendations to other schools, the School Leadership Teams and Governors

SWEA helped the pupils to develop their report of findings and recommendations, and provided assistance with delivering energy campaigns etc. The schools delivered most of the work internally and SWEA was in place to help facilitate the actions

Appendix 3 - Acquisition of the work placements and way of implementation YEP

AEA

The teachers of the schools already have good contact to key workplace staff. The school made the first contact with the workplaces by phone. There were five workplaces, one for each school. All workplaces were offices, near to the schools. There were several problems introducing YEP to the workplace, the biggest being delivery of the energy audit. After the audit the students took the energy consumption for the workplace and presented the evaluation to the work manager. There was an analysis of electrical consumption throughout the workplace and the behaviours of the employees. The students elaborated the data obtained with the teacher and presented to the workplace manager their observations and recommendations accordingly.

AER

AER was the link between schools and workplaces. There was a contact person in each workplace. For the energy audit at workplaces, the AER has signed an agreement with councils from the participating municipalities to use their premises for this purpose. Templates were prepared for students to complete when they went to the workplaces and training was provided prior to delivery of the energy survey. All students went to town hall offices to deliver their audit. There were two visits to the workplace: the first one to collect information and the second one so that students could report the measures for the reduction of the consumption to the workers (Action Plan).The students were split in to three groups to complete one template each. No historic energy data was collected by the students.

EALP

In Italy it is quite common that workplaces host students in the company to start a pre-work period during the years of studies. In 3 cases schools themselves put us in contact with a “familiar” workplace (Galilei, Volta and Cattaneo schools); in another case we were helped by a workers category (CNA: Craftmans assosciation) to find a workplace for Orlando school and in another case Ealp found the contact for a workplace, which is one of the members of

the Local Steering Group (for Buontalenti school). EALP contacted the workplaces, met the responsible person individually and explained the aim of this collaboration between workplace and school. EALP delivered them a pack of information relating to the project. There were three visits per school at the workplace. EALP attended all workplace surveys along with the students and the teachers. The students took measurements of lighting, temperatures of different areas of the building. The students evaluated the results and presented them to the workplace manager.

EAP

The project was delivered in an ambitious German production company in Bulgaria, who were particularly interested in “added value”. A plan was developed which was agreed and signed off by the company.
Just few of the students were selected by the schools to do the specific tasks at the workplace. The students went several times to the EAP office to get introduced the tasks by EAP. As well as the energy survey tasks students had the opportunity to be involved with:

- Installing SHW in the office buildings
- Installing double doors for minimizing heat loss
- Potentials for energy savings in the company

Students presented their findings and ideas for the recommendations to the company.

EBPB

In Germany every pupil of the 9th class has to do a work placement in a company for three weeks. Some schools have established links with a few companies or they have a list of companies pupils can apply for. In general the pupils are assigned to particular tasks to gain experience in the respective working field.
One of the workplaces (Company BRAST) has an established link with one school and selects interested pupils especially from that school.
Another school gave us the contact details of two workplaces (Evangelische Kita “Brüdergemeine” and Katholische Kita “St. Richard”).
In the other cases EBPB found the contact for a workplace.
EBPB followed one procedure for all five workplaces.
EBPB contacted all workplaces and made appointments to meet the responsible person individually and explained what is the project about and what the pupil accompanied by EBPB will do on one day of the practical period and a visual preliminary survey was carried out.

ESS

One teacher in each school assisted ESS with making a links with work places to provide students with a one week of internship. The students had a manual for conducting the energy surveys and the approach adopted was to encourage the students to do their best following their school work. It was felt that the students were too young (around 15 years) to really offer much to the business.

REAC

After several contacts and in cooperation with the members of the LSG the workplaces were identified. Official letters were exchanged with the directors (or owners) of the workplaces. The schools were informed about the workplace they would visit.
REAC has formulated 3 different templates for Energy Audits in:

1) Office building
2) Hotel building
3) Small industry.

Additionally one questionnaire was developed to assess employees’ energy behaviour. This material was introduced to the teachers and the SEMTs, according to the workplace to be visited.

The main priority was to ensure that the students could carry out their work with minimal disruption to the day to day operation within each workplace. Initially a meeting took place to agree the energy audit procedure, so that when the students delivered their audits, there was a structured approach in place for them to adhere to. The students were not able to access all areas of the company but were able to gain a good understanding of the energy situation of both the buildings and the processes. Questionnaires were completed by the students who conducted interviews with a select number of employees. The students of the SEMT presented their findings to the manager of the workplaces.

SWEA

In the UK it is the fact that it is usual practice for students to undertake a work placement after their exams, however not all of the participating students were in the school year that this normally takes place so some special arrangements had to be made.

The work placement aspect of the project operated differently in each school depending on the year group of the students.

SWEA focused on two schools for the workplaces. The schools identified the businesses by themselves. Templates were produced for the students to use. SWEA attended the workplace and obtained the formal agreement, billing data and baseline questionnaire.

SWEA conducted initial site surveys to identify what the students could survey. Energy diaries were created for the businesses.

Students carried out an energy survey, collected data and made observations in order to prepare a power point presentation to owners and managers identifying their top recommendations and savings.

Appendix 4 - Way of supporting the pupils and pupils´ tasks at work placements

AEA

The students visited workplaces with the teacher within the school lesson three times.
At the first meeting a questionnaire was filled out to determine consumption (electrical and heat consumption) and a building inspection took place.
At the second meeting the energy audit was carried out on the basis of the YEP methodology, the behaviour of the employees was observed and the electrical consumption was evaluated with the cost control module.
At the third meeting the results were presented to the workers and managers. The students made suggestions how energy could be saved by changing the behaviour. In a few offices posters were put up.
The students could transfer the energy audit they learned at school as a methodology to find out energy saving measures at the workplaces. Moreover they analysed the data and school and after that they reported the obtained result and energy saving suggestion to the employees.

AER

Students were accompanied by school staff and AER staff as well.
Pupils could transfer their knowledge in the following aspects:

- Lighting (behaviours, control, types).
- Temperature and comfort (behaviour).
- Electrical equipment (behaviour, control, types)

EALP

EALP accompanied the students on their initial visit to meet the workplace representatives (in most cases a teacher was also present). Students were always accompanied by EALP's Engineers in order to follow step by step the activities at the workplace.
The energy audit students used by the students in school and the methodology outlined in YEP! was transferred to the workplace directly. This does not mean that workplaces are unaware of their energy efficiency, but rather enabled the students to contribute and give more hints on the subject.

EAP

EAP accompanied the students to the workplace. A team was assigned by the workplace to work with the students and EAP.
There is an existing partnership between EAP and the company.
The company had 3 specific tasks for the students:

- Installing solar thermal panels for hot water in the office buildings
- Installing double doors for minimizing the heat loss
- Identifying potential for energy savings in the company

EBPB

EBPB accompanied the pupils on one day at the workplace. A meeting with the pupil, a member of staff at the business and EBPB was arranged and the format of the day was discussed. The experiences of the energy audit at school could be transferred to the workplace and also some energy saving user behaviour could be replicated here. The pupils even tried to focus on weak points of the building structure. The pupils were very motivated carrying out the energy audit at the workplace. Most of them said that was an interesting day and they even can adapt the knowledge related to energy saving behavior at home.

ESS
ESS accompanied some of the pupils to the workplaces in Växjö/ Kronoberg. In Blekinge the teacher accompanied the students on site (a shop). Some of the pupils went to a church with a very good manager and also a very good caretaker. Although polite however he didn't accept the pupils' opinion and criticism. The students gave feedback to the staff at all workplaces.

REAC
REAC accompanied the SEMT during its first visit to the workplace. This visit was the most important as it includes meeting with the director, the caretaker responsible for the building or the engineer responsible for the production department of the industry, and provides the students with information and data for completing the questionnaires and templates they are required to complete..
From our experience the results and conclusions of the Energy Audits and the proposals of the students will impact mainly on the energy behaviour of the employees and maybe some small, inexpensive interventions in the building appliances.
There was definitely two way transfer of energy knowledge during the meetings between the SEMTs and the responsible care taker of the building, but most importantly there was an impact on the energy awareness of the employees of the workplaces, during the cooperation with the students of the SEMTs (especially on energy behaviour issues).
The energy efficiency practice of the students in the workplaces was developed in three areas: Conversation + Questionnaires (filling and elaboration) + Presentation of results. Through these axis the students were able to identify and focus on "energy mistakes and wrong practices" and by this way to somehow impact on employees' energy behaviour towards energy saving. Additionally in some cases the students were able to identify practical measures and energy technologies which would enhance the energy efficiency of the workplaces (and in some cases present them in numbers).

SWEA
Students were accompanied by school staff and most likely by SWEA staff as well. The students had an individual meeting with SWEA prior to their placement.

The format of the survey was similar to that undertaken in school. It covered the followings:

- Heating & Hot Water (Types of fuel, consumption and boilers)
- Temperature & Comfort (behaviours and appliances)
- Lighting (behaviours, controls and types)
- Electrical equipment (behaviours, controls, types)
- Insulation (walls, roof, windows, doors, behaviours)
- Renewable options will also be considered where appropriate