



Promoting Energy Education in County Meath, Ireland

Meath Energy Management Agency, Ireland

Summary

Over the period of the EU SAVEII contract (2002 – 2005) MEMA has made significant progress in broadcasting and promoting energy awareness among the Primary (8 to 12 yr old children) and Secondary (transition year – 14 to 16 yr old adolescents) schools in County Meath. In total 100 Primary schools and 20 Secondary schools have been offered the opportunity to have a MEMA representative present an energy workshop in their school. Science has only recently been introduced to the Primary school curriculum in Ireland (introduced September 2003) – up to this point 'Nature Studies' was the only area in the curriculum that covered science related topics. This new Science curriculum proved a perfect channel to integrate energy and environment for the students. MEMA's energy education programme was received with much enthusiasm from both the teachers and students as a new and exciting element to studying how all our actions in our daily living affects the global environment.

To-date interactive energy education workshops have been presented to Primary schools students and PowerPoint lecture presentations have been delivered to Secondary school students through MEMA's Energy Education programme. The workshops take approx 1.5hrs and have been delivered to 39 schools in County Meath since September 2003 and are booked up to February 2005. The average number of students who receive the workshop and presentations is 90 per day. Approximately 3,550 students have participated in the sessions.

End-user area

- New buildings
- Refurbishment of buildings
- Transport and mobility
- Financial instruments
- Industry
- Legal initiatives (regulations, directives, etc)
- Planning issues
- Sustainable communities
- User behaviour
- Education
- Other

Target Audience

- Citizens
- Households
- Property owners
- Schools and universities
- Decision makers
- Local and regional authorities
- Transport companies
- Utilities
- ESCOs
- Architects and engineers
- Financial institutions
- Other

Technical

- Energy efficiency
- Heating
- Cooling
- Appliances
- Lighting
- CHP
- District Heating
- Solar energy
- Biomass
- Wind
- Geothermal
- Hydro power
- Other

Context

Meath Energy Management Agency (MEMA) is a local energy agency formed in 2002 by Meath County Council and the European Commission Directorate General for Energy, DGXVII under the EU SAVEII Programme. Meath Energy Management Agency (MEMA) is located in Navan, County Meath, Ireland. The energy agency work programme covers six Focus Areas of project work and Energy Education is *Focus Area 6*.

Objectives

The aim of MEMA's energy education programme is to introduce energy as a key component and underlying issue in the study of science, environment and social studies. Facilitating the students to understand the need



for environmental protection through the rational use of energy and the use of renewable energy sources is a vital part of the agency's work.

Schools participating in MEMA's education workshops are also encouraged to register their schools as 'Green Flag' schools. Green-Schools is an international environmental education programme designed to promote and acknowledge whole school action for the environment and it is open to both Primary and Secondary schools. The Green-Schools programme is run by An Taisce (The National Trust for Ireland) in cooperation with the local authorities throughout Ireland. MEMA is emphasising the direct link and symbiotic relationships between energy and environment.

Process

Process 2003

Energy Education Workshops 2003

MEMA's Energy Education Programme was launched during the national Energy Awareness Week 2003 (September). All of the schools (11 primary and 5 secondary with approximately 6,000 students in total) in Navan were visited and presented with promotional energy awareness materials and information. The principals and teachers were encouraged to promote Energy Awareness Week in their schools. Some examples of suggested activities included:

- An Energy Table Quiz
- A Poster Competition
- A walk or cycle to school competition
- Energy tips for every day during Energy Awareness Week

MEMA presented Flowerfield National School in Navan with an 'Energy Awareness Presentation'. The national energy agency Sustainable Energy Ireland (SEI) provided MEMA with the education materials (floor game and information panels) necessary for this presentation. The presentation involved teaching groups of 16 students (3rd to 6th grade students aged from 8 to 12 years of age) about energy issues. The presentation sought to explain to Primary school students, as simply as possible, stressing the importance of becoming more energy efficient in every day life. In particular it highlighted the ways that students can make more energy efficient choices.

There are 3 strands to the presentation and were illustrated through the use of 3 display panels. MEMA guided the school group discussions through the panels. The exhibition directed the students systematically through the different energy issues.

Strand 1: Energy and CO₂

Topics included how coal, oil and gas were formed from the formation of fossil fuels. The fuels evolved over millions of years through the combined decay process of trees, plants and animals - all naturally made up of carbon. The process was explained through graphic representation and illustrated the progression of burning oil, coal and gas and releasing carbon into the atmosphere where it joins with oxygen to produce CO₂.

Strand 2: CO₂ and Climate Change

Fundamental to the children's understanding of the exhibition was the link between CO₂ and climate change. Again through the graphic display the Greenhouse Effect and Climate Change were interactively discussed and students were encouraged to think about ideas on how everyone could reduce CO₂ in our homes and schools to help protect our planet.

Strand 3: Energy in our lives

There were 4 panels in the third section of the exhibition illustrating a bathroom, kitchen, living room and travelling to school. This section is titled: "Can you spot ways to save energy?" In this section the students were encouraged to discuss energy saving tips through using example props (light bulbs, lagging jackets etc).



MEMA Launch 2003.JPG: Launch of the Meath Energy Management Agency in the Ardboyne Hotel, Navan on 22/09/03



The Energy Game 2003

This game was provided to MEMA by SEI. The Energy Game is a floor game, consisting of large floor mat. The students were divided into 4 groups of 4 students and each member of each team was provided with a coloured bib corresponding to their team. Each team rolled the dice and moved the corresponding number of spaces. The game lasted about 30 minutes and the team having the most energy tokens when play ceased was the winner.

Questions asked included:

- Can saving energy save you money?
- Can we use solar energy in Ireland?
- Can recycling energy save money?

There were different levels of questions depending on the particular age group of students playing the game.



Game1.JPG: Students from Flowerfield National School, Navan participating in the Energy Game during Energy Awareness Week 2003

School Quizzes 2003

Throughout Energy Awareness Week 2003 (September) MEMA organised quizzes for the Primary schools and for the Secondary schools.



Primary Schools: 11 primary schools in Navan were presented with competition sheets where they had to answer questions on energy. Two prizes were given to each school. The prizes consisted of a bag of recycled stationary items.

Secondary Schools: 5 secondary schools were also presented with similar competition sheets. Two prizes were given to each of these schools.

Marketing and Promotional Material 2003

Throughout the national Energy Awareness Week 2003 press releases introducing the agency, and Energy Awareness Week were published in the local newspapers. MEMA had promotional 'Windmill' pencils designed and branded with MEMA details. These were distributed to the schools and also to children in the shopping centre and at the Agricultural Ploughing Championships competition in north Meath. School calendars were also produced by MEMA staff for distribution to the schools outlining Energy Tips for each month beginning with the school year September 2003 through to September 2004.

Process 2004

School's Poster Competition 2004

Since European Car-Free Day (September 22nd) occurred during the national Energy Awareness Week 2004 (September) the Agency promoted a school's poster competition under the theme of "Sustainable School Travel" to encourage students to think about how they travel to school (Appendix 1). Prizes were offered to Primary schools and to CSPE students and transition year students in Secondary schools. All schools in County Meath (*100 primary schools and 20 secondary schools*) were sent information regarding the Car Free Day poster competition.

Three schools participated in the competition. An Administrative Officer from the County Council's Pride of Place initiative selected the winners for the poster competition. The winners were as follows:

- Ryan Nevin, EOB and Scott Lyons, St. Patrick's National School, Slane, Co. Meath
- Leah Holmes, Caroline Nolan and Laura Keogh, O'Growney National School, Athboy, Co. Meath
- Justine Stafford, Katie Tully and Brian Shankey, Kilbeg National School, Carlanstown, Kells, Co. Meath

Prize packages contained one family zoo pass and two E20.00 book vouchers, and were posted to each school at the beginning of November 2004.

Energy Awareness in Schools 2004

Energy Awareness Workshops

MEMA delivered 'Energy Awareness Workshops' to 27 primary schools and 3 secondary schools around County Meath throughout the academic year since September 2004 in the same manner as organized in 2003.

Pfizer Science Bus

MEMA was invited by Sustainable Energy Ireland (SEI) to incorporate the 'Pfizer Science Bus' into our schedule of activities during Energy Awareness Week 2004. Four schools (Skryne, Laytown, Ashbourne and Slane National Schools) in County Meath were selected by MEMA based on their interest in energy issues over the previous year 2003. On Car Free Day the science bus visited Scoil an Spioraid Naoimh in Laytown, County Meath. Students were taken on board where they participated in energy related experiments supervised by SEI and MEMA facilitators. **(Figure 6).**

The Pfizer Science Bus brings hands-on Science to Primary Schools around Ireland. The bus is fitted internally as a laboratory, so that on board students can carry out scientific investigations. Designed to compliment the Primary Science Curriculum, the Science Bus experience enables students to discover the excitement of science through stimulating and educational activities. The bus is staffed by experienced instructors who will help students discover the excitement and relevance of science in everyday life. Students can see that science is a fun, which may encourage many of them to study science subjects at second and third level education. Material for follow-up class work is also made available to teachers.



The Science Bus is sponsored by Pfizer Inc. the global pharmaceutical company and has also been generously funded by the Dublin City University Educational Trust and The Pfizer Foundation, an independent charitable foundation established by Pfizer Inc.

MEMA's 'Walking Bus' Promotion (Primary Schools)

MEMA is promoting an exciting initiative as part of its ongoing energy awareness and education campaign - it is the 'Walking Bus' programme. MEMA is encouraging Primary schools in County Meath to organise a 'Walking Bus' to school. Schools interested in participating in this initiative are supplied by MEMA with reflective safety jackets for all the participants (**Figure 7**).

Scoil an Spioraid Naoimh in Laytown, County Meath was the county's first school to have a 'Walking Bus' Programme. It was a pilot scheme set up in June 2004 by MEMA, the school's road safety team and Meath County Council's Road Safety Officer. MEMA co-ordinated the project in partnership with the parents association of Scoil and Spioraid Naoimh, Laytown County Meath. Support was also given by the North Eastern Health Board, the Irish Heart Foundation and the local Gardai (Irish Police). The Road Safety Officer of Meath County Council gave a 'Road Safety' talk to the students prior to the launch of the 'Walking Bus' initiative. The North Eastern Health Board and the Irish Heart Foundation provided promotional materials such as t-shirts and information leaflets. MEMA provided the children and volunteers that were participating the 'Walking Bus' with reflective jackets promoting the 'Walking Bus' and 'Meath Energy Management Agency'. MEMA also supplied the school group with 18 pedometers (step counters), which were offered as raffle prizes to the participants each week that the bus was in operation.

The Road Safety Team from the school generated funds, and money raised from this covered costs incurred through printing, photocopying and general administration costs. They also acquired sponsorship from local businesses which funded the cost of purchasing 'trolleys' for carrying the school bags (September 2004). Local grocery businesses also sponsored 'goody bags' which included bags of fruit and bottles of water for the children for the month of June 2004.

A funding application was submitted to Meath County Council for allocated funds under the 'Local Agenda 21 Environmental Partnership Fund'. Under this programme, organisations can apply for project funding that contributes to Sustainable Development. A sum of €1000.00 was awarded to Scoil an Spioraid Naoimh, Laytown.

The Walking Bus was officially launched by Meath County Council's Chairperson Councillor Tommy Reilly and National Government Minister of State Sile de Valera (Department of Education and Science) at the school on Wednesday morning 22nd of September (Car Free Day).

There are 460 pupils at this school and on Car Free Day almost 100 of the pupils formed the 'Walking Bus' and all of the 460 pupils and 23 staff assembled in the school's hall for the official presentation (**Figure 8**). The pupils waved flags of various European countries as they marched into the hall. Meath Energy Management Agency had commissioned a piece of art from local artist, which the Chairperson Tommy Reilly presented to the school's principal Maurice Daly (**Figure 9**). The presentation event was attended by Minister Sile de Valera, County Council Chairperson and Councillor Tommy Reilly, the parish priest Monsignor Hanly and MEMA staff.

The day's proceedings were publicised extensively in the local papers: 'The Weekender', 'The Meath Chronicle' and 'The Drogheda Independent'. It was also broadcast on the local radio show LMFM. MEMA anticipates that many more schools in County Meath will consider setting up a 'Walking Bus' at their school. As a result of the coverage that this school received on Car Free Day we have had three additional schools in County Meath begin initial steps in setting up their 'Walking Bus' (St. Mary's' National School Ashbourne, Ratoath National School, and Enfield National School).

The Walking Bus initiative in Laytown National School was cited as a prime example of what people can do to participate in Car Free Day initiatives if they take up the challenge. As a follow-up to Car Free Day the Meath Chronicle newspaper contacted MEMA at the end of September to get feedback on Car Free Day. MEMA reiterated that 2004 was the first year that the Council participated in promoting the day and 'soft measures' such as information dissemination were chosen to initiate discussion and debate around sustainable travel issues. We indicated that planting a seed of thought on sustainable travel in peoples' minds during the week was the first step as a catalyst to spark discussion and further uptake in 'Walking Bus' school schemes



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throughout the County. (Appendix 2 - Please refer to managEnergy Case Study: Pilot Project for First Walking Bus in County Meath).

On Tuesday 12th October 2004 Valerie Norton (MEMA) made a presentation to the National Parents Council for the Meath area at one of their meetings in the Ardboyne Hotel, Navan, County Meath. National Parents Council is the nation-wide organization representing parents of children attending early and primary education. MEMA's presentation promoted the idea of setting up a 'Walking Bus' to parents at the meeting. MEMA's 'Walking Bus' information pack was also made available to those who were interested. As a result of this presentation three groups of parents from three schools in County Meath are now in the process of going through the stages in setting up a 'Walking Bus' at the schools that their children attend.

MEMA's Renewable Energy Study Field Trip (Secondary Schools)

As part of Meath Energy Management Agency's Education Programme, a study tour was organised for transition year students to visit a wind farm on 19th May 2004. Sixteen students from St. Joseph's Mercy Secondary School supervised by their co-ordinator plus 10 students from St Patrick's Classical School supervised by their Head Teacher took part in this excursion. Four representatives from MEMA and Meath County Council participated in the study tour. During the weeks prior to this trip, students participated in an energy workshop presented by MEMA. Topic items covered Energy Efficiency, Energy Awareness and Renewable Energy.

The issues raised during the workshops highlighted the fact that renewable sources of energy offer sustainable alternatives to Ireland's heavy dependency on fossil fuels. Reserves of coal, oil and gas are limited and take millions of years to form. Ireland is ninety eight percent dependent on imported fossil fuels. This leaves the economy extremely vulnerable to fuel supply disruptions, shortages and price rises. The presentation explains to young adults that Ireland has one of the best wind energy resources in Europe and this wind is free and infinite. Renewable energy reduces harmful greenhouse emissions while offering opportunities to reduce our reliance on imported fossil fuels. Renewable energy from sources such as the wind, the sun, wood, waste and water are abundantly available in Ireland and as a country should be harnessing the supply of clean, economical resources to provide us with electricity, heat and power.

The wind farm visited by the group was located at Lendrum's Bridge, which is situated between Fintona and Fivemiletown in County Tyrone, Northern Ireland. The farm comprises 20 turbines managed by B9 Energy (O&M) Ltd and has an installed capacity of 13.2MW. Each year Lendrum's Bridge will produce enough electricity for 12,000 homes. By producing electricity without pollution, Lendrum's Bridge wind farm will help play a part in reducing greenhouse gases and the risk of climate change.

On arrival at the wind farm the group was welcomed by two on-site engineers who guided the students through the site, gave an informative talk and gave all participants the opportunity to see inside a turbine.

Wind turbines were seen to be visible on the landscape and posed the issue of controversial aesthetics for some people living close to turbine sites. The students however understood that wind energy was a very environmentally sustainable alternative to fossil fuels – and if they had to weigh up the pros and cons to the arguments for an alternative to importing volatile fossil fuels as a source for energy into Ireland - Carbon-free wind energy generated in Ireland certainly was a better solution to importing fossil fuels.

Financial resources and partners

Energy Education Programme 2003

Energy Awareness Week 2003

All of the activities and events organized by MEMA during Energy Awareness Week 2003 were operated with the full support of the Environment Department of Meath County Council.

- Schools

Producing leaflets/calendars: 200 Euro

Windmill pencils: 1082.95 Euro (for 1000 pencils)



Prize bags for schools: 254.10 Euro (22 primary school prizes and 10 secondary school prizes i.e. 2 per school)

EAW T-shirts: Free (SEI)

- Delivering workshops

Information pack printing: €20

Travel expenses: €50

Total Cost for 2003 Campaign: €1607.05

Energy Education Programme 2004

Energy Awareness Week Campaign 2004

- Promotional Material

Windmill pencils: 1082.95 Euro (for 1000 pencils)

EAW T-shirts: Free (SEI)

- Competition Prizes

Zoo passes: 3 X €40 = €120

Book Vouchers: 6 X €20 = €120

- Renewable Energy Field Trip

Coach Hire: €475

Evaluation Form Printing: €10

- Delivering workshops

Information Pack Printing: €60

Travel Expenses: ~€1200

- Promoting the 'Walking Bus'

Printing and producing information packs: € 100

Reflective Jackets: €1294.70

Pedometers: €270.00

Media Coverage: FREE

Transport/ Mileage: €400

Award for school: €95

Total Cost for 2004 Campaign: €5227.65

Results

MEMA's Energy Education workplan for 2003 was a learning experience to further develop the programme in successive years. Because the 2003 campaign was targeted in Navan town and region, MEMA's promotion was confined to a manageable number of schools which provided a baseline of information for the following year's larger scale campaign in 2004.

All schools that availed of the energy presentations and workshops were presented with an evaluation form from the MEMA representative. Information gained from the forms proved that all the schools that participated in the workshops found them very beneficial, worthwhile and topical and were very interested to be contacted about future MEMA activities. Also, from these forms MEMA was able to develop a database of email addresses for all of these schools to facilitate easier communication of information in the future.



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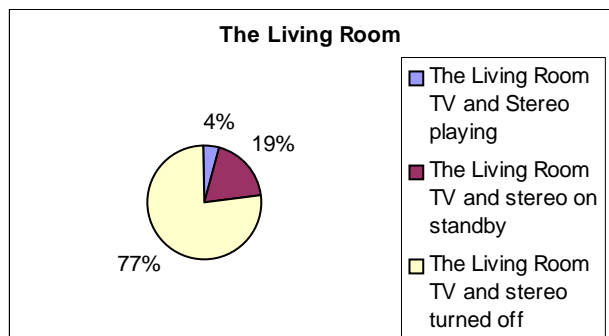
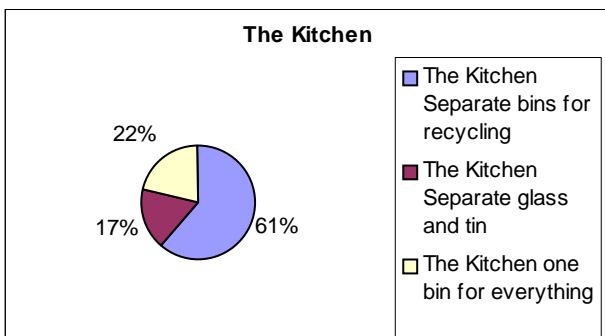
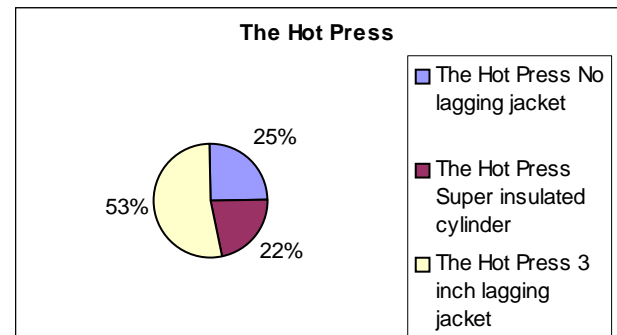
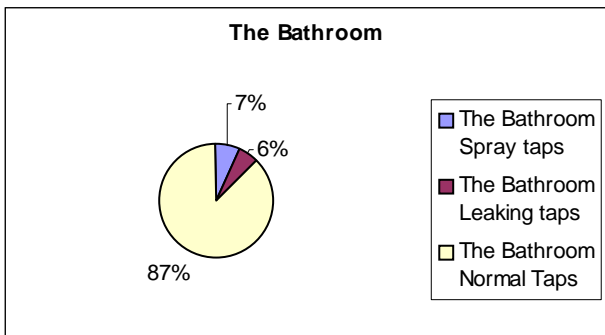
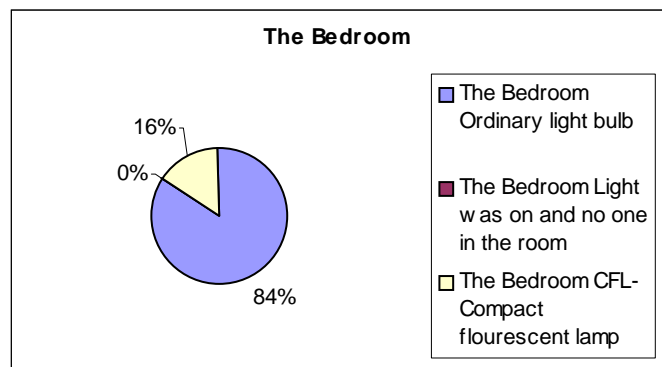
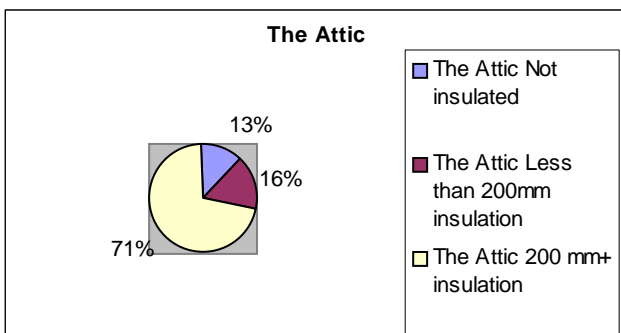
Competitions demonstrated to be very successful and proved to be a good motivational technique in raising energy and environmental awareness issues among students. There was a good response received overall quality standard of submissions was regarded as excellent by adjudicators (Meath Co. Council staff).

• Home Energy Surveys:

All students were asked to take 'Home Energy Surveys' home so that they could discuss with their parents how Energy Efficient their homes were and how they could improve. All of these education and information dissemination activities combined to promote energy efficiency in the County.

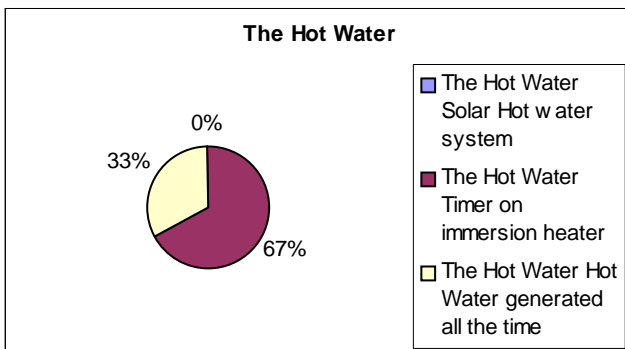
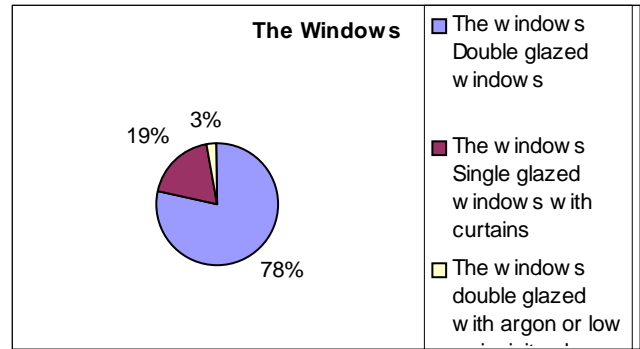
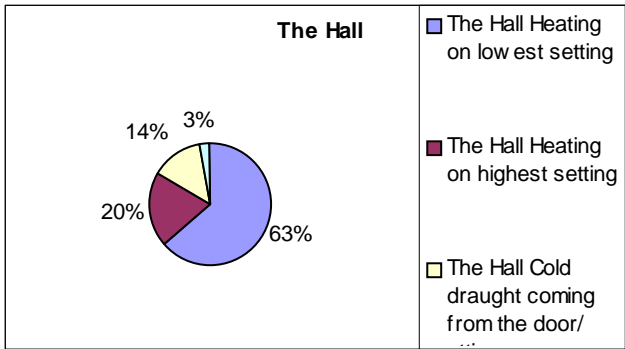
The response to the take home surveys (69 total received) indicated the following profile of domestic energy use in County Meath.

Pie charts





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• Walking Bus Scheme:

The 'Walking Bus' scheme is gaining interest and participation around the county. As a result of a presentation given to the National Parents Council for County Meath, there have been three further schools (St. Mary's National School, Ashbourne, Dunboyne National School and Enfield National School) in County Meath beginning proceedings in setting up 'Walking Buses' in their communities.

In general, schools that have 'Walking Buses' in operation have found that there is a noticeable reduction in traffic congestion around the school gates as a direct result of the 'Walking Bus'. As increased numbers of students and parents participate in the 'Walking Bus' there will be measurable results related to reduced vehicle traffic, reduction of greenhouse gases, reduction of local pollution and improved air quality. The 'Walking Bus' at Scoil an Spioraid Naomh, Laytown has raised the school and community spirit through involving school members and local residents. The 'Walking Bus' has also created awareness within the County Council and has highlighted the need for more road safety provisions in the area. The County Engineers have subsequently initiated a plan for better road markings on school roads in the area.

Lessons learned and repeatability

• Workshops & Lectures:

The school workshops proved to be very successful both in 2003, 2004 and currently up to 2005 (February). This type of interactive involvement proved to be productive and enjoyable, and gained great enthusiasm for science and energy from the participating students.

• The Science of Energy:

MEMA was fortunate to avail of the Pfizer Science Bus to promote exciting issues in science and energy to the students as it proved very rewarding academically and it made energy a 'fun' subject to study.

• Energy Awareness Prize Awards:

The competitions proved successful as an incentive for student participation in Energy Awareness 2003, therefore these competition ideas continued for the 2004 campaign. Both the quantity and quality of the entries



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to these competitions proved that the MEMA workshops had indeed created an awareness of sustainable energy issues among students in County Meath.

- Surveys:

The Home Energy Surveys proved to be an informative and effective tool for gathering baseline information on Home energy data in County Meath. The students collected this information from their own homes and therefore proved to be a valuable exercise in energy awareness. Similar surveys will be conducted in the same manner in the future.

- Walking Bus Scheme:

The 'Walking Bus' will continue to be promoted to schools in County Meath as a measure to reduce traffic congestion and CO2 emissions around the school gates in County Meath. The 'Walking Bus' pilot project was a great success and MEMA anticipates that many schools in County Meath will become involved in organising a 'Walking Bus' for their school during the forthcoming academic year 2004/2005.

- Study Tours:

MEMA's study tour to the wind farm provided students with an insight into the workings and visual impact of an operating wind farm. By introducing young adults to issues such as sustainable energy and development in their transition years at school, MEMA hopes the study tour assists students to make informed decisions about energy and environment later in life. Students were asked to complete evaluation forms and results indicated that they found the excursion informative and interesting. MEMA will continue expanding the education programme as funding is made available to promote the programme to all schools in County Meath for the forthcoming academic year 2004/2005.

Contact for more information:

Organisation / Agency: Meath Energy Management Agency

Main contact: Geraldine A. Cusack

Address: 2A Cannon Row (Ground Floor) Navan Co. Meath Ireland

Tel: +353 46 9060538

Fax: +353 46 9060537

E-mail: memainfo@meathcoco.ie; gcusack@meathcoco.ie

Web Site: www.mema.ie