



# Polish Energy Bus B.&S.U. Beratungs- & Service-Gesellschaft Umwelt, Germany

## Summary

A five-party consortium designed and developed a mobile, flexible and "on-the-spot" information centre - the Polish Energy Bus - to provide energy-related information, display energy technologies, hold workshops and train key personnel throughout Poland. The Energy Bus was officially opened to the public on September 10th, 2003 and is touring across Poland according to a previously defined route until August 2005. The Energy Bus visits cities, towns and small municipalities where it can be visited by the public during its opening hours.



Picture 1: The outside of the Polish Energy Bus



Picture 2: The inside of the Polish Energy Bus

In addition to disseminating information and displaying technologies, the experts accompanying the Energy Bus are conducting workshops and seminars on specific topics for targeted audiences (e.g. local business, school children, municipal employees) and training personnel. The main funder of the project is the European Commission in the framework of the SAVE II programme.

### 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

As a result of the Polish approximation towards EU standards, the demand for information, qualified advice and technical support on all aspects relating to the rational use of energy and the use of renewable energy sources in Poland is very high. With a view to the considerable energy saving potentials, providing information to the local level (local authorities, businesses and the public) is especially important. Given Poland's spatial spread



over an area covered by 2459 “gminas” (municipalities), this is a challenging task. Therefore, the project partners designed and developed a mobile, flexible and “on-the-spot” concept – the Polish Energy Bus – to provide energy-related information, display energy technologies, hold workshops and train key-personnel.

## Objectives

The aim of the project was to provide a wide range of energy-related information and on-site consulting throughout Poland. Furthermore, the project aimed to involve both public and municipal decision-makers in the topic of sustainable energy use, launch discussions and local strategies, provide public households and local businesses with concrete instruments to put energy saving measures into practice and show how renewable energy can play a more prominent role in the current local energy mix. Another aim of the project was to test the acceptance by the local target groups and thus effectiveness of such a mobile information unit. The aim of the project was to reach 15,000 individuals over the course of the project.

## Process

The first phase of the project saw the actual development of a standard city bus into the Polish Energy Bus. The activities leading up to the start of the bus' official opening on September 10th, 2003, in Warsaw involved

- the development of an overall concept for the contents of the bus (which story does it want to tell? which topics does it need to focus on?);
- the development of the interior and exterior design concepts of the bus;
- the identification of a suitable bus for leasing and the contract negotiations with the owner Mercedes-Benz;
- the actual refurbishment of the bus by a specialist company;
- the elaboration and printing of the information material that is displayed in the Energy Bus and handed out to the visitors on the following topics: CHP cogeneration, Kyoto mechanisms, efficient gas boilers, emission trading, energy audits, energy efficient lighting, energy efficient ventilation, energy labelling for household goods, energy management, energy supply plans for Polish municipalities, European Energy Award®, funding programs (EU, national, regional), geothermal energy, heat pumps, insulation, public transport energy saving, biofuels, RECS (Renewable Energy Certificate System), solar hot water systems, stand-by, Third Party Financing, wind energy, zero-cost energy saving at home and at the office;
- the collection of the following technological demonstration objects that are displayed in the bus: model of a combined heat and power plant, model that displays the advantages of energy saving light bulbs, model of insulation for buildings, interactive glass model that demonstrates the heat retention factor of insulated glass vs. normal glass, a heat pump, Energy Mirrors for the monitoring of energy consumption in buildings, model of a low energy house, model that demonstrates energy management by mobile telephony, models of wind turbines, model of a PV-powered streetlight, a PV module, a fuel cell, a roof tile with integrated PV cell;
- the transfer of the finished Energy Bus from Cologne via Berlin to Warsaw.



Picture 3: Display of energy mirrors in the bus



Picture 4: Fuel Cell model in the bus



The second phase of the project involved the actual operation of the Energy Bus in Poland for the duration of two years i.e. from September 2003 to August 2005.

The bus stops are organised by the partner KAPE (Polish National Energy Conservation Agency) with support of the regional associations of municipalities. The route of the Energy Bus and its calendar are publicised on the website of the project.

On average, the Energy Bus welcomes between 30 and 200 visitors per day, depending on the size of the town/city and the bus' location (i.e. on the main market square or in the town's business zone etc.).

The only recurring problem during the operation of the bus is the hook-up to an electricity source at each site and the wear and tear of the inside of the bus which the large numbers of visitors naturally involves.



Picture 5: Photo of the Energy Bus in Cieszyn

### Financial resources and partners

The total cost of the project is € 880 000. Its main funders in addition to the European Commission are the German Federal Ministry of Economics and Labour, the German *Länder* Brandenburg, Hesse and Saxony, the Polish National Fund for Environmental Protection and Water Management, the Polish-German Co-operation Fund and the companies Viessmann, Mercedes-Benz, JUMBO-Infomobile, MIWO and Menag.

The project is being implemented by a consortium of five partners:

- B.&S.U. Beratungs- und Service-Gesellschaft Umwelt mbH (B.&S.U., Co-ordinator, Germany)
- TÜV Immissionsschutz und Energiesysteme GmbH (TIE, Germany)
- Krajowa Agencja Poszanowania Energii S.A. (Polish National Energy Conservation Agency, KAPE, Poland)
- KESCO Energy Sp. z o.o. (Poland)
- Ecofys B.V. (Netherlands)

### Results

The Polish Energy Bus is an overwhelming success. Since its start in September 2003, the bus has visited over 200 municipalities in Poland, attracted over 50,000 visitors and organised about 35 seminars and workshops on energy related topics in the framework of local or national events such as the annual Poleko fair for environmental technology in Poznan. This means that the Energy Bus has visited **twice the number of municipalities** compared to the original project proposal and reached well over **three times the number of individuals**. In addition, many more requests by municipalities to book the Energy Bus cannot be honoured due to the ending of the project at the end of August 2005.



Picture 6: Photo of students in the Energy Bus in Gliwice



Of the visitors, 76% stated to be interested in the Energy Bus for private use, 24% for professional reasons and for 9% the Energy Bus is the first ever contact with energy related topics.

The main topic of interest is energy efficiency with 65%. Renewable energies are interesting for over 50% of the visitors divided up according to: 54% solar energy, 34% wind, 30% water and 23% biomass (multiple answers were possible).

Almost all visitors intend to use the knowledge gained from the Bus. 29.7% stated that they want to implement measures immediately, while 55.9% stated that this would take place some time in the future.

Only 0.9% declared that they would definitely not use the information at all. In addition, the majority of visitors intend to spread the information they gained within their own environment. The most frequently mentioned intended improvements were: use of solar energy, heating based on renewable energy sources, purchase of energy efficient light bulbs and basing purchasing decision of household equipment on the energy efficiency of the equipment according to the EU labelling scheme.

Due to the active dissemination activities by all project partners and the media patronages that were negotiated, the Energy Bus is well known throughout Poland. Especially the production and airing of a 30-second TV spot on the Energy Bus on regional TV prior to the Bus's arrival in the region has proved very successful in attracting attention for the bus. Nearly 20% of the visitors stated to have heard about the Energy Bus from TV, with the remainder coming from newspaper advertisements (15.1%), posters (14.8%), friends, (11.7%), website (10.7%), radio (5.7%) and other (36.6%).

Given that this project focuses on education/information of end-users, the actual savings in energy and CO<sub>2</sub> etc. cannot be estimated. However, there are a number of long term benefits:

1. The refurbished Energy Bus itself which can be used for a multitude of information campaigns for many years to come. In fact, a number of declarations of interest have already been received from foundations / energy agencies to buy the Energy Bus as it stands after the end of the project.
2. Detailed knowledge among the bus' visitors on ways to use energy rationally, what kinds of energy-efficient and renewable energy technologies are available, their cost, where to purchase them, what funding possibilities exist etc.
3. Long term energy savings and long term increase in the use of renewable energy sources as a result of the knowledge/information received through the Energy Bus by the visitors
4. Establishment of cross-border business contacts for business in the energy-efficient and renewable energy technology sectors.

## Lessons learned and repeatability

The following are positive elements of the project:

- higher acceptance of the Energy Bus by its target groups than expected
- excellent support by the local authorities in the organisation of the local visits
- high awareness of the project throughout Poland due to the broadcasting of TV spots
- constructive co-operation among the project partners.

The following factors presented difficulties in the project:

- dealing with administrative questions such as insurance, customs regulations (before Poland became an EU member), registration of the specialist vehicle
- underestimation of the work involved in preparing the Energy Bus i.e. negotiations with the leasing company, negotiations with the specialist refurbisher, complications during the refurbishment of the bus, time needed to prepare all the information materials
- effect of the poor roads in Poland on the bus which is designed for inner-city travel in Germany only
- obtaining co-financing for the project.



Considerations for the future:

- carefully select the project partners in order to include partners that have experience with mobile information units as well as string local partners who have good contacts throughout the target country
- invest enough time during the proposal writing process to check the administrative/legal framework surrounding the purchase/leasing of a specialist vehicle incl. questions of insurance, customs regulations, security parking etc. and budget staff costs / other costs accordingly.
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### Contact for more information:

Project Web Site: <http://www.autobus-energetyczny.pl/>

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