



Intelligent Energy  Europe

STUDENT POWER

Report and evaluation of the scheme

Energy awareness projects delivered by students in four EU countries, and supported by:



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INTRODUCTION

Student Power is an innovative scheme designed to facilitate students (on business/marketing and other courses) to provide practical support to organisations running energy awareness campaigns, including energy saving campaigns within their own universities or colleges.

The aim is for students to work with local businesses, organisations or their own university on energy awareness campaigns. Students are supervised by a member of the academic staff, the activity contributes to their coursework and the host business/organisation receives dedicated support.



BACKGROUND

A group of universities/institutes in the participating countries (Spain, Ireland and Latvia) were selected to run the Student Power scheme on a pilot basis.

The energy agencies in each country agreed the framework for implementing Student Power with the university/college, including academic assessment criteria for projects.

Host organisations for implementing energy awareness initiatives were also identified, and received free assistance on their energy campaigns.

Energy awareness projects were identified through consultation between students, academics, the energy agency and host organisations.

The students worked on the energy awareness initiatives supervised by academics, with advice and support from the energy agencies.

PARTICIPATING ORGANISATIONS

SPAIN

In Spain two Universities participated, the Polytechnic University of Cartagena and the University of Oviedo, the former located in the Region of Murcia and the latter in the Principality of Asturias.

REGION OF MURCIA



Universidad
Politécnica
de Cartagena

In 2007 the Polytechnic University of Cartagena (UPCT) had a population of 7 184 people between Students,

academics and staff in 2007. The Student Power campaign was implemented throughout the University but the campaign was developed in the main building of the University, the Marine's Hospital building, in which the schools of Industrial engineering, mechanical engineering, chemical engineering,

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electrical and electronic engineering are located. The university was supported by the Agencia de Gestión de Energía de la Región de Murcia (ARGEM) in the implementation of Student Power.

PRINCIPALITY OF ASTURIAS

The University of Oviedo is the University of the Principality of Asturias. It offers studies in Engineering, Business and other disciplines, and in 2006 had a population over 29.886 people between students, professors and staff. The implementation of Student Power was carried out with the students from the Faculty of Economic and Business Sciences and the campaign was realised in the main building of that Faculty. The University was supported by the Fundación Asturiana de la Energía (FAEN) in the implementation of Student Power.



the RTU comprises 8 faculties: Architecture and Urban Planning, Building and Civil Engineering, Computer Science and Information Technology, Electronics and Telecommunications, Power and Electrical Engineering, Engineering Economics, Materials Science and Applied Chemistry, and Transport and Mechanical Engineering. There are also part-time and correspondence departments. The RTU has affiliations in the largest towns of Latvia – Daugavpils, Liepaja, and Ventspils.

More than 16,000 students study in Riga Technical University including 400 Doctoral degree students, 3,200 Master's degree students and 10,000 Bachelor's degree students. Its Academic staff includes 106 professors, 85 associated professors, 205 assistant professors, 167 lectures, 73 leading researchers and scholars.

The Student Power scheme was implemented by the Institute of Heat, Gas and Water technology (IHGWT). The institute is part of the Faculty of Civil Engineering at Riga Technical University. The IHGWT institute is the only governmental institution in the country that provides all levels of higher education and carries out research in the field of heat, ventilation and water technology.

The Institute was supported by the Social Economy Fund in the implementation of Student Power.

IRELAND



The Tipperary Institute (TI) implemented the scheme in Ireland. TI is a development and research centre established by the government

of Ireland, created in 1999, and now has over 800 students located on two sites. The Institute is unique in Europe in its integration of higher education with rural community and business development programmes. The Student Power campaign was implemented by the students of the second year of Environmental and Natural Resources Management degree in the Thurles campus.

The Institute was supported by the Tipperary Energy Agency in the implementation of Student Power.

LATVIA

The Riga Technical University (RTU) implemented the scheme in Latvia. RTU dates back to the 14th October 1862 with the establishment of the Riga Polytechnic, which was the first multi-branch technical tertiary education establishment in the former Russian Empire. To date



MOTIVATION FOR PARTICIPATION

The main motivation of the Universities to participate in Student Power was the aim to reduce their energy consumption and to raise awareness among the population of the university in saving energy for future years. The scheme also served academic purposes by providing an opportunity for undergraduates to put theory into practice by delivering support on energy awareness and saving and contributing to a globally important issue.

Energy saving has become a very important issue especially during recent years due to growing energy bills and economic/financial difficulties.

Additional motivation included improving the 'corporate' image, demonstrating that the organisation is concerned about energy saving and climate change.

The project also provided practical coursework for students in developing campaigns, carrying out audits and in presenting their findings.

The involvement of students in this process under the guidance of university staff provides them with valuable practical experience of work in one of the most relevant topics today.

Further motivation in the case of the University of Cartagena was to participate in Donate your Energy with the savings obtained with the results of Student Power and to demonstrate that the University is motivated to help charities.

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FROM THEORY TO ACTION

Different strategies were followed for the implementation of Student Power, based on the objective of students themselves being the protagonists for developing the approaches to saving energy. All projects were supervised by one or more academics or managers from the institution where the project was developed and campaigns were carried out as follows:

POLYTECHNIC UNIVERSITY OF CARTAGENA

The approach used to implement Student Power was:

1. Collect data on the Polytechnic University population, energy consumption and financial cost.
2. Appoint a manager in the university to develop the actions with students before the campaign.
3. Survey of knowledge on energy among students and how a campaign should be developed to motivate them.
4. Pre-Design of the communication campaign with students.
5. Final design of the communication campaign with a publicity company.
6. Run campaign to motivate the students, academics and staff.
7. Survey of knowledge in energy and habits of energy consumption.
8. Obtain results.

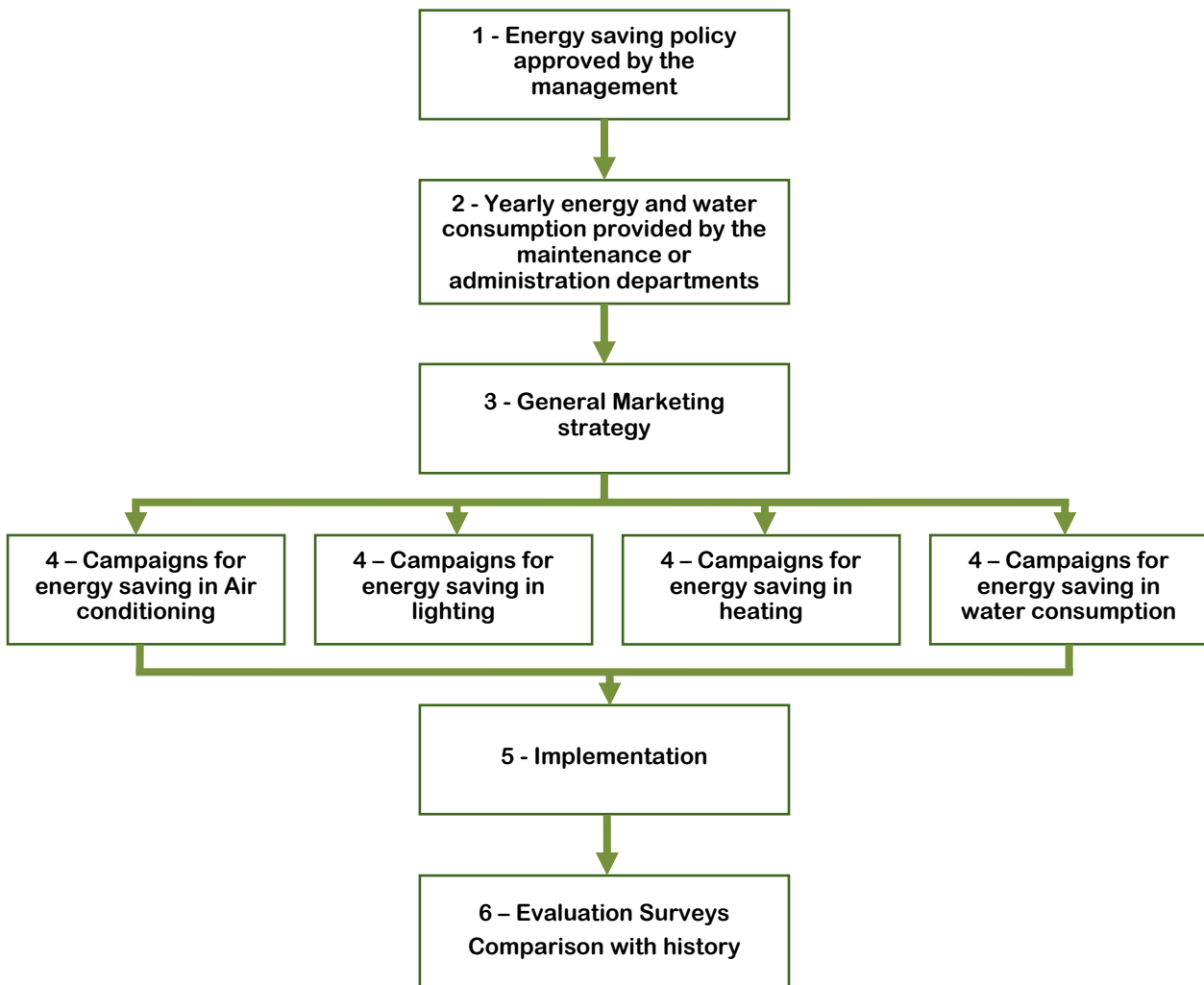


Figure 1 Student Power process in the Polytechnic University of Cartagena

The implementation of student power was carried out by the students of the Industrial Engineering faculty and the campaign was implemented in the main building of the faculty.

The aim of the project was to promote energy saving among the students and staff through a change in habits on transport, water use, climatisation (heating and ventilation) and electrical equipment, and to increase knowledge on energy efficiency and renewable energy sources at home.

The opportunities to save energy at the University were: to change behaviour on water use in toilets; to select a suitable temperature for offices and classrooms; to switch off electrical equipment and lights when they are not in use; and to use public transport or car sharing to travel to the University.

For the implementation of Student Power, the process included:

- ARGEM requested yearly consumption of water and energy from the Polytechnic University, which was subsequently analysed by the Agency.
- An academic from the Marketing Department was involved in the campaign's implementation, and developed a survey for completion by students. The survey sought to identify how a campaign on energy efficiency should be developed in order to maximise the impact on the students.

The results of the survey were:

- It has to raise awareness about: turning off lights during the day; use of natural lighting; unplugging devices that are not in use; giving lessons to people on how they can save energy; taking a shower instead of a bath; use of solar energy; use of lighting sensors to switch on/off lights automatically; watering the grass with waste water; carrying out maintenance of electrical equipment; and buying new electrical equipment with high energy efficiency (Energy Star or other label).
- The most appropriate media and materials identified from the survey were identified as:

Posters	Email	UPCT Web
Internet	Comics	

- The campaign messages identified from the survey were:

Do it for you
Future
Hope
Save to win
Concern about tomorrow

- The images for use in a campaign identified from the survey were:

Images of desert scenes
 Images of students from the university
 Comic with superheroes
 Sensual scenes
 'Chaotic' images

- With the results of the survey a group of students, professors and staff of the university developed the final format for the campaign. This was sent to a publicity company to develop the images and print them in the form of fliers, posters and other media formats.

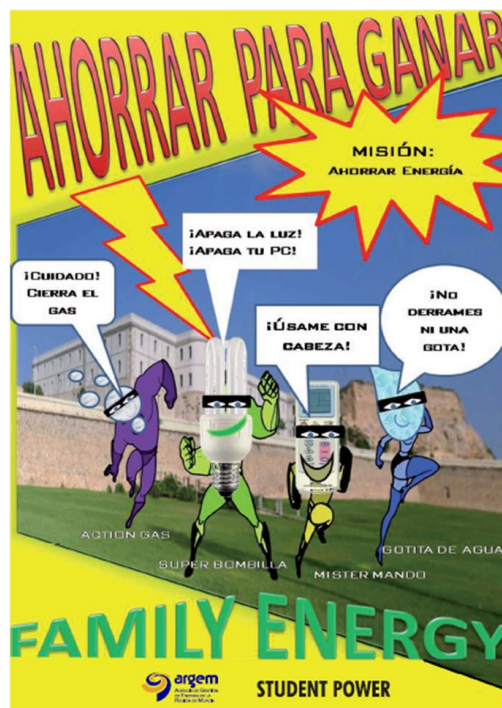


Figure 2 UPCT Campaign flier

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- The campaign was implemented, posters were placed on the walls of the main building, fliers were distributed, information stands were erected in the main entrance of the university with a wide range of information, and volunteers visited each classroom at the end of the classes to explain the project, provide advice and hand out promotional campaign merchandise.



Figure 3 Awareness materials were distributed through simple but effective Info Points at UPCT

- After the campaign a survey of energy habits and knowledge was carried out among the University population. The results showed that people had a greater knowledge of RES and efficiency energy as compared with when the project started.
- A comparison of energy consumption was carried out using data from recent years and extrapolated data for 2009 that took into account the increase in population and facilities, and the final result were obtained.

See Appendix 2 for further examples of campaign materials used in the campaign.

UNIVERSITY OF OVIEDO

The directors and other staff of the relevant schools of Engineering, Economics and Psychology in the university were

initially contacted to further develop their expressions of interest in the original project proposal.

FAEN carried out ongoing meetings with the university with the aim of developing a Collaboration Agreement and seeking ways of providing incentives to students.

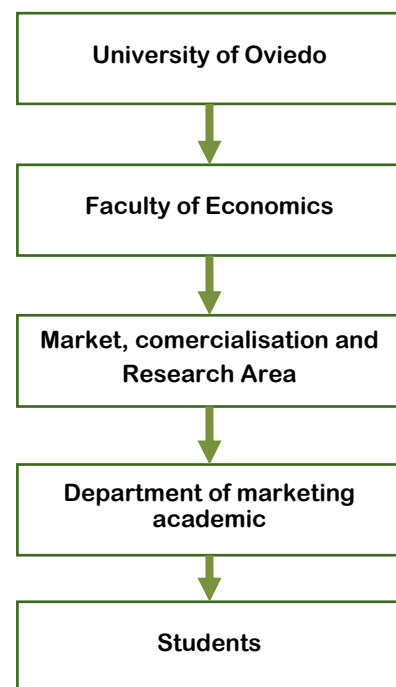


Figure 4 The approach to Student Power in the University of Oviedo

The general approach to targeting Student Power in the University of Oviedo is represented in Figure 4.

The faculty provided 2008 consumption data for water and energy, which was analysed by FAEN.

Table 1 Energy and water consumption and cost, 2008. Faculty of Economics

Utility	Consumption	Cost
Electricity	943 189 kWh	€ 133 648
Water	45 554 m ³	€ 61 034

An academic from the Marketing Department, Mrs. Begoña Alvarez, was in charge of co-ordinating the Project developed by the students from the Faculty of Economics, whilst FAEN provided assistance with queries and further information.

The Student Power campaign was designed in three strategic phases:

1. A pre-campaign survey sought to identify energy attitude and behaviour and collect information for designing the campaign.
2. Design and implementation of the campaign was then carried out.
3. A final qualitative vs. quantitative study to attain the results of the campaign was conducted.

PRE-CAMPAIGN SURVEY

This survey was intended to identify the existing situation and provide a solid base for the preparation of the campaign design. The survey consisted of a quantitative study of energy consumption, habits, energy saving advice required, and other activities.

The survey was divided into the following main parts:

1. Home energy equipment related to energy consumption and habits.
2. Energy consumption in the University.
3. Recycling habits, attitude about transport and driving.
4. Opinions on the responsible use of energy and associated motivation.

Different sample populations were targeted:

1. Students from the Economics Faculty of the University of Oviedo in the Campus Cristo.
2. Academics and other university personnel from the Faculty of Economics in the Campus Cristo.

A total of 400 students and 50 academics and other personnel completed the questionnaire.

DESIGN OF THE CAMPAIGN

The information collected from the first steps and the survey, provided sufficient input to begin the communication campaign

design. The awareness campaign proposed had the objective of changing behaviour on energy use.

Messages and images used in the campaign included a light bulb and a water drop character. These were the core images used in the campaign.



Figure 5 Light bulb and Water drop characters were core campaign images at the University of Oviedo

The students choose a light bulb as it was easier to include a message with it than with any other item of electrical equipment.

The same philosophy applied to water consumption. A 'happy' water drop was used when referring to water consumption.

The images also enabled the students to communicate in a language similar to that of their studies (economics).

Using this idea, a poster was developed using the concept of 'equations', the first one added negative habits together, obtaining as a result a "dirty world", and a second one added good habits together with the result of a "clean world".

The main communication routes included:

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- Exhibition of posters with different messages.
- Distribution of fliers and information material.
- Info Point prepared by students.
- Short talks and direct communication from volunteer students to fellow students, teachers and personnel from the Faculty.
- Other communication sources such as rollers, folders, stickers, rulers and doorknob hangers.



Figure 6 Rollers presenting images with 'equations' helped get the message across in Oviedo

See Appendix 2 for further examples of campaign materials used in the campaign.

POST-CAMPAIGN SURVEY

A follow-up survey was carried out to determine whether a change in energy awareness and habits had been achieved.

A new quantitative study was realised with a similar sample to the first one, targeting academics, personnel and students from the Faculty of Economics of the Campus Cristo.

The survey was divided into five main topics:

1. Awareness of the campaign development.
2. Pre-, post- and future attitude about energy consumption at home and in the Faculty.
3. Recycling habits before and after the campaign and future forecast.
4. Habits and attitudes about transport and driving.
5. Motivation of the campaign and influence related to energy consumption and savings questions.

A total of 346 students and 34 academics and personnel completed the follow-up questionnaire.

The results of the survey were processed using SPSS, carrying out a descriptive analysis with one and two variables, and a final summary document was produced.

See Appendix 1 for summary results of the surveys.

TIPPERARY INSTITUTE

At Tipperary Institute, in order that the students 'owned' the campaign it was decided that they should identify their own conservation campaign. In doing so one half of the class decided to launch a paper conservation campaign while the other half focussed on reducing standby in PCs and VDUs. Though the students have academic achievement as their main priority, this ownership enabled strong campaigns to develop campus wide.



An initial survey showed an attitude behaviour gap and identified the main drivers for behaviour change. This information was used by students in targeting both staff and the entire student body with customised awareness material.

Communication and recognition of the campaigns were enabled through gaining the backing of college staff. Key academic/management staff signed a commitment pledge which was framed and displayed in the main collection area in the college such that all college users knew of its significance.



Figure 7 Academic and management commitment pledge on display at Tipperary Institute

Students successfully set about gaining participation from college management. The students carried out a baseline behavioural evaluation survey. This was accompanied by a baseline paper use evaluation. Effectively the above evaluation was repeated following a paper and energy conservation week and lecturers were asked to inform all students of the campaign.

A double sided printer was installed in the library, instructions were made available and the cost-structure was made beneficial for double sided printing. Campaign material was circulated and posted. A notice board, near the main canteen, reminded college users of the project, its aims and its impacts.

The students aspired to complete their campaign by means of feedback mechanisms and the following mutually reinforcing components:

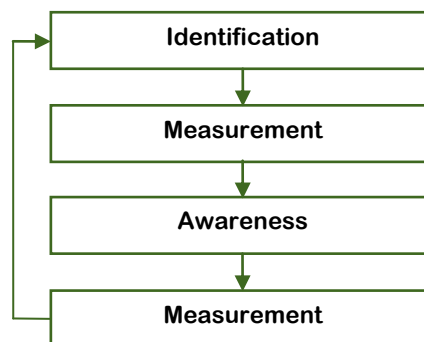


Figure 8 Campaign mechanism in Tipperary Institute

TEA developed and delivered six Energy Management lectures to degree students and these lectures informed and enabled the students to shape their conservation campaigns. These lectures are now embedded in course material for the benefit of future degree students embarking on conservation campaigns. The initiative taken by the students has also evolved into the development of a Green Society within TI which will link directly to the TI Energy Management Committee. The TI Energy Management Committee has been established by TI management. This initiative and the benefits listed above provide a continual means of generating new annual campaigns with fresh ideas as new students get involved each year.

RIGA TECHNICAL UNIVERSITY

With a large proportion of the residential buildings around Riga having older heating technologies and in many cases poor levels of thermal insulation, the IHGWT Faculty staff saw the opportunities presented by the Student Power proposal to reduce energy and water usage and related costs for building users. The project also provided practical coursework for technical students in carrying out the audits and in presenting their findings.

The students first selected a residential building of their choice, and then arranged to meet the building owner or manager. With their agreement and co-operation, the students carried out an inspection of the building and completed the energy audit process.

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This included examining the energy consumption for the heating and ventilating equipment and systems, checking electrical loads, checking for areas of inefficiency or where less energy could be used, and identifying the opportunities for improvement. The students developed appropriate measures of energy efficiency for the tenants and owners/managers and delivered Student Power in local housing communities through:

- Obtaining support from building owners/managers by promoting the benefits of improved energy efficiency.

- Discussions with building users on their energy usage habits.
- Preparation of their results and a presentation of these findings to University staff and building owners/managers.

The following steps were used to implement the Student Power scheme:

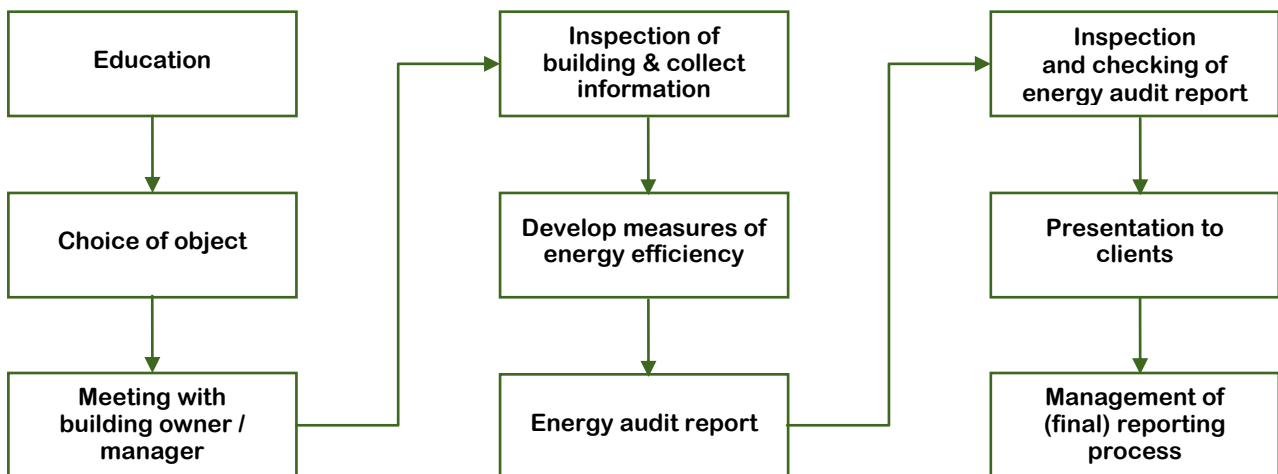


Figure 9 Student Power process in Riga Technical University

EDUCATION

RTU educated students to prepare them for performing energy audits in buildings. The following lectures were included in the education process:

- Engineering systems and utilities.
- Energy audit process and calculation methodology.
- Economic calculations.
- Energy efficiency measures and calculation process.
- Practical training.

CHOICE OF OBJECT

Students were offered a free choice in selecting their energy

audit subjects. They could choose any residential building – multifamily or single-family building.

MEETING WITH BUILDING OWNER OR MANAGER

The next task for students was to meet with the building owner or manager and explain the aims of the energy audit and the possibilities for energy efficiency in the building.

INSPECTION OF BUILDING AND COLLECTION INFORMATION

In order to develop the energy audit report students inspected the buildings – checking building utilities, building envelope and inspecting the microclimate in rooms. The next important task

was collecting the information on energy consumption of the building – heat, electricity and hot water consumption.

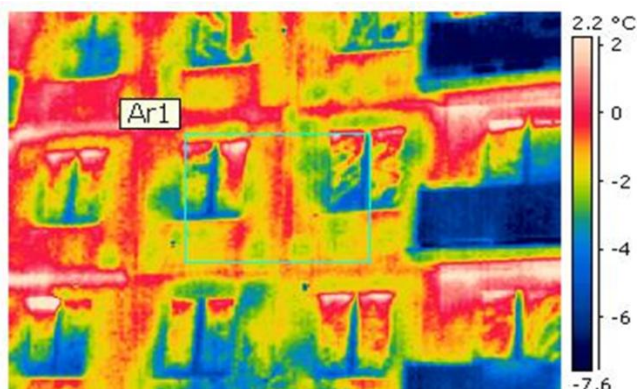


Figure 10 Thermal images of building façades were captured by the student auditors

DEVELOP MEASURES OF ENERGY EFFICIENCY

After inspection and collection of information the students identified different energy efficiency measures for the building. These measures are very important for inhabitants of the building as they are based on understanding technical problems and finding solutions for energy efficiency in the building.



Figure 11 Window replacement was recommended in a number of buildings

ENERGY AUDIT REPORT

Energy audit reports were developed by the students as a result of their Student Power work. The report outlined:

- The objectives and scope of the audit.
- Description of characteristics and operational conditions of the building and the equipment/systems audited.
- Findings of the audit.
- Corresponding savings and the cost of implementing the recommendations and any other follow-up actions.

INSPECTION AND CHECKING OF ENERGY AUDIT REPORT

The academic staff of Riga Technical University inspected and suggested improvements to the energy audit report. Students made a presentation to building occupants and showed them how they could save energy in their buildings.

MANAGEMENT

After receiving all reports, the academic staff of Riga Technical University managed the final reporting process and prepared the final report.

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RESULTS

This section presents the results of the Student Power campaigns.

POLYTECHNIC UNIVERSITY OF CARTAGENA

Prior to the start of the project the utilities consumption at the University was recorded as:

Table 2 Utility consumption Polytechnic University of Cartagena, 2007

Utility	Consumption	Cost
Water	26 214 m ³	€ 61 363
Gas	87 567 m ³	€ 38 566
Electricity	6 759 912 kWh	€ 767 181

The population of the University between 2007 and the end of the campaign increased by 33%. Considering the baseline scenario and extrapolating to the year 2009 we obtain the following energy consumption:

Table 3 Utility consumption Polytechnic University of Cartagena

Utility	Consumption (extrapolating the baseline scenario)
Water	34.865 m3
Gas	116.464 m3
Electricity	8.990.683 kWh

The energy consumption and the savings of the University were calculated at the end of the project. The savings were calculated by comparing the consumption between 2007 and the consumption in 2009, and extrapolated to allow for the increase in the population of the University over the period.

Table 4 Utility consumption Polytechnic University of Cartagena, extrapolated

Utility	Consumption	Consumption extrapolated	Reduction in consumption
Water	32 859 m ³	34 865 m ³	2 006 m ³
Gas	69 814 m ³	116 464 m ³	46 645 m ³
Electricity	7 508 080 kWh	8.990.683 kWh	1 482 603 kWh

At the Polytechnic University of Cartagena some students that visited the stand where the campaign was running, offered their services to future campaigns or projects to be developed.

With the publicity already completed on Student Power, other universities of the Región de Murcia were contacted by ARGEM to inform them about the campaign and how they can participate. These universities, like the University of Murcia and the Catholic University of San Antonio are interested in the implementation of Student Power in the future.

UNIVERSITY OF OVIEDO

Data collected from the energy consumption in the Faculty of Economics, before and after the Student Power Campaign was:

Table 5 Electricity consumption and cost, University of Oviedo, 2008 – 2009

	Electricity consumption (kWh)	Electricity cost (€)
2008	943 189	133 648
2009	933 128	130 638
Savings	10 061	3010
% saving	↓ 1,07%	↓ 2,25%

Table 6 Water consumption and cost, University of Oviedo, 2008 – 2009

	Water consumption (m3)	Water cost (€)
2008	45 554	61 034
2009	44 627	59 792
Savings	927	1 242
% saving	↓ 2,03%	↓ 2,03%
TOTAL utility savings		€4 252

The electricity expenditure of the University of Oviedo Corpus Campus is mainly from lighting and computers systems and the water expenditure is mostly from toilet facilities, bathrooms and use by cleaning personnel.

- The energy saved in 2009 was 1.07% in electricity consumption and 2.03% saving in water consumption.
- The financial saving achieved in the year 2009 was € 4 252.

These results demonstrate a successful reduction in the energy consumption, although by a modest level; it can be concluded that this was as a result of the change in behaviour of the target population who followed the campaign and used the advice given.

Other Faculties of the University of Oviedo are aware of the campaign and are showing interest in implementing this kind of action in their centres.

TIPPERARY INSTITUTE

The paper conservation team reduced paper use in the college by 4%. Paper consumption in Pages/Student/Day fell from 1.3 to 1.17. This for a short campaign is a significant reduction and will be built on in the next academic year by the incoming students.

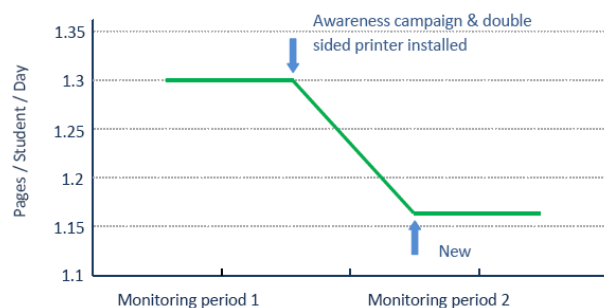


Figure 12 Paper use at Tipperary Institute

Projects working over a three year period in the University of Limerick have shown a 32% reduction is possible over a prolonged period.

For the energy saving campaign, the group monitored the closing down of PCs and VDUs once daily and found that 25% and 50% of VDUs and PCs were left on respectively.

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From monitoring of the use of PCs and VDUs, one of the computer rooms showed an improvement from before to after, but for others no reduction was recorded. However, the students made further proposals to achieve better results in the future.

The campaign got a positive reaction from staff and students, environmental awareness was raised, and a worthwhile learning experience was achieved.

RIGA TECHNICAL UNIVERSITY

Students identified the following energy savings:

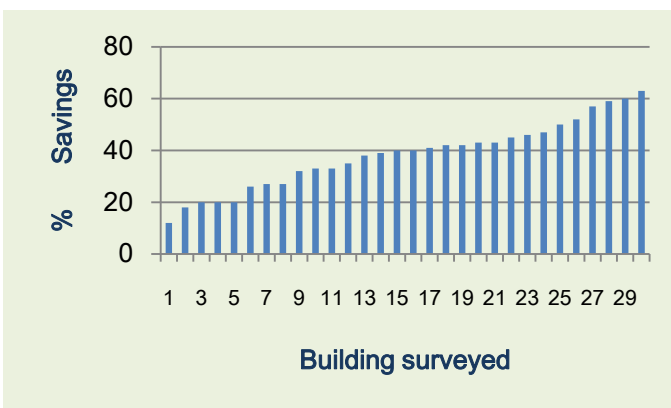


Figure 13 Potential % savings identified by RTU students for each building surveyed

See Appendix 1 for a full list of buildings and the potential energy savings identified.

All of the data from the audits in Latvia was compiled into a complete Energy Audit Report which was checked and supervised by a member of the academic staff at the university. The report includes a summary of the student's findings, as well as outlining savings against the costs of implementation of solutions to improve the energy efficiency of the building. Recommendations for energy efficiency improvements, based on the results of the audit, were then presented to the tenants and the management of the building.

Andris Lielvalodis, 4th course bachelor student commented:

"My participation in Student Power Scheme has been interesting and challenging. It was very helpful to become aware of the difference between economic calculations of energy saving and reality when you should persuade a lot of people that in the medium and long term perspective they will gain from investing in renovation of their housing".

FACTORS FOR SUCCESS

The following were considered as the main factors for success:

- The willingness and commitment of the university and in particular of students to the development of surveys and the design of the campaigns.
- Identification of students who are interested in the campaigns, in saving energy and in cooperating on environmental issues. Some of them offered their services for future campaigns.
- Close cooperation between the University staff and the students at all stages of Student Power implementation along with independent student work on the subjects chosen.
- The development of questionnaire surveys to assess the situation pre-campaign and the use of the results to feed into the campaign development strategy.
- Close student involvement in real actual energy topics, giving them an opportunity to gain practical experience of dealing with energy saving items not only from the "technical" but also from "marketing" point of view.

OVERALL EVALUATION OF THE SCHEME

With the implementation of the scheme all planned activities were undertaken and the results have been favourable in terms of savings in water and energy consumption in the Universities that measured their final energy consumption.

The involvement of students in this process under the guidance of university staff provides them with valuable practical experience of work in one of the most relevant topics of today, saving energy to fight climate change. In the case of the Riga Technical University, the Student Power scheme pilot implementation illustrated that technical students were quite good at identifying energy saving opportunities within the energy audit process, but some of them experienced difficulties in marketing their proposals for improvement. Therefore co-operation between “marketing” and “technical” students for the next Student Power scheme implementations is to be recommended.

Involving students in the communication campaign contributes to its success, because they know what the interests of their colleagues are and where to concentrate the messages for a campaign.

The students from business or economics courses made excellent use of questionnaire surveys to assess the pre-campaign situation and to feed into the development of the campaign strategy, messages and media. This was important for the development of the campaigns.

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APPENDICES

APPENDIX 1: SUMMARY RESULTS OF UNIVERSITY OF OVIEDO SURVEYS

The information collected used two kinds of questions: open and closed.

The survey was divided into five main topics:

1. Awareness of the campaign development.
2. Pre-post and future attitude about energy consumption at home and in the Faculty.
3. Recycling habits before and after the campaign and future forecast.
4. Habits and attitudes about transport and driving.
5. Motivation of the campaign and influence related to energy consumption and savings questions.

Processing information and final report:

- The collected data from the survey, was treated by the statistic program SPSS.
- The results of the survey were processed by the same program SPSS, realising descriptive analysis with one and two variables.
- The information obtained through the interviews realised, was collected in a summary on a final document.

Conclusions:

The marketing campaign showed a great success as indicated by the results of the follow-up second survey were.

PROFILES OF THOSE WITH GREATEST AWARENESS ON ENERGY SAVING

For the two kind of samples (students and teachers and personnel), the more respondents with greatest energy awareness were those within a family unit and with the family head having university education or other tertiary studies. Families with secondary level studies appeared to have less interest in responsible energy use.

Related to gender, results showed that women have greater predisposition for energy saving, and also the younger the person is, better habits were found and a greater willingness to improve energy consumption habits.

Around 40% of the two samples said that they were motivated by the marketing campaign carried out in the Faculty, and also believed that the campaign was interesting for others within the Faculty. This finding shows a positive reaction to the campaign with almost half of the interviewees having thought about the rational consumption of energy and changed their habits or plan to change in a future.

ENERGY SAVING HABITS AND COMPARISON BETWEEN STUDENTS AND ACADEMICS AND PERSONNEL

The most positive behaviour on energy was in relation to lighting (most of the related questions has favourable percentages from 60% to 80%), followed by positive attitudes about water and electrical equipment, and finally attitudes related to computer equipment.

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It is necessary to highlight the difference between habits at home and at the University, because for the same action, usually the attitude is worse in the Faculty than at home.

In relation to recycling there is some need to improve on recycling of some materials such as medicines, clothes and electrical appliances.

Attitudes towards sustainable transport were more negative. More than half of the respondents do not see any satisfactory alternatives to the use of the private car, as it is more comfortable for their trips and they are not interested in car sharing or other means of transport. They believe that sharing a car curtails their freedom.

Essentially energy consumption habits are very similar between students and personnel of the University. The differences are more related to the way of life and the perception. For example, students are not responsible for energy bills at home so they don't see how much it costs.

CAMPAIGN RECEPTION WITHIN THE TARGET MARKET

The materials distributed during the campaign were very useful as reminders to perform energy saving actions. It is therefore expected that the materials such as folders, rulers and door-knob hangers will continue to transmit the energy saving message.

In general, the campaign has been valued positively by the target market, because more than half think that it had an effect on them and on others. The data obtained shows that most of the respondents think that the campaign was very satisfactory.

Ideas to apply in future campaigns:

- Search for alternatives to printed information dissemination methods, e.g. e-mails, radio, TV, etc.
- Organisation of talks from organisations and institutions (by experts on energy consumption with clear and practical advice).
- Present energy savings as financial savings, so that the target public perceive energy saving as personal profit.

APPENDIX 2: FURTHER MATERIALS FROM STUDENT POWER AWARENESS CAMPAIGNS

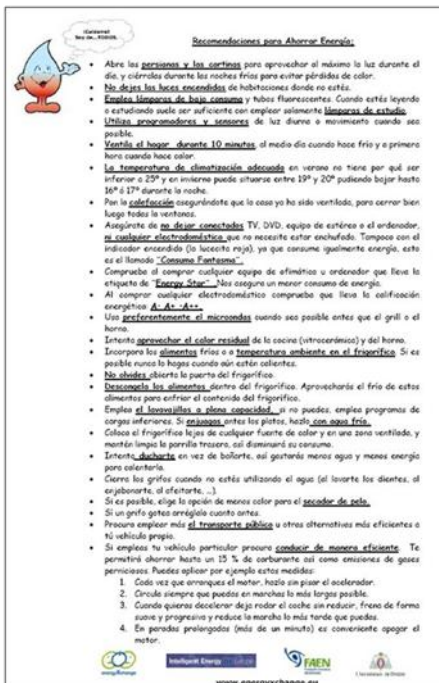
University of Oviedo



Lighting reminder



Folder



Advice leaflet

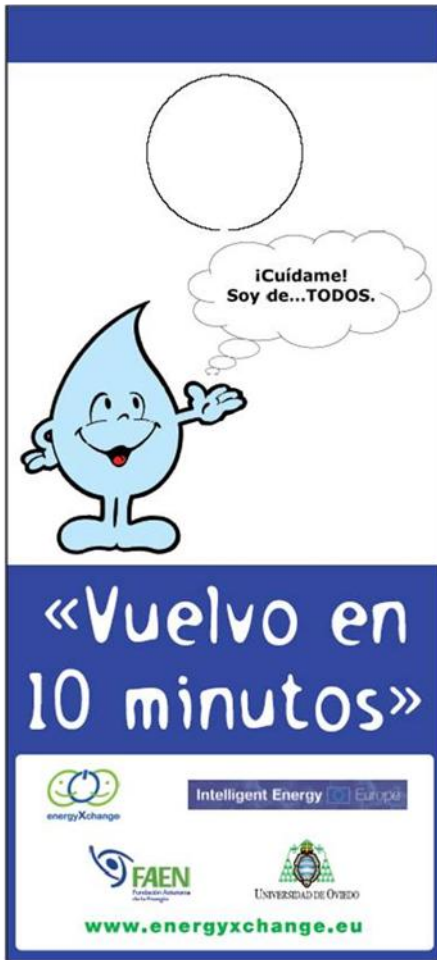


Sustainability poster

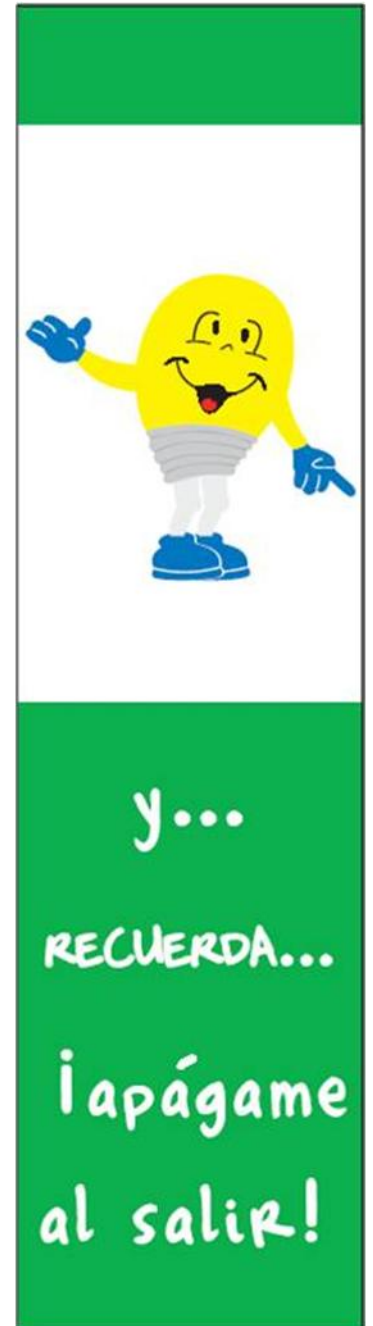


Energy saving poster

STUDENT POWER
Report and evaluation of the scheme



Door-knob hangers



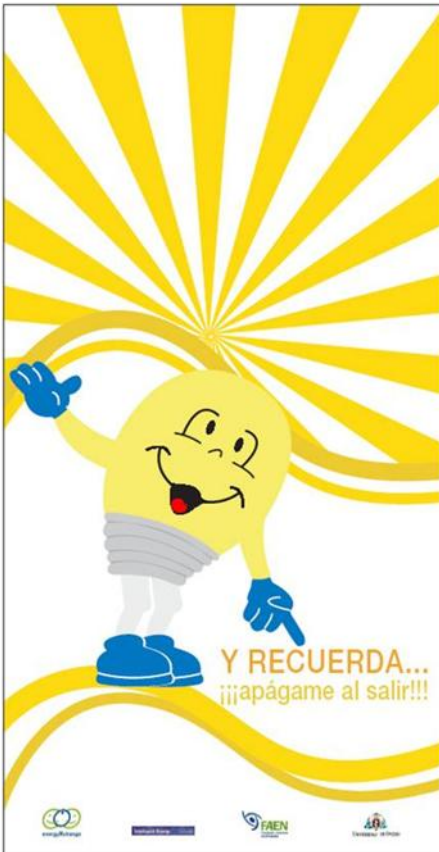
Book mark



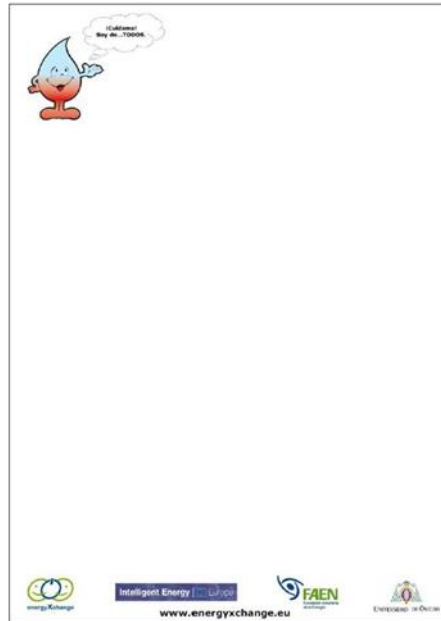
Noticeboard



Roller



Lighting poster



Note pad



Door-knob hanger



Ruler

STUDENT POWER

Report and evaluation of the scheme

Polytechnic University of Cartagena

Más del 75% de los desplazamientos urbanos se realiza en vehículos privados con un solo ocupante.

En la ciudad, el 50% de los viajes en coche son para recorrer menos de 3 km, y un 10% para menos de 500mts.

En estos viajes cortos el incremento medio de consumo es de un 60%, cuando en la mayoría de los casos estos desplazamientos se podrían hacer perfectamente a pie o en bicicleta.

**MISIÓN:
AHORRAR ENERGÍA**

STUDENT POWER

Sustainable transport poster / flier

El vehículo turismo representa el 15% del consumo total de energía final en España. Con la conducción eficiente, los conductores lograrán ahorrar del orden del 15% de carburante, así como reducir las emisiones de CO2 y otros contaminantes.

**MISIÓN:
AHORRAR ENERGÍA**

STUDENT POWER

Efficient driving poster / flier

Si dejamos de utilizar tan solo 1% de nuestros vehículos privados tanto para llegar a la universidad como para ir al trabajo, usando en su lugar el transporte público, ahorraremos anualmente más de 20 millones de litros de combustible y evitaremos la emisión a la atmósfera de unas 47.000 toneladas de CO2.

El transporte urbano y especialmente el uso masivo de vehículo privado, representa la principal fuente de contaminación en nuestras ciudades.

**MISIÓN:
AHORRAR ENERGÍA**

STUDENT POWER

Transport poster / flier

CONSEJOS PARA AHORRAR ENERGÍA

- No dejes el grifo abierto al lavarte las manos al hacerlo se gastan inútilmente hasta 6 litros de agua por minuto.
- No tires residuos al inodoro, ni tires de la cadena sin necesidad. Cada descarga significa un gasto de 10 litros de agua.
- Si tu inodoro tiene doble pulsador, no descargues la cisterna completa a no ser que sea imprescindible, estos sistemas están pensados para poder utilizar solo la cantidad de agua que se necesita.
- Si detectas algún grifo que gotea, avisa para que sea reparado. Simplemente por el goteo del grifo del lavabo pueden perderse 100 litros de agua al mes.

- **Mantén una temperatura adecuada.**
Por cada grado que aumentamos la temperatura, se incrementa el consumo de energía, y lo mismo sucede con el aire acondicionado. Por eso es muy importante regular bien la temperatura para adaptarla a nuestras necesidades reales, y no gastar energía inútilmente.
- **Utiliza la calefacción y el aire acondicionado correctamente y sólo cuando sea necesario.**
Para no desperdiciar la energía es importante utilizar los aparatos de calefacción y aire acondicionado solo cuando son necesarios y hacerlo correctamente.
- **La calefacción y el aire acondicionado no deben crear un ambiente opuesto al de la estación del año, sino un ambiente agradable.** Para estar a gusto es suficiente mantener una temperatura de 21 °C en invierno y de 25 °C en verano. Con temperaturas más altas o más bajas, respectivamente, aumenta el consumo de energía, pero no el confort.
- **En habitaciones iluminadas con fluorescentes, no apagues si te vas a ausentar menos de 15-20 minutos.** Se consume más energía al encenderlos, que manteniéndolos sin apagar durante este periodo de tiempo.
- **Apaga siempre la luz al salir de las habitaciones que estén iluminadas con lámparas incandescentes.** No gastan energía extra al encenderlas y apagarlas.
- **No apagues la luz en las habitaciones iluminadas con lámparas de bajo consumo si piensas regresar en pocos minutos.** Consumen más electricidad si se encienden y apagan repetidamente.

- **No gastes más agua de la necesaria.**
Ahorrar agua significa también ahorrar energía, ya que para impulsar el agua hasta los edificios se utilizan bombas eléctricas. Abriendo el grifo sólo cuando es realmente necesario se gasta casi la mitad de agua y energía.

Energy saving advice flier

El Transporte público, por viajero, ocupa 50 veces menos espacio y emite un 70% menos de CO2 que el vehículo privado.

Con su actual índice de ocupación, el coche es el modo de transporte menos eficiente y más contaminante.

Utilizando medios de transporte colectivo y sistemas de coche compartido seremos más eficientes y sostenibles en nuestros desplazamientos.

**MISIÓN:
AHORRAR ENERGÍA**

STUDENT POWER

Poster promoting public transport

La elección de un aparato con etiquetado energético clase A nos garantiza la máxima eficiencia energética frente a los de clase G, que son los menos eficientes.

Para el mismo nivel de prestaciones hay aparatos que consumen hasta un 60% más de electricidad que otros.

**MISIÓN:
AHORRAR ENERGÍA**

STUDENT POWER





Energy efficient equipment purchasing

En verano sitúa el termostato a una temperatura igual o superior a 24°C ya que es una temperatura adecuada para sentir confort.

La adaptación del cuerpo a las condiciones climáticas del verano y el hecho de llevar menos ropa y más ligera hacen que esta temperatura sea más que suficiente para sentirse cómodo.



STUDENT POWER





Ruler

STUDENT POWER

Report and evaluation of the scheme

APPENDIX 3: ENERGY SAVINGS IDENTIFIED BY RTU STUDENTS IN BUILDINGS SURVEYED

Building location	Potential reduction of heating energy consumption from recommendations, %	Building location	Potential reduction of heating energy consumption from recommendations, %
Vecdumbraju iela, Rīga	27	Jana iela 4, Cēsis	33
Strautu iela 19, Daugavpils	47	Saulgozhu iela 6, Rīga	33
Tautas iela 30, Daugavpils	42	Cirulju iela 131, Jūrmala	46
Sunishi, Garkalne region	20	Ranka dambis 7/1, Rīga	63
Lauku iela 4, Druva, Saldus region	18	Dzirčiema iela 5, Rīga	41
Sila iela 19, Rīga	32	Dzenju iela 9, Rīga	27
Emmas iela 19, Rīga	39	Emmas iela 10a, Rīga	42
A. Dombrovska iela 49, Rīga	40	Bruninieku iela 57, Rīga	57
Balozhu iela 4, Ventspils	26	Zemenju iela 6, Ogrē	12
A. Dombrovska iela 33, Rīga	45	Miera iela 7, Ventspils	20
Atlantijas iela 12, Rīga	38	Limbazhu iela 1/1, Rīga	59
Malienas iela 74, Rīga	40	Stamerienas iela 2, Rīga	43
A. Jullas iela 13, Liepas pagasts, Priekuli region	50	Liela iela 59, Rīga	60
Rostokas iela 34, Rīga	43	Zirņu iela 3, Rīga	52
Bikernieku iela 126 K-3, Rīga	35	Muzeja iela 10, Daugavpils	20

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