Students Achieving Valuable Energy Savings

Project Report 2014-17

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SAVES

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Executive Summary

'Every little action counts: when it comes to energy saving actions, even the slightest effort can make a difference'.

Student ambassador, SGS, Sweden.

Executive Summary

Students Achieving Valuable Energy Savings (SAVES) is a project that brings the Student Switch Off (SSO) energy-saving campaign together in five different European countries – the United Kingdom, Greece, Lithuania, Sweden and Cyprus.

As part of the Student Switch Off campaign, students living in dormitories competed with other dormitories on their campus, to see who could save the most energy throughout the academic year. Each university campus had one winner each academic year and in addition, an overall European winner was also announced each academic year. The winners were identified based on data from electricity meters located in each dormitory building. Data from the meters was displayed on an energy dashboard developed as part of the SAVES project in order to make the leaderboard as visible and up-to-date as possible.

The project was co-funded by the European Commission between 2014-2017, involving over 50,000 students living in student dormitories, spread across 17 different universities/housing providers. The SSO campaign now runs on a self-funded basis in the UK, Greece, Lithuania and Cyprus.

Over the course of the 2014/15 and 2015/16 academic years, participating dormitories achieved an average of a 7% reduction in electricity usage, which amounts to a saving of over 4 million kWhs of energy (4 GWhs) and 1,700 tonnes of carbon dioxide (CO_2).

A key part of the Student Switch Off campaign was raising awareness through online and offline (face-to-face) communications delivered on the ground by dormitory coordinators - individuals specifically employed to run the campaign in each of the participating countries. With the help of student ambassadors (students trained at the beginning of each academic year) the dormitory coordinators ran various engagement events, activities and individual competitions to raise awareness about energy savings, to help students get into good energy saving habits. Winning dormitories at the end of each academic year were rewarded with a celebratory event.

An interesting part of the SAVES project was the adaptation of the SSO campaign to the cultural context of each country/participating university to ensure success of the campaign. In some cases, such as Sweden, it was tweaking the branding, in others such as Greece, it was about adapting the communication of the competitive aspect of the campaign, where students preferred to work together as opposed to compete with one another.

An average of a 7% energy saving was reported across the two years of the campaign, which amounts to a saving of over 4 million kWhs of energy and 1,700 tonnes of CO_2.

SAVES in numbers (2014-2016)

- 50,000 students reached (c25,000 each academic year)
- 1,700 tonnes of carbon saved
- 4 million kWhs of energy saved (4 GWhs)
- 17 campaigns in 5 countries (each academic year)
- 485 students trained as project ambassadors
- 10,100 students signed up to the campaign
- Students submitted 556 photos and a further 5,598 took part in online climate change quizzes
- SAVES presented at 8 international conferences and numerous workshops

The project had a number of successes – from winning an award in Sweden (category for innovative methods for energy saving in housing), to obtaining national media coverage, and creating long lasting synergies between partner universities/students' unions, and the networks they have been involved with.

The project did have a number of challenges; from retaining student enthusiasm throughout each academic year, to technical issues related to electricity meters and the dashboard. This report explores in more detail what the SAVES project was about, what it achieved, and the lessons learnt.

The SAVES delivery team – from left to right – Marina Laskari (UoA), Costas Charalambous (UCY), Neil Jennings (NUS-UK), Agneta Mattiasson (SBF), Marta Rachlewicz (UNICA), Richard Bull (DMU), Joanna Romanowicz (NUS-UK), Adas Meskenas (VGTU), Graeme Stuart (DMU).

Introduction to SAVES

'It not only increases awareness of students and their behaviours but it also provides them with really useful skills and knowledge for when they move off campus after their fresher year, as in many cases, energy saving behaviour is not likely something that students would have had to consider before moving home'.

Student ambassador, University of Bath, UK.

Introduction to SAVES

SAVES – the background

Students Achieving Valuable Energy Savings (SAVES[1]) brings together the Student Switch Off[2] (SSO) campaign in the United Kingdom, Cyprus, Sweden, Greece and Lithuania. It is an inter-dormitory competition, where students are encouraged to save energy in their dormitories, through peer-to-peer engagement and easy energy saving actions they have control over. At the end of each academic year, international, national and local (at the university level) winners are announced and celebrated. The winners are chosen based on energy data provided through electricity meters that each of the participating dormitories is required to have in order to participate. The chapter on energy saving describes how the data is collected and analysed in more detail.

The SSO campaign has been running successfully in the United Kingdom since 2006, and through SAVES it started running in Cyprus, Lithuania, Sweden and Greece from September 2014. The campaign was funded through the EU's Intelligent Europe[3] fund in 2014-15, and 2015-16, with it moving to a self-funded model from the 2016-17 academic year in all the participating countries.

Through SAVES, the SSO campaign was adapted to each of the new participating countries; the majority of activities stayed the same, however through feedback from focus groups and surveys with students, the campaign was tweaked to make it as relevant as possible to the local context. Details of this are available in the following chapters.

There are many reasons why the Student Switch Off campaign has worked and why there is demand for it. As with many offices, schools and hotel rooms, there is generally no financial incentive for students living in university dormitories to use energy carefully; students tend to pay an all-inclusive fee that covers their utility costs (including energy usage) therefore don't feel the pressure to save energy, as it is already paid for.

While this may be the case when living in university-owned accommodation, it is not the case when they move into the private-rented sector. It is therefore important for students to get into positive energy-saving habits that not only reduce carbon but help students avoid expensive energy bills when they move into private accommodation. As a result, the campaign also addresses fuel poverty, getting students into good habits for when they need to pay their own bills.

SAVES engaged with approximately 50,000 students living in university accommodation in five different countries, between 2014-2016.

It is important to note that the campaign aims to target students that are not the 'usual green suspects' through making it fun and appealing to save energy via the communications it uses, the prize incentives and the activities that form part of the engagement strategy.

SSO uses prize incentives such as Ben & Jerry's ice cream, tickets to students' union nights out, cinema tickets and communal parties to create a sense of competition. There are both offline events and online competitions for students to get involved throughout the year; these are detailed in the following chapter.

Through all its communications, Student Switch Off campaign focuses on six main behaviours that students have control over when living in dormitories:

- Switching Off lights
- Switching Off appliances
- Putting on a layer and not the heating
- Not overfilling the kettle (boiling only as much water as they need)
- Putting a lid on the pan when cooking
- Opening windows instead of putting on air conditioning (hot countries)

Photo 1: Student in the UK taking part in a SSO photo competition

Throughout the year, students are encouraged to take part in the campaign through a variety of activities run by dormitory coordinators; these activities are described in more detail in the following chapter. Students are able to see how much energy their dormitory is saving through a specifically developed online dashboard[4]. The dashboard compares how much each dormitory is using during the campaign against a baseline year when the campaign wasn't running. Further information on the dashboard is available in the following chapter.

SAVES – the set up

For the project to work well, it was important to establish a good management system, including good knowledge exchange between all the partners who had a variety of expertise. SAVES was coordinated by the National Union of

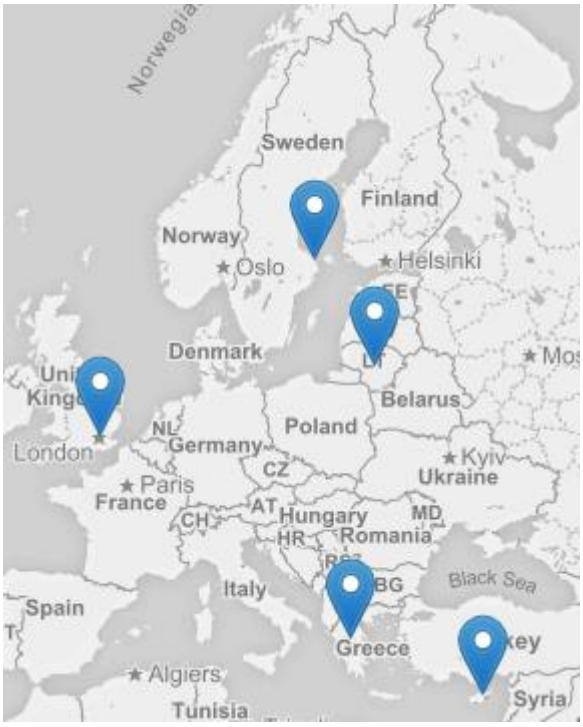

Photo 2: Countries running the SSO campaign

Students, based in the United Kingdom. It was a partnership between seven organisations; five universities/students' unions, one technical partner, and one communications partner, who all worked together to deliver SAVES successfully. The partners were:

Universities/Students' Unions:

- National Union of Students (United Kingdom)
- Vilnius Gediminas Technical University (Lithuania)
- University of Cyprus (Cyprus)
- University of Athens (Greece)
- Studentbostadsföretagen (Sweden)

Technical partner:

- De Montfort University (UK)

Communications partner:

- UNICA (Belgium)

The way that the campaign was set up in each country was a consequence of the context and the expertise available. In all countries, the campaign was delivered by 'dormitory coordinators', specifically employed at each of the five partner university/students' unions. In

the UK, the dormitory coordinator was centrally located at the National Union of Students (NUS-UK), with a similar situation in Sweden, where it was coordinated by Studentbostadsföretagen (SBF), a national housing organisation. In Cyprus, Greece, and Lithuania, the dormitory coordinators were based at partner universities in those countries, as there isn't an existing, appropriate coordinating organisation like NUS-UK who can coordinate the campaign country-wide. In Lithuania, the dormitory coordinator was based at Vilnius Gediminas Technical University and travelled to other universities within that country. Each of the countries also had a country manager (based in the same organisation as the dormitory coordinator) whose role was to have an overall management function, to ensure that the campaign was being delivered effectively. Further insight on country specific adaptations of the campaign is provided in the next chapter.

As coordinator, the role of NUS-UK was to work closely with all the partners to help deliver and adapt the campaign to their national context. De Montfort University (DMU) played a key role in developing the online dashboard and data analysis, through which students were able to see how well their dormitories were doing, in comparison to other dormitories at their university, and also other dormitories in Europe.

UNICA's role was to work closely with NUS-UK to help increase the visibility of the campaign across Europe (further information on this is found in the 'Disseminations and Communications' chapter).

SAVES – universities running Student Switch Off

There were 15 universities and 2 housing providers that participated in SAVES, across the five European countries running the campaign. Table 1 shows the universities/housing providers that have taken part in SAVES and the number of students living in their dormitories. There were seven UK universities, five Lithuanian universities, two Greek universities, one Cypriot university and two Swedish housing providers. Between 2014-15 and 2015-16 there was one change in the UK universities taking part (in 2014-15 University of the West of England took part, however for 2015-16, due to lack of internal capacity, they were replaced by University of Warwick).

Dormitory provider	Country	Student numbers (per year)
Queen Mary, University of London	United Kingdom	2,237
University of Worcester	United Kingdom	1,024
The University of Northampton	United Kingdom	2,138
Cranfield University	United Kingdom	882
University of Warwick	United Kingdom	6,443
University of Bath	United Kingdom	3,402
De Montfort University	United Kingdom	1,579
University of Cyprus	Cyprus	208
Technical University of Crete	Greece	78
University of Athens	Greece	1,064
Vilnius Co-operative College	Lithuania	182
Vilnius Gediminas Technical University	Lithuania	2,400
Vilnius College of Technology and Design	Lithuania	1,211
Vilnius University	Lithuania	2,270
Klaipeda State College	Lithuania	1,108
SGS (Gothenburg)	Sweden	1,560
SSSB (Stockholm)	Sweden	2,084
TOTAL		**29,870**

Table 1. Universities participating in SAVES (student numbers are per academic year)

SAVES – the objectives

SAVES was an ambitious project with a number of different objectives. It aimed to:

- Save quantifiable amounts of energy in student dormitories through energy saving behaviours (4.23 GWh)

- Create a network of student champions in dormitories across five EU countries
- Develop pro-environmental behaviours and energy-saving habits by students in higher education
- Develop a self-funding model that expands within existing partner countries and to additional EU member states after grant funding ceases.

The project has successfully met the majority of the objectives; full detail is provided in the 'Impact and results' chapter.

Photo 3: Student taking part in SSO activities at VGTU, Lithuania

Running the Student Switch Off campaign

'Student Switch Off has not only enhanced my perspective about the need to promote energy efficiency but has also given me the necessary knowledge and skills to empower others to become energy efficient'

Student ambassador, Cranfield University, UK.

The Student Switch Off campaign

This chapter describes in detail what the Student Switch off campaign entails and its adaptation in the five participating countries.

Student Switch Off is a year round campaign that runs over the academic year (September – June). There are a number of specific activities that need to be run at each university to help ensure its success. There is a combination of offline (face-to-face) activities and online activities (mostly through dedicated Facebook pages). As described earlier, part of the work on the SAVES project was to establish which aspects of the SSO campaign worked well in Cyprus, Greece, Sweden and Lithuania, and adapt it to their local content – the second half of this chapter explores this. This was done through a number of focus groups delivered at strategic points of the project.

Engagement activities

The main Student Switch Off activities run at each of the universities were:

- Welcome events at the start of the academic year
- Student ambassador training on communications, campaigns and Student Switch Off specifics
- Online climate change quizzes
- Photo competitions
- Face-to-face dormitory visits/stalls
- End of year celebration event

The section below explores each of these in more detail.

At the start of each academic year dormitory coordinators recruited students living in dormitories to pledge their support to the campaign through attending various **welcome events and fresher's fayres.** The aim was to recruit 15% of students residing in the dormitories over the course of the academic year, with the vast majority in the first few months.

Subsequent to welcome events, students were recruited to attend **communication skills training**; the aim of this training was to equip them with skills to become ambassadors for the campaign and raise awareness of it through peer to peer engagement and communications. Engaged student ambassadors were seen as one of the key markers of success in 2014-15, so there was key focus in 2015-16 to drive recruitment and engagement.

Engaged student ambassadors were seen as one of the key markers of success for participating universities

Photo 4: Student ambassadors taking part in SSO in Lithuania

Between three and ten **photo competitions** were run on bespoke SSO Facebook pages across each academic year– these were themed around the six main behaviours that the campaign encourages. The first two to five students to post a photo on the each Facebook

page won a prize, through in-kind contributions from sponsors. Students who signed up to the campaign, received direct emails from dormitory coordinators informing them of the competitions/energy saving tips every two to four weeks over the academic year. A new competition was created at some of the participating dormitory providers, where students were asked to submit a very short environmentally-themed video. In the UK universities, students were also asked to submit videos of environmentally themed songs to raise awareness around sustainability.

Two **online climate change quizzes** (one in each of the first two semesters) were launched at each participating dormitory provider through the relevant Facebook page and via e-mail. These quizzes included six questions on energy-saving (four standard questions, and two tailored by each dormitory provider to their campus). The aim of the quiz was to raise awareness of climate change and energy-saving.

Photo 5: SSO stall at Queen Mary University of London, UK University, UK

Dormitory coordinators carried out an average of three face-to-face **visits to each dormitory** over the course of the academic year. The nature of these visits varied depending on the dormitory provider – in some cases the visits involved door-to-door knocking and talking to students in their flats, in others it involved setting up and running stalls on campus or drop-in meetings in kitchens/brunch events. The aim of these was to raise awareness and the profile of the campaign, and to encourage students to save energy as a result. This proved to be a very effective engagement method, particularly as so many campaigns these days rely on digital messaging, leading to oversaturation of information via email/social media etc.

In 2014-15 a dormitory at University of Worcester (UK) won the overall SAVES competition, in 2015-16 it was a dormitory from the University of Cyprus.

At the end of the academic year, students in the dormitory that saved the most electricity (at the majority of the seventeen dormitory providers) were rewarded with a **celebration**. In Sweden two distinct competitions were run – one during the autumn term, and the other during the spring term, therefore there were two award ceremonies each academic year. These celebrations ranged from lunchtime pizza parties, BBQs, lawn games, to ice cream giveaways, and garden parties with smoothie bikes and individual prizes.

Prizes for photo competitions and quizzes were secured as in-kind sponsorship at the local level by each dormitory coordinator – these ranged from cinema tickets, to ice-cream vouchers, to day excursions. More detail can be found in the country specific chapters below.

Communication with students

The most important part of any campaign is the ability to successfully reach the intended participants. In Student Switch Off a variety of techniques were used to reach students.

As mentioned previously, face-to-face interactions were one of the most successful techniques used. In the day of digital, it is often easy to focus just on online communications, however simply talking to students face-to-face can be very powerful in raising awareness. Throughout the campaign it was key to ensure that the campaign had a physical presence on campus at key stages.

Once face-to-face interactions were established, it was important to drive/complement the campaign through online communication channels – dormitory coordinators couldn't be on campus reminding students about the campaign all the times particularly in places like the UK, where the campaign was centrally run. Facebook was by far the biggest social media platform used by the campaign – each participating university had their own Facebook page through which competitions were launched, and interesting articles shared. In the UK and in Sweden, Instagram was also used to drive awareness and launch competitions. Twitter was centrally used by NUS-UK, but more sparingly than the two other social media platforms.

The next sections of this chapter outline how the campaign was run in Sweden, Greece, Cyprus, Lithuania and the UK with a particular focus on the adaptations made.

Student Switch Off in the United Kingdom

The campaign was first set up in the UK in 2006 and has run in over 70 universities during the past decade. As part of SAVES, seven UK universities participated. On a day-to-day basis, the campaign is centrally coordinated by NUS-UK; staff members are employed as 'dormitory coordinators' and work with a set number of universities across the country, based on geography. This gives good economies of scale, ensures quality of delivery and an opportunity to take learnings on how the campaign runs from one campus to another.

The activities run in the four other European countries are reflective of the UK's campaign, therefore no adaption to the local context had to be done in the British universities as part of the SAVES project– the measures were already tried, tested and tweaked over the last ten years. This doesn't mean that the campaign hasn't evolved over time; for example new types of media have been explored over the years such as Instagram[5] and WhatsApp. Each year feedback from student ambassadors is analysed and taken into account when the new campaigns are launched.

NUS-UK has had a partnership with Ben & Jerry's ice-cream since 2006 through which they receive in-kind ice-cream vouchers and give away prizes for students participating in competitions and winning dormitories.

Photo 6: Ben & Jerry's van at Queen Mary, University of London, UK campus at Fresher's Week.

Over the last few years, a number of similar campaigns have sprung up in the UK, based on the same model/approach as SSO.

Student Switch Off in Cyprus

The Cypriot context

Student Switch Off ran in one university in Cyprus – the University of Cyprus (UCY) based in Nicosia, housing 208 students in university owned dormitories. Unlike in the UK, where students move out after the first year, in UCY approximately two-thirds of students stay on for subsequent years.

To prepare for the campaign and its engagement activities, various preparatory meetings were held between the country manager, the dormitory coordinator and other key personnel prior to the campaign starting, to ensure that all staff were aware of the campaign and ensure its success.

A plan of the activities was put together that took into account specific local needs and restrictions. The same was done for the second academic year, where much less preparation

was needed, based on lessons learnt in the first year.

Engaging students

The campaign at the University of Cyprus (UCY) was launched in September for both years to coincide with the start of the academic year. The dormitory coordinator attended the admissions days during which students were signed-up to support the campaign and handed out promotional materials (t-shirts, coasters, bags, leaflets), to make sure that they were informed about the campaign from the very beginning.

Given the small number of students, it was possible to make the campaign personal; at the start of the 2014-15 academic year, a 'black out' welcome party was held for students, and a similar welcome event took place for the 2015-16 academic year.

Photo 7: Students from the winning University of Cyprus dormitory for 2015-16

Ambassadors were trained at the very early stages; in October for 2014-15 and late August for 2015-16. It was possible to have training this early, due to some students returning to stay in the dormitories from the previous year.

UCY followed the standard SSO engagement activities, with very high uptake from students in both the climate quizzes and the photo competitions, in proportion to the number of students living in dormitories (208 in total).

Face-to-face visits were conducted throughout the year at the dormitories to raise awareness of the SSO campaign; the dormitory coordinator was based at the university, making the visits much accessible.

The Facebook page (Student Switch Off - Φοιτητικές Εστίες Πανεπιστημίου Κύπρου[6]), emails and face-to-face communication were all used as communication channels with the students. Emails were primarily used to send announcements and general information. The Facebook page proved to be an effective and interactive communication channel.

Ambassadors also were used to relay information to the students on a peer-to-peer level.

The University of Cyprus secured several awards and prizes for the competitions from Red Bull, Perrier, Zorbas bakery and Pizza Hut. Students had the opportunity to win energy drinks, bottled water, free meal vouchers, pizzas, t-shirts and bags through the regular competitions.

At the end of both academic years celebratory events were held; the winning dormitory was rewarded with a party with free lunch, a certificate, and a bag of goodies (including gift vouchers from a Large Chain Multi-Shop, bags and t-Shirts and other giveaway from the campaign's sponsors).

All 14 ambassadors trained at UCY in 2015-16 remained active during the whole academic year, which was a great success. Five of them where residents of the winning dormitory.

For the academic year 2015/16, the University of Cyprus proudly celebrated winning the first place in energy savings amongst all Universities taking part in the project. A celebratory event

took place on October 26th 2016. More details on the event are included in Success Stories – 'Being an international winner'.

Photo 8: International winners for 2015-16 with the University rector, University of Cyprus

Student Switch Off in Lithuania

The Lithuanian context

The Student Switch Off campaign was launched in Lithuanian universities and colleges in September 2014. Vilnius Gediminas Technical University (VGTU), one of the biggest partners of the SAVES project, were responsible for running this project in Lithuania. In the beginning of the project, the national consortium consisted of four universities and three colleges. However, three universities dropped out due to lack of interest, reduced number of students and closed dormitories. VGTU therefore introduced the project to the other potential partners and a new dormitory provider joined the project (Vilnius University) which meant that the planned number of students in dormitories in Lithuania were maintained from the original proposal. Thus, SAVES Student Switch Off campaign was launched at Vilnius Gediminas Technical University, Vilnius University, Vilnius University of Applied Engineering Sciences, Klaipeda State College and Vilnius Co-operative College with 18 dormitories and more than 7,000 students.

Engaging students

The first year of Student Switch off campaign started with a very successful event at Vilnius Gediminas Technical University through the University Gediminas days. The Student Switch Off stand attracted a lot of attention, with lots of flyers, t-shirts and jumpers handed out, and 120 energy saving pledges collected. Similar, but smaller-scale events took place in other participating universities and colleges.

Interest in Student Switch Off campaign was large from the beginning, as evidenced by Facebook, and every day more and more students joined the campaign. Numerous students participated in the regular competitions.

The prizes for the winners were Student Switch Off branded T-shirts, jumpers, cups, umbrellas. Moreover, the biggest energy provider in Lithuania „ESO" AB joined the campaign and gave away some branded prizes. This not only raised the profile of the campaign for the participating universities and colleges, but also the wider public.

The objectives of the SAVES project were supported in participating universities and colleges and were parts of common strategies to become green universities and colleges. At Vilnius Gediminas Technical University, in 2014 the Senate endorsed the Concept of Green University, which aimed to contribute to the sustainable development of society, modernization and development of existing and planned infrastructure management with particular attention to the responsible and rational use of natural resources. Some ideas for the Concept were proposed by SAVES project Lithuanian members. The measures adopted have a wide spectrum - from energy-saving lamps with motion sensors or rain water collection and use, to the electronic documents system, promotion of cycling and electric vehicle charging station installation in campus.

Photo 9: Students taking part in activities as part of University Gediminas Days, Lithuania

The second year of the campaign also started with the Gediminas days student fair event at Vilnius Gediminas Technical University. Like in the previous year the Student Switch Off still attracted a lot of attention with campaign flyers, t-shirts and jumpers handed out, and a number of energy saving pledges collected.

Students living in dormitories were involved in a number of interesting activities and competitions organised by the Student Switch Off ambassadors. The photo competition event was one of the most attractive and engaging competitions on the day, challenging students to use their creativity and show how they like to save energy. A number of photos uploaded to VGTU Student Switch Off Facebook page reached 26,000 people and collected more than 1,500 likes! After intense competition, the winning student group with a 554 likes of their photo were awarded with branded Student Switch Off jumpers, while second and third place winners with 534 and 140 likes respectively, were given Student Switch Off t-shirts.

There are 43 higher education institutions in Lithuania (14 public and 6 private universities, 13 public and 10 private colleges), therefore there is a scope for SSO expansion.

Student Switch Off in Greece

The Greek context

Two Greek universities took part in Student Switch Off – the Technical University of Crete (TUC) and University of Athens (UoA). The campaign in Greece was coordinated through the University of Athens, with a dormitory coordinator based there; due to geography, there was another dormitory coordinator at the Technical University of Crete. In total, there were four dormitories in UoA and one dormitory in TUC taking part in Student Switch Off.

The Student Switch Off campaign in Greece followed the standard engagement activities with a couple of adaptations. Like in other countries the focus groups at the start of the project, proved to give significant insight into how best to adapt the campaign in Greece.

Unlike in most UK universities, students living in dormitories of Greek public universities tend to stay there until they finish their studies; this resulted in the building of a community spirit amongst student in the TUC and UoA dormitories. When adapting the campaign to the Greek context, this was something that was incorporated into the campaign.

Students in Greek universities tend to stay in university dormitories until the end of their studies, leading to a big community spirit amongst residents.

Photo 10: The SSO delivery team at TUC, Greece

One of the first adaptations was in the type of end of year prize for the dormitory with the highest energy savings at the end of the year.

Instead of a standard celebratory event, the students at both the universities, preferred an appliance that could be used to improve the quality of their (and future residents') stay in the dormitories for the rest of the years. The most preferred appliance was washing machines.

Another adaptation made was in relation to the nature of the energy saving target. The target percentage reduction remained the same as for all SAVES dormitories but it was modified to a collective target rather than an individual building target; this was directly linked to the community spirit within the dormitories, where students preferred to work together as opposed to compete against each other. As a result, student from all dormitory buildings in each university decided to combine efforts to achieve 8% savings on average.

A large part of the SSO campaign is raising awareness about energy saving, therefore the majority of information sent to students focused on this. Participating students in Greece were interested in wider consequences, such as climate change and man-made contribution therefore dormitory coordinators made sure to gather information on this. This information was then communicated to students mainly through posts on the SSO Facebook pages, through posters and through information seminars.

In addition, the international aspect of the project was emphasized to help students realize that they are part of a large scale initiative with great potential for positive impact on the environment.

Discussions with students in the first year of the campaign showed that they felt that the energy saving action of putting on more layers rather than the heating was not applicable to them as the central heating was operated to the minimum already. Therefore, this action was not promoted in the UoA dormitories as much in the second year.

Reaching the students

The lack of a mailing list for students living in the UoA dormitories required thinking of alternative ways of communicating with students. For this reason there were numerous visits to the dormitories (both by the dormitory coordinators and from the student ambassadors) to help reach more students.

In addition to dormitory visits, students were also reached in different ways. Promo-material was handed out to students during the visits (bags, coasters, flyers). These activities were performed during lunch hours, outside the common restaurant (common restaurant for all four dormitory buildings) located in one of the four buildings. A Student Switch Off themed stall was used for these visits and the promo-material was handed out to students (bags, coasters, flyers, T-shirts. Posters[7] from the ZEMeDS project (IEE/12/711)[8] were posted during dormitory visits.

Photo 11: Notes left by ambassadors reminding flatmates to switch off, Greece

In UoA the prizes offered to students participating in photo competitions included supermarket coupons, yearly discount cards for restaurants and theaters, free tickets to spectacles (i.e. concerts, theater, cinema etc), and free play at escape rooms. In TUC the prizes were tickets to/from Athens by ferry inclusive of a cabin and a book about energy efficiency in the built environment.

Student ambassadors helped a lot in maintaining the interest of students on the campaign and in providing ideas for adaptation of the campaign. In the second year of the

campaign face-to-face meetings were organized with the student ambassadors on a monthly basis to discuss progress, brainstorm ideas for activities and plan future SSO related activities. It was found that students engaged to the campaign better if the message was transferred to them from one of their peers rather than just the dormitory coordinators.

Student Switch Off in Sweden

The Swedish context

In Sweden, universities are not allowed to own their own student accommodation. As such, Studentbostadsföretagen (SBF), a branch organization for student housing companies, was responsible for running the Student Switch off campaign in Sweden. The campaign was coordinated by three different staff members with three distinct roles: project management, communications, and delivery of the campaign.

SBF has around 60 members consisting of private and publicly owned housing companies. Two of SBF's members participated in SSO, one company with around 8,000 bed spaces SSSB in Stockholm and the other SGS with around 7,000 bed spaces in Gothenburg. Out of these, 1,560 students in Gothenburg took part and 2,084 in Stockholm.

In Sweden the competition was run as a corridor against corridor competition, not block against block. This meant that the teams were rather small in comparison with the other countries and was chosen by SBF as they believed that the smaller teams provided better chances to create a team spirit and to save more energy. One of the first actions at the beginning of the campaign was the installation of smart meters in the participating dormitories to ensure there was sufficient level of energy data that could be collected and fed back to students.

The second action, was the adaptation of the campaign to the Swedish context. Since many of the students in the dormitories only lived there for one semester, SBF made the decision to split the SSO campaign into two distinct competitions, to align them with the two semesters. Materials and the overall branding of the campaign were also adapted to the Swedish content.

As part of the marketing material for Sweden an animated film was also produced[9].

Meeting the students

The most important part of the campaign was finding ways of meeting the students in different ways. This was the main task for the project coordinator(s) in order to convince students to sign-up for the competition as well as distributing information on how to save energy in different ways.

On some occasions the whole project group (three members of staff) made an effort to reach out to as many as possible at once. For example one occasion the group had a stall outside the dorms in Gothenburg and gave breakfast and hot coffee to the students who signed-up as they walked by to their lectures.

Photo 12: SSO stall in Stockholm, Sweden

Other ways of reaching out to the students included dorm visits as well as prize ceremonies. Further information about one prize ceremony is described more in detail as part of the success stories section below.

Incentives for students

SBF used the results of focus groups conducted at the start of the project, to help understand what would kinds of prize incentives would encourage students to take part. One clear conclusion from the focus group was that

individual prizes were preferred to communal prizes.

In Gothenburg, SBF secured in-kind sponsorship from Göteborg Energi- Western, Sweden's leading energy company, and through them were able to provide organic food hampers to winning students that were very well received. Each semester the winning teams in both cities won food bags; in the first year each participant got their own bag, however that turned out to be too difficult to handle logistically so the next academic year each team got a food bag to share. This was also chosen in order to promote cooperation in the teams. During the second year of the campaign, Ben & Jerry's ice cream sponsored the campaign in Stockholm.

New collaborations and an award

One of many great outcomes of participating in the SSO projects was that SBF got involved in many new collaborations; not only other European universities running the campaign and NUS-UK, but also links with the Psychology department at Gothenburg University through a coincidental meeting when SBF ran an SSO event at the university. As a result the researchers and post-graduates decided to help out and evaluate the SSO project in Sweden.

During the second academic year one more member of SBF joined SSO. Örebrobostäder, a housing company based in the city of Örebro joined with approximately 60 students divided in two different houses.

As a result of the work carried out by the project team at SBF, SSO in Sweden won an energy award at the Property Fair in Malmö in 2015. Hence the SSO project did not only lead to new collaborations but as well an award and even heightened energy awareness within the organization SBF itself.

The dashboard

The energy dashboard was initially designed to display and 'gamify' dormitory-by-dormitory energy savings from participating universities during the Switch Off campaign, but also proved useful to energy managers who could immediately detect issues in their data and unusual energy spikes and troughs in usage. The resulting 'gamification' of energy savings in a league table for each university was expanded into an international competition where selected participating dormitories were included in a larger inter-university competition.

There are two aspects to the dashboard: public-facing competitions aimed at increasing student engagement for participating universities in the Switch Off campaign, and energy data admin screens (protected by a login system).

Photo 13: Energy Dashboard: student view (desktop/laptop size)

Energy dashboard - admin

The energy data admin function enable users to:

- Set up automated data uploading
- Add competing dormitories
- Allocate data from specific meters to each dormitory
- Make adjustments to readings and meter allocation
- Create and manage competitions containing selected dormitories
- Monitor savings per-competition and per-dormitory as readings
- Display competitions on public screens around a university

Competitions generally required a year of historic data in order to make the necessary calculations to compare energy use and calculate savings in a meaningful manner.

Energy dashboard – public facing

The public-facing screens are designed to be 'responsive' to all sizes of screen, especially mobile devices—a predominant method for students accessing the web in general. In fact, when saved to a mobile home screen the dashboard behaves much like a self-contained mobile app.

Energy data collected during SAVES indicates that dormitory providers who utilised the dashboard to publicise live competitions helped achieve an electricity saving 3% above the average Student Switch Off savings.

Requests for additional features have been ongoing (together with response to the reporting of any issues), and this informed the development of the dashboard over the period of the project. One key feature was the addition of a special page for each competition, designed specifically for use on large public displays.

Data for most participating dormitory providers are added automatically via scripts that communicate with online services from energy providers, which ensures that energy readings are as up-to-date as possible. Because of the variety of commercial energy metering and energy management options, separate data adaptors currently handle incoming data from the participating dormitory providers, with some set up so that the dashboard actively 'pulls' data from their provider, thereby freeing that dormitory provider from the responsibility for 'pushing' their data to the system from their own machines.

As a result, the system now carries a massive amount of valuable information on energy use for the period wherever there is available energy data; this data varied for each dormitory provider, and a small number of didn't have suitable metering installed in time to participate fully, while others had gaps in their historic data.

In fact in a number of cases the dashboard served to highlight issues with the data readings provided by energy suppliers to dormitory providers, which was often a cause behind delays in setting up viable competitions, and some dashboard features were added specifically to address these issues (see the Lessons Learnt section below).

However, from all the dormitory providers who were 'published' on the public-facing pages, all but two achieved working competitions, and

Photo 14: Energy dashboard: mobile view

some ran several successful competitions during the period of the project. It is also heartening that as data has become more reliable and continuous over the time of the project, participating dormitory providers are now in a far better position to set up competitions with targets that display actual savings more accurately.

Since the dashboard was so popular, it was considered important to continue with the energy-saving features the dashboard helped enable, so a legacy plan has been implemented by DMU in partnership with a DMU 'spin-off'

company, Ecovisum[10], to ensure continuity for those dormitory providers who want to continue using the service, and to secure and enable further development for the next phase of the SAVES project.

Twinning and the international league

As part of the SAVES project, dormitory providers were 'twinned' to help students from the different countries see what their peers have been doing as part of Student Switch Off. Each dormitory providers participating in SAVES was twinned with one in a different country. As part of this students were asked to write blogs on their experience of SSO and this was shared on the SAVES website and social media (predominantly Facebook).

A number of other activities took place, to help students feel part of a larger community, working together to reduce energy. Three international photo competitions were run (one in the first academic year, and two in the second), with the best photos submissions from across the regular individual photo competitions being put to a public vote. This reached over 30,000 people through Facebook, with hundreds of votes being cast.

A third way of bringing students together from the various Student Switch Off campaigns was to launch an international league in relation to energy savings in dormitories. Each of the two academic years, students not only competed to save most energy in their dormitories to be crowned winners at university level, they also competed to be best at the national level, and more importantly, at the international level. These were displayed on the 'international league' function of the dashboard.

For the academic year 2014-15 a dormitory at the University of Worcester, UK, was the international winner, in 2015-16 this accolade went to a dormitory at the University of Cyprus, Cyprus.

In general, based on feedback, it was seen as prestigious to have won the international league, however on a day to day basis, students engaged more with the internal competition as opposed to the European one – to win the European league was an added bonus.

Photo 15: Students in Stockholm, Sweden. taking part in an SSO photo competition around energy saving

Impact and results

'Every person, no matter young or old has to contribute to energy saving'.

Student ambassador, Vilnius College of Technologies and Design, Lithuania

Impacts and results

This chapter illustrates the comprehensive monitoring and evaluation that underpinned the SAVES project and the results achieved through the different activities undertaken.

In summary, the effectiveness of the Student Switch Off campaign was evaluated through three different ways:

a) Changes in student behaviour
b) Retention of behaviours when students moved out of dorms
c) Energy savings

The findings of a questionnaire survey analysis were indicative of the impact that the Student Switch Off campaign had on students and these led to the reported energy savings.

The study of retention of behaviours when students moved out of dormitories helped identify whether the energy-saving actions established during their time in dormitories were maintained when moving into private accommodation and were therefore indicative of the legacy of the project.

The calculations of energy savings offered an objective measure of the effectiveness of the Student Switch Off campaign.

Energy savings and behaviour change were studied for each of the two academic years that the SSO campaign was run; academic years 2014-2015 and 2015-2016. For the purpose of this report the main findings from both years have been combined. Detailed reports for each academic year are available on the project website under Documents and Materials[11].

Changes in student behaviour

Methodology

All students in participating dormitories, and a control group in Linkoping, Sweden, were encouraged to complete a survey at the start of each academic year (pre-intervention) and closer to the end of the academic year (post-intervention). Only students that responded to the baseline survey could participate in the follow-up survey in order to be eligible for the pre- post-intervention comparison evaluation. The survey included questions covering a number of topics including:

- **Demographics**. To determine the basic socio-demographic characteristics of the sample namely: age, gender, nationality, subject of studies and level of studies.
- **Energy related lifestyle and information levels.** To determine the (self-reported) existing energy related knowledge but also the current energy related lifestyle and intention to change it.
- **Psychological, Social and Behavioural aspects.** To identify drivers of pro-environmental behaviours.
- **Habits**. To identify behaviour patterns and opportunities for promoting energy efficiency.
- **Opportunities for energy saving**. To identify incentives and barriers for energy saving.

Photo 16: Student ambassador in Sweden

Statistical analysis was performed to help describe the main characteristics of the

students at project level and at country/group level and to help determine any significant differences between countries, between the treatment and control group and between the baseline and follow-up survey responses.

It is worth noting that questionnaire surveys were circulated online and were incentivised; a €100 first cash prize, and three €25 cash prizes were offered as project wide incentives for both the baseline and follow-up surveys, while country specific incentives (i.e. additional cash draw or chocolate) were provided only for the baseline survey.

Photo 17: Student ambassador in UoA, Greece

Selection of control group

The control group consisted of students living in the Studentbostäder dormitories in Linköping. The treatment group was comprised of the Swedish dormitories (based in Stockholm and Gothenburg) that participated in SAVES. The control buildings were selected through matched sampling rather than random sampling. The idea was to choose control dormitory buildings which were as similar as possible to treatment dormitory buildings in ways that could affect energy use and energy related behaviours of the residents. The following requirements were followed for the matching:

- The control group would not receive any energy saving intervention (building renovation or information campaign on energy saving etc) for the entire duration of the SSO competition (monitoring period).
- Historical electricity consumption data for academic year 2013/2014, preferably monthly (or even shorter interval) data were available.
- Electricity consumption data for academic years 2014/2016, at same or shorter time intervals as for the historical consumption data would be available.

A control group was set up in Linkoping, Sweden, to help with robustness of results of the SAVES project.

Differences between the two groups were determined through statistical comparison.

Survey response rate

The target response rate for the baseline survey was 15% of total number of students participating in SAVES, while a 15% response rate of the baseline survey responses was targeted for the follow-up survey. The targets were met for all surveys.

The total number of responses for the follow-up survey was 1,541. From those 1,541 respondents 1,358 were matched to respondents of the baseline survey and were therefore considered for the pre- post-comparison test. The number of matched respondents from the control group were 294.

Socio-demographic characteristics of the SAVES dormitory respondents

The majority of respondents were female. In Cyprus, Lithuania and the UK the proportion of female respondents was over 60%. In Greece and Sweden the share between male and female respondents was close to even.

Almost two thirds of total matched respondents were native to the country they studied in. It was interesting to see that in Sweden and the UK more than 40% of respondents were from other countries, while in Greece and Lithuania almost all respondents were native. In Cyprus three quarters were native and the rest from other EU countries.

Thirty eight percent of total respondents were in their first year of their undergraduate degree at university at the time that they took the survey (Figure 1). The UK had a very high number of first year students (70% of respondents). In Cyprus and Greece the biggest majority of respondents were in the third year of their studies or higher. In Lithuania 90% of respondents were undergraduates and were distributed relatively evenly across all years of study. Sweden had a very high percentage of post-graduate students (slightly over 40%) mainly international students in this group.

It is worth mentioning that the reason for this is that students in Greece, Cyprus and Lithuania stay in the same dormitories for the majority of their studies. In Sweden although students live in dormitories during their first year, most of them change dormitories every semester or year, when they can change from a dormitory to a one or two bedroom apartment, while in the UK only first year students tend to be guaranteed university accommodation along with international postgraduate and exchange students. Sweden and the UK were the only countries that had exchange students (Erasmus or international), top-up students and research associates in their respondents. These characteristics do have an effect on how the SSO campaign is run in the participating universities.

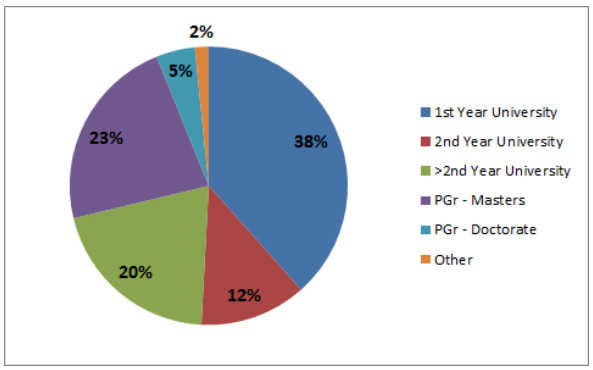

Figure 1: Respondent characteristics – year of study

Respondents studied all main subjects of study. It is noteworthy that the biggest percentage of respondents (34% of total) studied architecture, engineering or technology and are assumed to have had the best level of knowledge or awareness of energy saving issues. Architecture, engineering or technology had the biggest percentage of respondents in all countries except in Cyprus where social sciences were studied by 41% of respondents.

Energy awareness

As part of the survey, students were asked to rate the increase in the level of awareness on what they could do to reduce the impact of their lifestyle and habits on energy consumption on a 1 to 5 scale (1= A great deal, 5 = Not at all). The lower the mean value the greater the increase in energy awareness.

Overall, at the end of the academic year, students felt that their energy awareness had increased by a little compared to the beginning of the academic year. The biggest increase of energy awareness was found in Cyprus and Greece in both years. Perhaps there was already a higher starting point in Lithuania, Sweden and the UK and that is why the increase in the students' awareness in those countries was smaller. In addition, in Cyprus the total number of students living in the dorms was very small and therefore easier for the word to spread around (208 in total), while in Greece the students that answered the survey gave their email in which to receive the survey link after being informed about the campaign so were more likely to be directly aware of SSO.

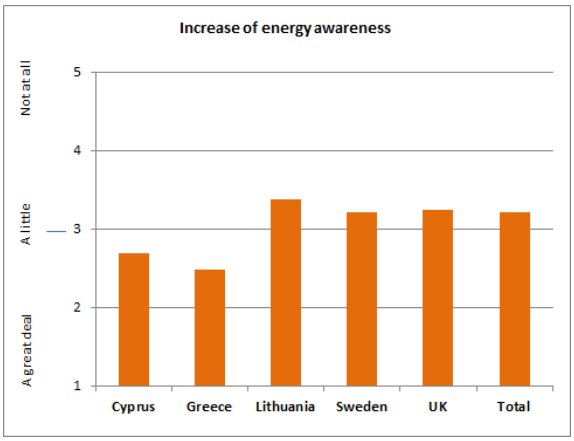

Figure 2: Increase of energy awareness

Students were also given a list of sources of information and were asked to select those that may have helped increase their energy awareness.

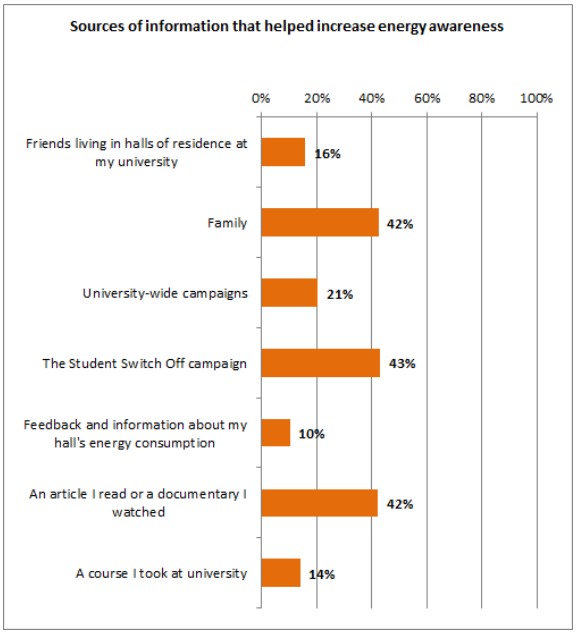

Figure 3: Influential sources of information

The three sources of information that helped the most in the increase of students' energy awareness were: the Student Switch Off campaign, family and an article they have read or a documentary they watched (Figure 3). It was great to see that Student Switch Off was in the top three most influential sources of information in all five countries.

SSO was one of the top three most influential sources of information on energy saving in all five countries.

The least influential sources of information were: feedback and information on their dormitory's energy consumption, university courses and friends living in their dormitory.

Habits & practices

The frequency that each of the six target behaviours was undertaken was measured on a five-point scale with scores ranging from 1 'Never' to 5 'Always'. The higher the score the greater the habit strength. The six targeted behaviours are the following:

- Switching off lights
- Switching off appliances when not in use
- Putting lids on pans when cooking
- Putting jumpers on instead of turning up the heating
- Not overfilling the kettle
- Opening windows before using air conditioning (relevant in the hot EU countries).

It should be noted that only the students that answered "yes" to a question on whether they have heard about the Student Switch Off campaign were considered for this question.

The behaviours performed more frequently and can be considered more of a habit, given the high frequency that they are performed in, are those of switching off lights in empty rooms and opening windows for cooling.

Compared to the beginning of the academic year a statistically significant increase is observed in the frequency that the less known energy saving actions are performed, namely putting a lid on pans when cooking and boiling only the right amount of water. In individual countries significant increases for putting lids on pans are observed in Greece and Sweden. In the UK statistically significant increase is observed in the frequency that the right amount of water is boiled in the kettle. In Sweden and Greece, somewhat significant increases are observed for this behaviour. In Sweden and Greece, somewhat significant increases are observed for this behaviour.

Determinants of energy saving

In terms of the motivation for action, it was interesting to see that the fact that it was an 'adopted habit from home', 'it saved energy', and it was 'the right thing to do' (Figure 4) were the three most important drivers of energy consciousness. The fact that it helped reduce global warming was also very high in the list and may cross-over with the 'right thing to do' response. The same order of importance is found in both the baseline and the follow-up survey. Others asking students to save energy, earning prizes out of it, gaining approval of other people and fitting in with other energy conscious residents of the dormitory had the

smallest impact on respondents' energy consciousness.

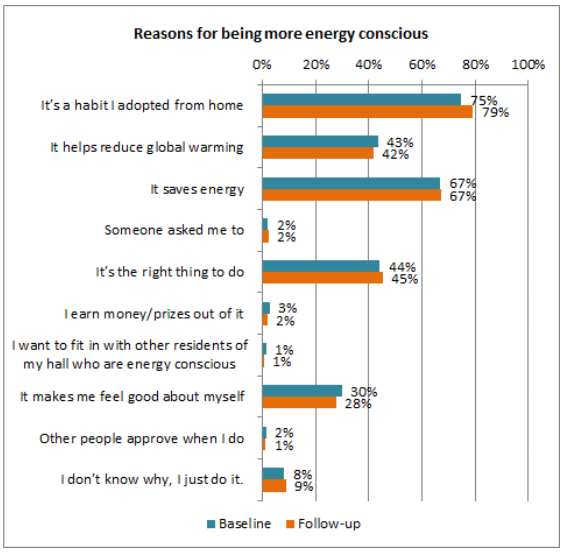

Figure 4: Motivations for saving energy

The three most important reasons for not being as energy conscious are the fact that there is no energy consumption feedback, no money is being saved from energy saving and limitations of the building structure and its systems. The attitude that sustainable living is not for them and fear that others will make fun of them are the least important reasons for being less energy conscious.

Lack of energy consumption feedback and no money being saved from energy saving were two of the biggest barriers to students saving energy in their dormitories.

Comparison with control group

Ideally, demographic characteristics of students of a treatment and the control groups should be as similar as possible in order to act as a form of matching. Nonetheless, significant differences were found in the demographic characteristics of the two groups in the SAVES project. Only in respect to gender are the differences in demographic characteristics not large. In age, nationality, level of education and subject of study the differences between the two groups were significant, therefore there is a possibility that this could have influenced the results.

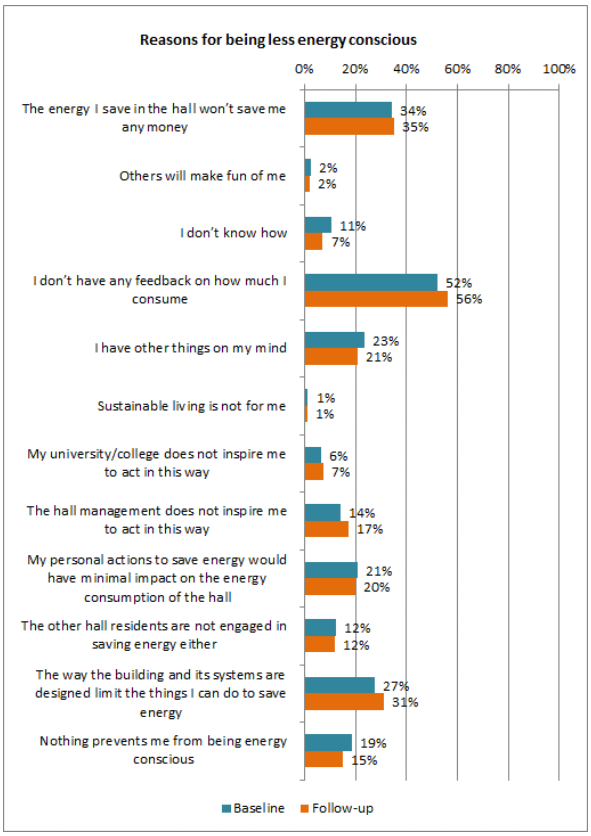

Figure 5: Barriers to energy saving

In the treatment group no negative change (decrease in energy saving actions) was observed in any of the six targeted behaviours. Comparatively, in the control group negative or smaller change, compared to the treatment group, was observed in all targeted behaviours.

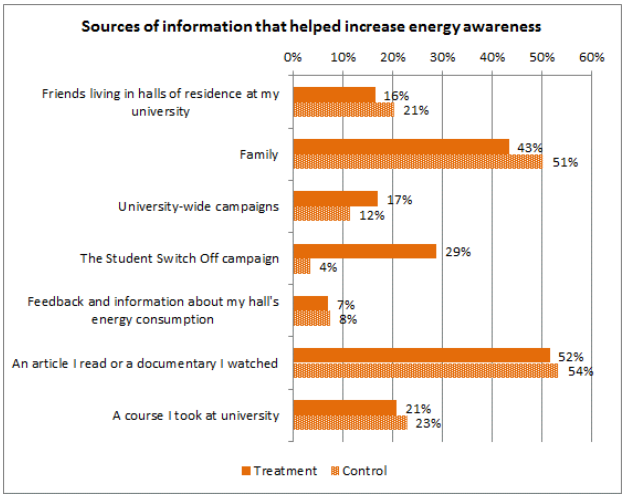

Figure 6: Influential sources of information

The increase in energy awareness was slightly higher in the treatment group. It was interesting to see that the top sources of information that helped increase energy awareness were common in both groups. Those were: an article read/documentary watched and family. The Student Switch Off campaign was the third most influential source of information for the treatment group with 29% of the respondents selecting it. Only 4% of the control group were somehow influenced by Student Switch Off, which is not surprising given that the campaign didn't run there!

Retention of behaviours

Another questionnaire survey was conducted with students who lived in participating dormitories in 2014/15 but moved into private accommodation in 2015/2016. The aim of this survey was to help identify whether the energy-saving actions established during their time in dormitories have been carried forward.

The survey was sent to all students that responded to the follow-up survey the previous academic year. A question asking the respondents if they were living in private accommodation or in dorms was used to screen out the students that still lived in dorms.

The questionnaire survey for students that had moved into private accommodation did not have a target response rate. Overall, 98 valid responses were collected in total and came from all five participating countries. The findings suggested a significant impact of Student Switch Off on respondents whilst living in dorms and a retention of the energy saving habits in their current lives outside dorms.

Increase of energy awareness when living in dorms

When living in dorms the awareness on how to save energy as a result of the Student Switch Off campaign increased for 68% of the respondents. This was a very pleasing result given the challenges of communicating with such a large number of students.

Actions taken to save energy when living in dorms

According to the survey results, over 70% of respondents took action to save energy as a result of their involvement in the SSO campaign in the previous year; again it was great to see the campaign having a positive impact.

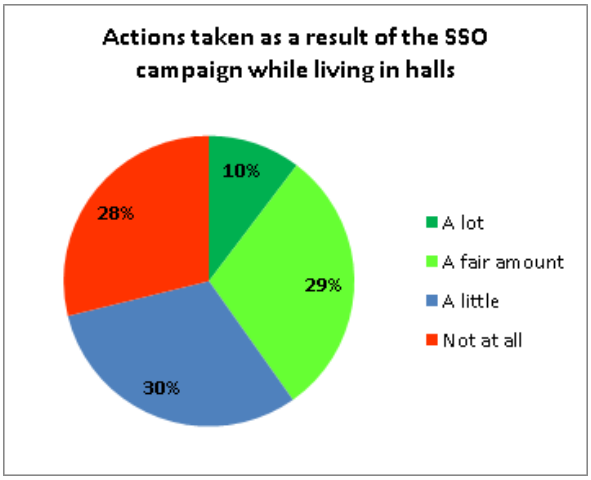

Figure 7: Actions taken as a result of the SSO campaign while living in dormitories

Retention of behaviours in private accommodation

It was great to see that from the 70% of respondents that took action to save energy as a result of the SSO campaign the previous academic year, almost all of them (99% of respondents) continued to take those actions in their current life. This is a key legacy impact of the project.

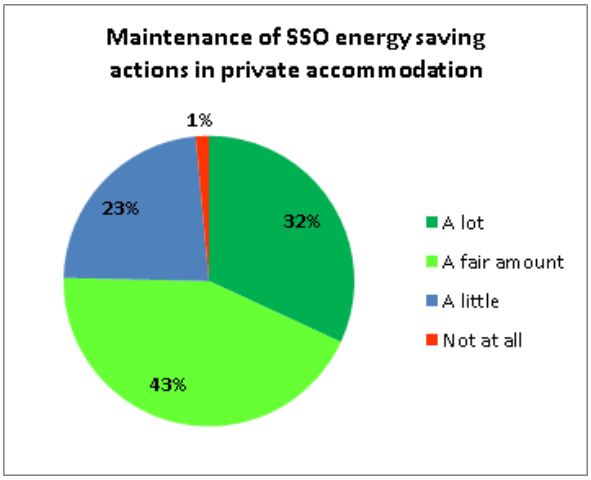

Figure 8: Retention of SSO energy saving behaviours when moving out of dormitories

99% of students reported that they had carried on energy saving behaviours when they moved into private accommodation.

Reasons for retaining behaviours
The majority of respondents (74% of respondents) continue to take energy saving actions in their current lives to save money. A large number of respondents also continue to take the energy saving actions because they have gotten into the habit of saving energy (56% of respondents) and to take personal action on climate change (48% of respondents). Encouragement from flatmates and saving time are not common reasons for taking energy saving actions (3% and 6% of respondents, respectively).

Looking at the results, it has been great to see the long-lasting impacts of the campaign, through students continuing to save energy beyond the time that students spend in their dormitories.

Energy savings

An important measure of the SAVES success was quantifiable energy saving made as a result of Student Switch Off. The SAVES project had the relatively unique opportunity to measure energy savings over an extended period (as opposed to short, which has not be reported in other energy saving campaigns previously). This section presents the data for academic years 2014-15, and 2015-16, and the comparison with the control group. Information is also provided about how the data was collected.

Collecting energy data
Electricity data (kWh) was collected in order to calculate energy savings at each dormitory and there were also a number of data-related prerequisites to run the competition. The first prerequisite was that dormitory providers had at least one year's worth of electricity data prior to the SSO campaign starting, to form a baseline. A second pre-requisite was that each dormitory building had at least one electricity meter that could provide electricity data for the duration of period that the competition was running. The majority of dormitory providers in SAVES had automated meters; only a handful had to have smart/automated meters installed prior to the campaigns launching for the academic years 2014-15.

When the campaigns started, electricity meter readings were collected directly from the automated meters via the energy dashboard (see the previous chapter for more details on the technical aspects of the dashboard). In a number of cases where data was missing or erroneous, it was extrapolated to ensure that all savings were reported.

It was a prerequisite that dormitory providers had at least one year's worth of electricity data prior to the SSO campaign

starting, to form a baseline that was used to measure savings against.

For the first year of the campaign, the dashboard was being developed and was in its pilot stage, therefore the majority of energy data calculations were done manually by the dormitory coordinators.

Where dormitories were electrically heated or cooled, a degree day analysis was performed in order to adjust the baseline for how warm/cold the month was.

Where data for a month was missing or erroneous, it was extrapolated based on the average of the data available for other months.

Energy saving – the results

Academic year 2014-15

In the academic year 2014-15 there was an average 5.26% saving across the five participating countries, with an overall saving of 1.52 GWhs of energy. The total adjusted baseline was 28.98 GWhs, with an overall energy consumption of 27.46 GWhs.

The highest percentage of saving was noted in Sweden (12.06%), with the lowest savings reported in Lithuania (1.5%).

UK had the highest absolute energy savings (1.02 GWh) but also the highest number of participating universities and students so this was expected, with the lowest reported in Cyprus (0.02 GWh), as it had only one participating university with around 200 students.

The UK also had the highest carbon dioxide savings (546 tonnes CO_2, again as expected with the large number of students) whereas the lowest was reported in Sweden (6 tonnes CO_2) - the primary reason for the small CO_2 reduction in Sweden was their clean energy grid and low CO_2 emissions per kWh. Table 2 presents more details on per country savings and consumption.

2014 - 2015	UK	Greece	Cyprus	Sweden	Lithuania	TOTAL
Baseline (GWh)	19.35	2.07	0.23	3.11	4.22	28.98
Usage (GWh)	18.33	2.02	0.22	2.74	4.16	27.46
GWh saving	1.02	0.05	0.01	0.37	0.06	1.52
% saving	5.25	2.60	6.92	12.06	1.50	5.26
CO2 saving (tonnes)	546	39	12	6	16	619

Table 2: GWh/CO_2 savings for 2014-15

Academic year 2015-16

The total adjusted baseline for the project in 2015-2016 was 29.10 GWh. Total consumption measured during the period was 26.56 GWh, a total reduction of 2.54 GWh of electricity was therefore observed which equates to an 8.8% saving. This reduction, when accounting for the carbon intensity of national electricity generation in each of the five countries equates to a reduction of 1,107 tonnes of CO_2 emissions.

The highest absolute savings were again achieved in the UK both for electricity and for carbon (1.69 GWh, 908 tonnes CO_2 respectively), with the greatest percentage saving achieved in Cyprus (41.2%).

Greece reported the lowest savings both in absolute terms (0.01 GWh, 11 tonnes CO_2) and in percentage terms (0.9%).

For further details, please refer to Table 3.

2015 - 2016	UK	Greece	Cyprus	Sweden	Lithuania	TOTAL
Baseline (GWh)	20.34	1.66	0.24	2.71	4.15	29.10
Usage (GWh)	18.65	1.65	0.14	2.38	3.74	26.56
GWh saving	1.69	0.01	0.10	0.33	0.41	2.54
% saving	8.31	0.90	41.25	12.18	9.95	8.76
CO2 saving (tonnes)	908	11	74	6	109	1,108

Table 3: GWh/CO_2 savings for 2015-16

Comparing both the academic years

The savings made in 2015-16 were nearly twice as high as those achieved in 2014-15.

The reason for this was most likely a combination of the improvements made by delivery partners between the two years of the project in light of lessons learned (feedback surveys, focus groups, and trial and error and the addition of the dashboard). It is, however, impossible to disaggregate the exact impact of different changes on overall savings between the two years. However, improvements in the amount of regular data being captured by the dashboard in 2015-16 had an impact on engagement in the energy-saving activities of students – as they received more regular feedback.

The majority of electricity consumption took place in UK dormitory providers and the UK saw the largest absolute savings followed by Lithuania and Sweden. However, it is interesting to note that percentage savings were actually consistently higher (again, with the exception of Greece) in countries with smaller baselines. This may suggest larger student cohorts are more difficult to fully engage. In terms of percentage saving from the baseline Cyprus achieved a very impressive 24% saving but since Cyprus was the smallest consumer in absolute terms this saving is a small contributor to the overall kWh reduction figures. This result may be partly due to the fact that in Cyprus it was possible to engage directly with every single student.

The highest percentage reductions took place in in Cyprus (24.48%) and the lowest savings were reported in Greece (1.84%). UK had the highest absolute energy savings (2.71 GWh), with the lowest reported in Cyprus (0.120 GWh). UK also had the highest carbon dioxide savings (1,454 tonnes CO_2) whereas the lowest was reported in Sweden (12 tonnes CO_2). Please refer to Table 4 for all the details.

The Greek figures may be affected by energy system changes at The Technical University of Crete, where from the academic year 2013-2014 to 2014-2015, the dormitory oil boiler for heating was replaced by Heating, ventilation and air conditioning (HVAC) units in each room, used for both heating and cooling. This accounted for an increase in electricity consumption during summer when HVAC units are used, and a decrease in energy consumption in winter when the oil boiler is replaced by HVAC units. Interestingly, this statistical issue may be balanced against the finding that Greece (with Cyprus) showed the highest increase in energy awareness, albeit from a small sample group where response to changes in awareness are more immediately apparent, and also (as noted elsewhere) easily spread between students who socialise closely due to the small number of students.

In some countries there were high energy savings (e.g. Sweden), yet their carbon dioxide savings were very low because of the low carbon conversion factor (attributed to a clean electricity grid). In contrast the opposite can be said about Cyprus and Greece, with smaller energy savings due to small dormitory sizes, but greater proportional carbon dioxide savings.

2014 – 2016	UK	Greece	Cyprus	Sweden	Lithuania	TOTAL
Baseline (GWh)	39.69	3.73	0.48	5.82	8.37	58.09
Usage (GWh)	36.98	3.66	0.36	5.11	7.90	54.02
GWh saving	2.71	0.067	0.12	0.70	0.47	4.07
% saving	6.82	1.84	24.48	12.12	5.69	7.01
CO2 saving (tonnes)	1,454	49	85	12	125	1,726

Table 4: GWh/CO_2 savings for 2014-16

Comparison with control group

Energy data was also compared against the control group set up in Linkoping, Sweden. In both the academic years there was a significantly higher saving in the treatment group in Sweden compared to the control group. In 2014-15 there was a 12.06% saving in the treatment group compared to 2.81% in the control group, whereas in 2015-16 these figures were 12.18% and 1.99% respectively.

	Control group	Treatment group
2014-15	2.81%	12.06%
2015-16	1.99%	12.18%

Table 5: GWh percentage savings for control group vs treatment group

Dissemination and communications

'Through being an ambassador for SSO, I found out about more ways to make people aware of the importance of saving energy. Awareness came as a part of games and competitions created for us to play. That is what I call motivation!'

Student ambassador, University of Cyprus, Cyprus.

Dissemination and communications

Introduction

SAVES followed a rich dissemination strategy, led by UNICA – Network of Universities from the Capitals of Europe. All project partners made sure to spread the word about SAVES' outcomes via their usual communications channels (websites, Facebook, Twitter), as well as reaching out to local and national media and travelling to international conferences.

To ensure a greater reach, and tailor the communications, a special communications and networking advisory committee, including the Erasmus Student Network (ESN), European Students' Union (ESU), the Environmental Association of Universities and Colleges (EAUC) and Students' European Network for Sustainable Development (SENSD) was set up to support the dissemination of the project. This group met quarterly via Skype to exchange ideas and information of upcoming conferences. NUS-UK worked closely with UNICA to ensure that appropriate dissemination channels were exploited.

SAVES in the media

Throughout the duration of the project, all partners joined efforts to disseminate the project outcomes in various national and international media. UNICA, ESN and ESU, as important stakeholders in the field of European Higher Education based in Brussels, communicated on a regular basis the achievements of SAVES to their vast international networks using their respective websites, mailing lists, Twitter and Facebook accounts and newsletters, reaching thousands of readers throughout the project lifetime.

Photo 18: Student Switch Off Campaign on Greek EcoNews, October 2014

Photo 19: Costas Charalambous from the University of Cyprus, on a daily news channel on CYBC, November 2016.

Some of the university partners managed even to attract the attention of the local television: The University of Athens featured in the EcoNews on 17 October 2014 and the University of Cyprus presented SAVES on two separate TV shows – one in January 2016 and the other in November 2016. The programme in November 2016 was a daily news programme on CYBC (a national channel), where Costas Charalambous from University of Cyprus was invited, together with one of the student ambassadors. The programme in January 2016, was also aired on CYBC, as part of a weekly environmental show, and featured various members of faculty at the University of Cyprus, including Christina Lambrou, the SAVES dormitory coordinator talking about their environmental initiatives.

The conference presentations allowed the consortium to reach a broad spectrum of target audiences, including the high-level policy makers

SAVES project was featured on a national TV news show in Lithuania in 16 April 2016[12] - it showed SSO engagement activities run on campus.

Last but not least, students from the University of Cyprus made a ten minute 'Switch-Off Horror Movie'[13] promoting energy-saving behaviour, which reached over 500 views on YouTube.

Photo 20: SSO on TV in Lithuania, April 2016

SAVES at conferences

The SAVES project was accepted and subsequently presented at many international conferences, including:

- 5th UNICA GREEN Workshop (Berlin, Germany 25-27 March 2015)
- Erasmus Congress and Exhibition - ERACON 2015 (Porto, Portugal 13-17 May 2015)
- 27th European Association for International Education - EAIE Annual Conference (Glasgow, UK 15-18 September 2015)
- The Class of 2020 Conference (Amsterdam, Netherlands 15 November 2015)
- COP21 in Paris, France (7-8 December 2015)
- 6th UNICA GREEN Workshop (Rome, Italy 2-4 May 2016)
- Social Erasmus Conference of Erasmus Student Network (Brussels, Belgium 24 June 2016)
- EU Sustainable Energy Week (EUSEW) (Brussels, Belgium 16 June 2016)
- The prestigious BECC – Behavior, Energy and Climate Change Conference (October 2016, Baltimore USA).
- NAFSA: Association of International Educators (May 2016, Denver, USA) – didn't attend.

SAVES was also successful in being accepted for the prestigious European Council for an Energy Efficient Economy (ECEEE) (June 2017), as a result of which a journal paper will be published presenting the findings of SAVES.

The presentations allowed the consortium to reach a broad spectrum of target audiences, including the high-level policy makers (COP21, EUSEW), international HEI community (EAIE & ERACON), the international research community (BECC), student housing providers (Class of 2020), sustainability managers at European universities (UNICA GREEN) and student representatives (ESN).

As a result of attending these conference, the SAVES consortium was able to create important links with many housing organisations who are potentially interested in bringing Student Switch Off to their campus.

Photo 21: Joanna Romanowicz (NUS-UK) presenting SAVES at the EAIE Conference, September 2015

Success stories

'All these things may seem to be rooted in common sense, but it is shocking to think how many times we neglect to do them. Thanks to the brilliant Student Switch Off team I am more mindful'

Student ambassador, Queen Mary University, UK

Success stories

Introduction

The SAVES project and the Student Switch Off campaign have been successful on many levels. This chapter explores some of the biggest success stories!

Student ambassadors

One of the biggest successes of the campaign in all the five countries was the active involvement of student ambassadors. It was found that students engaged with the campaign better if the energy-saving message was relayed to them by their peers rather than only the dormitory coordinators. It was sometimes a challenge however to maintain momentum with ambassadors throughout the year.

Ways that student ambassadors helped in the campaign included: participation in halls visits, organizations of workshops, encouragement of friends to participate in engagement activities, design of posters. In Greece, for example, in the second year of the campaign meetings were organized with the student ambassadors on a monthly basis to monitor progress, brainstorm new ideas and plan future activities. In countries like Greece, where students tend to stay in the dormitories for the entire duration of their studies, there was an enhanced sense of commitment from the student ambassadors as they saw it as something they can invest in their time in.

Photo 22: Student ambassadors in DMU, UK

Spring board for sustainability

A true success that sprung from the Student Switch Off campaign in Sweden was that SBF started to work with sustainability. A network among the members focused exclusively on discussing and working with sustainability in student housing was created. The network now meets three times a year to discuss the ecological as well as economic and social aspects. Furthermore, a conference focused specifically around sustainability was launched as a result of the SAVES project. More than 50 people from student housing companies from all over Sweden attended and discussed everything from energy saving among their students to eco living in the future. Last but not least SBF decided to have sustainability as a theme for the whole year of 2016, including events, articles and focus on the different aspects to raise awareness both on the challenges we face but also on the great work conducted among their members.

Being an international winner

On the 26th of October 2016, the University of Cyprus proudly celebrated winning the first place in energy savings amongst all Universities taking part in SAVES, for the academic year 2015/16. The event took place at the Student Halls, and all residents and University personnel, were invited.

During the event, speeches were delivered by the Rector of the University Prof. Constantinos Christofides, and the Commissioner for the Environment Protection in Cyprus Ms. Ioanna Panayiotou. Both the Rector and the Commissioner congratulated the students and encouraged them to continue their efforts towards sustainability and energy saving.

Ms. Panayiotou stated specifically "I'm often being asked if Cyprus is able to take action in order to protect the environment. The 208 students living at the Resident Halls, taking part in the SAVES program, and winning the first place, is proof that Yes, Cyprus is able to do so".

Ms. Marianna Pagkratidou a resident who was accommodated in the winning building during 2015/16, delivered a speech on behalf of the students. She specifically quoted her previous statement when she first found out that they won, that is: "To win is great. To win as a part of a team, is even greater! However, to win when the greatest beneficiary is the environment, well, that is a victory beyond words."

In addition, during the event, the Rector and the Commissioner for the Environment Protection revealed a commemorative sign that is currently placed at the Residents Common Place Center.

Following the event, the University of Cyprus got lots of media coverage featuring the event and the SAVES program. A press release hit the local newspapers, while Mr. Costas Charalambous Country Manager of the project, with Ms. Maria Leonidou, Ambassador of the Program were interviewed at a TV show produced by the Cyprus Broadcasting Corporation.

Creation of synergies with networks

For UNICA, a big success was the creation of synergies between the SAVES project and the UNICA GREEN Core Group. The UNICA GREEN Working Group brings together the sustainability managers from the universities located in European Capitals, who meet once a year to discuss the current policies and developments in their field and share best practices. SAVES was presented during the 5th UNICA GREEN Workshop (Berlin, 25-27 March 2015) and the 6th UNICA GREEN Workshop (Rome, 2-4 May 2016) and raised a lot of interest in the group, inspiring future cooperation in student engagement.

Photo 23: Joanna Romanowicz (NUS UK) presenting SAVES at Class of 2020 Conference, Amsterdam 2015.

Photo competitions go viral

Photo competitions ran at participating universities proved to be successful. For example, a number of photos uploaded to VGTU Student Switch Off Facebook page reached a total of 49,000 people and collected more than 2,000 likes. Some competitions were extremely intensive, resulting in more than 550 likes per single picture.

Similarly, as mentioned earlier in this report, the international photo competitions engaged with over 30,000 people via Facebook, and had hundreds of votes cast.

Replicability of SSO

One of biggest success of the SAVES project was the adaptation of the SSO campaign to various national contexts, with input from students. It was rewarding to see the campaign work successfully across countries in Europe, showing that the campaign is replicable. The SSO campaign ran and ended successfully each academic year in all of the 17 universities/dormitory providers. It was mentioned earlier on in this report that between 2014-15 and 2015-16, and before the beginning of the campaign, there were some changes in participating institutions, however this was linked with resource available, as opposed to the particularity of the campaign.

Lessons learnt and legacy

'Instilling energy saving habits in students will hopefully ensure that they will keep this up and be more aware of the importance of protecting the environment throughout their life and increase other pro-environmental behaviours (and of course it means they can save on bills too!)'.

Student ambassador, University of Bath, UK

Lessons learnt

Introduction

With all projects, successes often come with challenges too and the SAVES project is no exception. This section describes these challenges in more detail and describes some of the solutions that were taken as a result.

Building relations with students' unions

One of the lessons that came out of the SAVES project was that it was important to discuss the SSO campaign with the students' union in order to gain their support and also to collect their feedback and requirements on aspects that could be adapted to make the campaign more applicable to the university and dormitory set-up. Making the campaign relevant to their needs and requirements helped build a sense of ownership. In Lithuania in particular, the delivery team worked closely with their students' unions, to drive the campaign, and in similar ways NUS-UK tried to link up with respective students' unions to help spread the message.

The challenge however with working with students' unions, is that their leadership can change from year to year, and therefore their support to the campaign, so sometimes relations had to be created year-on-year which is quite time-intensive.

No 'one size fits all' way to communicate with students

A huge part of the SSO campaign is communicating the message on energy saving – be it face-to-face or digitally. In each country there were different channels for reaching students that worked best. In UOA, Greece for example, a mailing list of students was not available, a fact that made communication with a large number of students difficult. Therefore, emails had to be collected through face-to-face communications with the students. In TUC, Greece on the other hand, a list of emails was also not available for the SSO staff but access to the online dormitory forum was given where announcements about the SSO activities could be made. It is interesting to note however that, students in Greece did feedback that many did not check their emails regularly, therefore the fact that there wasn't an all student mailing actually wasn't too detrimental. Twitter and other social media, apart from Facebook were not popular at all among students. In Greece the communication channels that worked best were Facebook and frequent face-to-face communication.

Photo 24: Students pledging to save energy as part of SSO in Lithuania

In Sweden the most efficient communication tool turned out to be the ambassadors meeting with the students face-to-face on different occasions. As well SBF got more responses on the updates on Facebook made by the ambassadors (as opposed to by the dormitory coordinators). SBF put a lot of effort into writing and designing the emails and the opening rate on the emails were pretty high as a consequence.

In the UK on the other hand, Facebook and emails (usually sent to their official university email addresses) were seen as the best ways to communicate.

In Cyprus and Lithuania, Facebook was seen as the best communications tool. Students spend a lot of time on the social networks nowadays

and a message or a post on these platforms had more chance to be read and be effective than other traditional forms of communication.

Organisations delivering SSO can be key to its success

As can be observed from earlier on in this report, the organisation delivering SSO varied between countries. For example in Sweden and the UK, the delivery organisations had national remit (SBF and NUS-UK respectively) whereas in Greece and Cyprus the campaigns where delivered directly by the participating universities.

There are a few points to consider here. It is important that the organisation doing the delivery of the campaign has a profile acceptable to the students (i.e. public organisation, non-for-profit etc) in order to gain their trust. In addition, the organisation delivering the campaign should have good links or good communication established with the key departments of the university (i.e. technical services, dormitory management).

In the case of Sweden, the campaigns were run by SBF in the dormitories operated by two of their members. This had impact on the legacy for SSO. Since the project management was operated only by SBF, the member organisations didn't appreciate the day-to-day running of the campaign entailed hence when they were asked to run the campaign in-house they thought it was too big job to add on to their "normal" business. SSO would probably have been an even bigger success in Sweden if the campaign would have been managed in-house by the members themselves who of course have efficient communication directly with their tenants.

In Lithuania, where the SSO campaign was delivered to five universities by staff based at VGTU, it was a challenge to motivate those partner universities, which were not official members of the project consortium as they did not allocate human resources for helping to run SSO campaign at their institutions

Make the campaign fun

University students are a very vibrant and energetic part of the society. They thrive to learn, gain knowledge and experiences and they are open to learning. One may think that this guarantees a smooth process when it comes to teaching them how to save energy just by changing some everyday behaviours.

In Cyprus the delivery team found that the campaign became more effective (and fun) when they built on the team spirit. Students were very competitive and that worked well when they were challenged to compete. Students also saw the SSO campaign as an opportunity to take a break and relax from the rigorous and often exhausting studying that they need to go through, and socialized with their peers. For example, the blackout party that UCY held to initiate the project was a very successful event; students had a great time, and realized that one can have fun and save energy at the same time!

Photo 25: Student ambassador, QMUL, UK

Data and the dashboard

The dashboard was a new platform specifically designed for the SAVES project, so like with any new developments there were some teething problems. The main issue was concerning the display of energy use on the dashboard where the process of obtaining reliable, good-quality and regular data readings

from university sources was sometime challenging.

In a few cases, suitable metering had not been installed (or was still undergoing installation) so although some dormitory providers were able to upload data files manually, others did not have data of the necessary quality—or enough historic data—to run realistic competitions.

Historic data—needed to calculate a realistic baseline against which to measure energy savings—was missing in some cases and, in others, was in a different format and/or had time intervals that differed from the automatically-uploaded data. Once these issues were overcome, however, the continuing data flow provided a growing store of historic data against which future competitions could be run successfully. For a really robust baseline, two to three years of data would be ideal, although where usable metering has only recently been installed, this was not always available.

A significant unforeseen consequence of live data readings was the tendency of the dashboard to highlight anomalies (gaps in data, significant spikes or troughs) this was incidental, because these anomalies simply showed up in competitions on the dashboard as extreme savings or increases in consumption. The following solutions were developed as a result:

- An option to 'hide' a competing dormitory from the public display
- A facility to alter calculated targets by date
- An option to 'neutralise' a competition so that competitors stayed in order, but did not display savings/increases

Further, there were instances of changes to APIs (Application Programming Interfaces are the method by which third parties can access data sources provided by metering companies) and data formats where automated data was already in place, which also caused issues.

A good example of this—and one with a positive outcome—is the story behind two participating UK universities: De Montfort (DMU) and Warwick. At the start of the project, DMU used *Dynamat Plus* from the energy metering provider EMT. This was desktop-based software offering a basic manual export facility that could produce only single HTML (web page) files, which had to be processed by preparing a special 'data adaptor' to identify and extract only the required energy data. This was not ideal, but at the time it was felt that the EMT system had to be accepted as it was. However, Warwick University also signed up with EMT and were using the same system, which was by then upgraded to *Dynamat 2050*—a cloud-based system (not a desktop application). So an opportunity was identified for both universities to pay a small fee to, and aid, EMT to develop a facility that would enable the SAVES dashboard (and incidentally other data users) to 'pull' data from this upgraded system.

This was a significant improvement to the process of setting up and processing automated readings from EMT. Further, this initiative had a lasting impact on the ease of energy data processing in other projects and organisations: for instance, Leicester City Council and successive research projects at DMU are now able to take advantage of this new method.

The harder lesson learnt from all this is that it is essential to engage energy managers and university IT departments from the start, in order to get the technical details in place as soon as possible so as not to hold up the creation of competitions. The positive lesson is that projects such as this can actually initiate and carry through significant technological change in energy management systems of external commercial companies, making it easier for future initiatives to capture and process energy data much more easily.

Conclusions

'It gives me much satisfaction that I can make an impact and now I can also call myself a change agent thanks to Student Switch Off'.

Student ambassador, Cranfield University, UK

Conclusions

The SAVES project reached over 50,000 students living in dormitories with a successful energy-saving campaign, Student Switch Off, from 2014-2017. The campaign helped to encourage and embed positive energy-saving habits in five participating countries (UK, Sweden, Cyprus, Greece and Lithuania), saved over 4million kWh of electricity and kept over 1,700 tonnes of CO_2 out of the atmosphere.

There were a huge number of success stories and lessons learnt as described in earlier chapters. These will serve as a great foundation for further dormitory providers to become inspired to run the campaign in their accommodation and for those already running the campaign to learn from the approach adopted by SAVES.

The project had a positive impact on energy savings, carbon savings and student engagement. Numerous synergies were formed, with participating organisations furthering their work on sustainability issues as a direct result of their participation in SAVES.

The legacy of SAVES is that the Student Switch Off campaign has continued to run in the UK, Cyprus, Greece and Lithuania on a self-funded basis, from September 2016. SAVES has also inspired other organisations to run their own version of Student Switch Off – with an estimated 210,000 students engaged in dormitory energy-saving campaigns in SAVES partner countries in the 2016/17 academic year.

Photo 26: SSO dormitory winners in Gothenburg, Sweden

Endnotes

[1] http://www.saves-project.eu

[2] http://www.studentswitchoff.org

[3] https://ec.europa.eu/energy/intelligent/

[4] https://switchoff.nus.org.uk/organisations

[5] https://www.instagram.com/studentswitchoff/

[6] https://www.facebook.com/Student-Switch-Off-%CE%A6%CE%BF%CE%B9%CF%84%CE%B7%CF%84%CE%B9%CE%BA%CE%AD%CF%82-%CE%95%CF%83%CF%84%CE%AF%CE%B5%CF%82-%CE%A0%CE%B1%CE%BD%CE%B5%CF%80%CE%B9%CF%83%CF%84%CE%B7%CE%BC%CE%AF%CE%BF%CF%85-%CE%9A%CF%8D%CF%80%CF%81%CE%BF%CF%85-626172854165927/

[7] http://www.zemeds.eu/documents/awareness-raising-tools

[8] http://www.zemeds.eu/

[9] https://www.youtube.com/watch?v=SHnsN12Grh0)

[10] http://ecovisum.com/

[11] http://saves.nus.org.uk/about/documents-and-materials

[12] (http://play.tv3.lt/programos/tv3-zinios/722839?autostart=true) (from minute 41)

[13] https://www.youtube.com/watch?v=BUSX4r3Rwh8

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