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1. Introduction

The SAVES 2 project (www.saves-project.eu) brings together the Student Switch Off (SSO) and Student Switch Off + (SSO+) energy saving campaigns (www.studentswitchoff.org) in fourteen different universities across seven European countries; Bulgaria, Cyprus, Greece, Ireland, Lithuania, Romania and the United Kingdom (UK). This report provides information on how much energy (kWh) and carbon dioxide (tonnes CO₂) was saved as a direct result of the campaigns, and what were the levels of student engagement for the 2017-18 academic year.

The SSO campaign is an inter-dormitory energy-saving competition, that focuses on a predefined set of activities, encouraging students to save energy in their university dormitories. The dormitory that saves the most energy on each campus, is announced as the winner and rewarded for their efforts. Energy savings are determined by comparing pre-intervention electricity consumption, with post-intervention electricity consumption, in each dormitory; electricity meters from each of the participating dormitories are linked up to an online dashboard¹ that automatically calculates the savings. The dashboard was specifically developed for the purposes of the SAVES 2 project by Ecovisum. Students get regular feedback on how much energy their dormitories are saving by visiting the dashboard. This methodology is described in more detail in section 2.1.1.

The SSO+ campaign aims to raise awareness amongst students living in the private rented sector, helping them reduce their energy costs. It focuses on making students aware of energy performance certificates (EPC), smart meters, energy efficiency and energy saving actions, thus helping reduce their exposure the energy poverty.

The report describes the impact of Student Switch Off and Student Switch Off+ (energy and carbon savings, and student engagement) during the academic year 2017-18; Chapter 2 focuses on Student Switch off and Chapter 3 focuses on Student Switch Off+.

2. Student Switch Off

During the 2017-18 academic year, the Student Switch Off campaign ran in fourteen universities, in seven different countries in the European Union (Bulgaria, Cyprus, Greece, Ireland, Lithuania, Romania and the UK). Prior to 2017-18, Student Switch Off had run in the universities in Cyprus, Greece, Lithuania and the UK, however this was the first year of the campaign for universities in Bulgaria, Ireland and Romania.

Table 1 summarises the number of universities, dormitories, and students taking part in the Student Switch Off campaign in 2017-18.

University	Country	No. of dormitories	No. of students in dormitories
University of Cambridge	UK	17	10,081
Kings College London	UK	12	4,999
London School of Economics	UK	4	1,286
University of York	UK	9	5,282
National and Kapodistrian University of Athens	EL	4	1,068
Technical University of Crete	EL	1	76
University of Cyprus	CY	1	208

¹ <https://switchoff.nus.org.uk/>

Dublin City University	IE	1	1,400
National University of Ireland, Galway University	IE	4	1,100
National University of Ireland, Maynooth University	IE	4	986
University College Cork	IE	8	1,000
Vilnius Gediminas Technical University	LT	6	3,740
University of Bucharest	RO	16	4,288
The University of Sofia "St. Kliment Ohridski"	BG	17	6,300
Total		104	41,814

Table 1: Universities participating SAVES 2

In most cases, the Student Switch Off campaign was run directly by staff at the participating universities, with the exception of the UK and Ireland, where the campaigns were delivered by the respective national students' unions (National Union of Students of the United Kingdom and the Union of Students in Ireland, respectively).

Specific activities undertaken as part of the Student Switch Off campaign are described in detail as part of the Annual 2017-18 reports created for each of the seven countries. These are available on the SAVES 2 website (www.saves-project.eu). Headline information is provided in section 2.2 of this report.

2.1 Energy and carbon dioxide saving

Quantifiable energy savings are an important aspect of the Student Switch Off campaign. Electricity data for 2017-18 (post intervention, i.e. once the campaign has started) was collected and compared to baseline data (pre-intervention, i.e. before the campaign took place) to calculate how much energy was saved as a result of energy saving actions taken by students. Section 2.1.1 describes the methodology used in more detail.

Analysis of energy data (comparison of pre-intervention, with post intervention) was performed at project level, country level, university level and dormitory level. For this report, the data is presented at university, country and project level. Dormitory level data can be provided upon request.

Carbon dioxide (CO₂) savings were calculated based on the amount of electricity saved in each university, and the applicable carbon conversion factor for that country. Savings are presented as tonnes of CO₂ (tCO₂). Carbon factors varied widely between the SAVES 2 countries, with Lithuania having the lowest carbon conversion factor (0.27000 kgCO₂) and Cyprus having the highest conversion factor (0.72825 kgCO₂). Table 2 below shows the conversion factors per country².

Country	Carbon conversion factor - kgCO ₂ per kWh
Bulgaria	0.61086
Cyprus	0.72825
Greece	0.718211
Ireland	0.41925
Lithuania	0.27000
Romania	0.50845
UK	0.45850

Table 2. Carbon conversion factors for SAVES 2 countries

² Source: https://iq-tools.com/files/International_elec_2015.pdf

In this report energy savings are presented as kilowatt hour (kWh), percentage (%) savings, and tonnes of CO₂ (tCO₂). Table 4 shows the overall savings for Student Switch Off for the academic year 2017-18. Tables 6-12 show energy savings per university in each country over the 2017-18 academic year. Full calculations are available upon request.

2.1.1 Methodology

A methodology to calculate energy savings in each dormitory was developed by Ecovisum, based on the International Measurement and Verification Protocol (IPMVP) and the “eeMeasure” methodology (<http://eemeasure.smartspaces.eu>) developed for the EC ICT Policy Support Programme (ICT-PSP). This included a methodology for the establishment of a baseline at each dormitory and a common approach for calculating and reporting savings through the specifically developed energy dashboard. To find out more about the technical functionality of the dashboard, please read this [report](#).

Electricity consumption data collected at each dormitory in the baseline period was used to establish consumption models. These models provided a basis for comparison over the project period to quantify energy savings. To create the baseline data, universities taking part in the SAVES 2 project were asked to provide energy data for the year(s) preceding the start of the SSO campaign.

The methodology used to calculate energy savings included the following elements:

- Kilowatt hour (kWh) electricity consumption data was collected from the pre-intervention academic year(s) for each dormitory building to form their baseline. For universities previously involved in SSO (those in Cyprus, Greece, Lithuania and the UK), this was data from the 2013-14 (or earlier) academic year. For universities who were not involved in the SSO campaign (those in Bulgaria, Ireland and Romania), the data used was from the 2015-16 academic year (or earlier).
- Where feasible, smart meters feeding data from the participating dormitory buildings were connected to the online dashboard³ developed by Ecovisum. Where automated data transmission was not possible (i.e. absence of smart meters), manual readings were taken and uploaded to the dashboard. Table 3 illustrates the frequency of the data uploaded to the dashboard, and whether it is automated, or manual. As can be noted, all universities, apart from the University of York in the UK, were set up on the dashboard.
- The electricity consumption data for each dormitory building during the academic year 2017-18 was compared against the baseline data from that dormitory – meaning the dormitory was competing to beat its own baseline usage.
- To accurately report the energy savings to students, degree day analysis was manually performed on universities that had electric heating to take variations in outside temperature into account, and this was then manually adjusted on the dashboard.
- Where data for a month was missing or was erroneous, it was extrapolated based on the average of the data available for other months. This was only done for a small number of cases, and is indicated in Tables 4-10. As a minimum, electricity data was compared for six months of the year. Where more data was available, it was included (the most months compared were 9).

University	Data received on the dashboard	Data strategy	Data resolution	Data files uploaded
University of Cambridge	Y	manual	daily	monthly
Kings College London	Y	auto push	daily	daily
London School of Economics	Y	auto pull (SFTP)	daily	TBC
University of York	N	TBC	TBC	TBC

³ <https://switchoff.nus.org.uk/>

National and Kapodistrian University of Athens	Y	auto push	15 mins	daily
Technical University of Crete	Y	manual	hourly	weekly
University of Cyprus	Y	manual	hourly	weekly
Dublin City University	Y	manual	monthly	Weekly (variable)
National University of Ireland, Galway	Y	manual	60 days	2-weekly
National University of Ireland, Maynooth	Y	manual	monthly	monthly
University College Cork	Y	manual	monthly	monthly
Vilnius Gediminas Technical University	Y	auto pull	hourly	daily
University of Bucharest	Y	manual	monthly	monthly
The University of Sofia "St. Kliment Ohridski"	Y	manual	monthly	monthly

Table 3. Frequency and method of uploading data to the dashboard

2.1.2 Overall energy and carbon dioxide saved through Student Switch Off

As can be seen in Table 4 below, in 2017-18 a total of 1,059,241 kWh of electricity (a saving of 3.33%) were saved as a result of the Student Switch Off campaign in the seven participating countries, when compared to the pre-intervention baseline. All countries, apart from Ireland, reported a saving in energy usage.

The 3.33% saving equates to 532 tonnes of CO₂ emissions saved. The most absolute savings were achieved in the UK (772,661 kWh, 354 tCO₂), and the greatest percentage saving was achieved in Cyprus (7.87%).

Ireland was the only country that had an increase in energy usage both in absolute terms (an increase of 212,386 kWh, 89 tCO₂) and in percentage terms (increase of 12.45%).

It is important to note that the number of months of data compared did vary across participating universities (and therefore countries), based on student occupancy/ data availability. This is detailed in Tables 6-12. Since the targets for the Student Switch Off were set based on nine months' worth of electricity data, some extrapolation was done, to account for missing months. This is available in section 2.1.4.

	Overall Student Switch Off savings
Baseline usage (kWh)	31,767,192
2017-18 usage (kWh)	30,707,951
kWh saving	1,059,241
% saving	3.33%
CO ₂ saving (tonnes)	532

Table 4. Overall energy and carbon saving as a result Student Switch Off

As per Table 5, it is noteworthy that data consumed by the Irish and UK universities accounts for 77% of all usage so the results from these countries have a significant impact on the overall savings of the project. Tables 6-12 in section 2.1.3 detail university-specific savings (electricity and carbon) for each of the seven participating countries.



Country	Bulgaria	Cyprus	Greece	Ireland	Lithuania	Romania	UK
Baseline usage (kWh)	2,213,796	253,790	1,517,117	1,705,252	1,183,584	2,376,160	22,517,493
Usage 2017-18 (kWh)	2,070,995	233,817	1,443,301	1,917,638	1,093,178	2,204,190	21,744,832
kWh saving	142,801	19,974	73,817	-212,386	90,406	171,970	772,661
% saving	6.45	7.87	4.87	-12.45	7.64	7.24	3.43
CO ₂ saving (tonnes)	87	15	53	-89	24	87	354

Table 5. Energy and carbon savings from Student Switch Off in SAVES 2 countries

2.1.3 Energy and carbon savings in individual countries

This section details energy and carbon savings in the seven countries participating in SAVES 2. Savings are presented per university.

2.1.3.1 Energy and carbon savings in Bulgaria

As per Table 6, energy saving was noted in Bulgaria; 6.45% was saved at The University of Sofia 'St. Kliment Ohridski'. This equates to a saving 142,081 kWh and 87.23 tonnes of CO₂.

The University of Sofia "St. Kliment Ohridski"	
Baseline usage (kWh)	2,213,796
2017-18 usage (kWh)	2,070,995
kWh saving	142,081
% saving	6.45%
CO ₂ saving (tonnes)	87.23
Months used in analysis	Nov-April (6 months)
Extrapolations/ additional analysis	

Table 6. Energy and carbon saving as a result of Student Switch Off in SAVES 2 Bulgarian universities

2.1.3.2 Energy and carbon savings in Cyprus

As per Table 7, energy saving was noted in Cyprus; 7.87% was saved at the University of Cyprus. This equates to a saving 19,974 kWh and 14.55 tonnes of CO₂.

University of Cyprus	
Baseline usage (kWh)	253,790
2017-18 usage (kWh)	233,817
kWh saving	19,974
% saving	7.87%
CO ₂ saving (tonnes)	14.55
Months used in analysis	Oct-May (8 months)
Extrapolations/ additional analysis	Baseline adjusted for air-conditioning that was installed summer 2017 (which has increased absolute energy usage for 2017-18 academic year)

Table 7. Energy and carbon saving as a result of Student Switch Off in Cypriot SAVES 2 universities

2.1.3.3 Energy and carbon savings in Greece

As per Table 8, energy saving was noted at both the Greek universities, 8.11% and 4.46% at Technical University of Crete and National and Kapodistrian University of Athens respectively. This equates to a saving of 73,817 kWh and 53.02 tonnes of CO₂.

	National and Kapodistrian University of Athens	Technical University of Crete
Baseline usage (kWh)	1,348,378	168,739
2017-18 usage (kWh)	1,288,249	155,052
kWh saving	60,129	13,688
% saving	4.46%	8.11%
CO ₂ saving (tonnes)	43.19	9.83
Months used in analysis	Nov-May (7 months)	Oct-May (8 months)
Extrapolations/ additional analysis	Degree day calculations performed	

Table 8. Energy and carbon saving as a result of Student Switch Off in Greek SAVES 2 universities

2.1.3.4 Energy and carbon savings in Ireland

Ireland is the only country taking part in Student Switch Off where there was an increase in energy (an increase of 212,386 kWh, and 89 tonnes of CO₂) in the university dormitories. One of the universities (Dublin City University) reported a saving of 12.30%, however the National University of Ireland, Maynooth, and the National University of Ireland, Galway, reported an increase (17.85% and 21.93% respectively). Please refer to Table 9 for further details. There was an error in data for University College Cork, so for the purposes of this report it is not presented. It will be included in the report for 2018-19.

The energy reporting infrastructure varies from campus to campus in Ireland, with clear variability in the dormitories. Data was recorded manually in both National University of Ireland, Galway and in University College Cork.

There was high student engagement on campus with the Student Switch Off campaign at the four Irish universities, as can be noted in Table 13, therefore it is important to provide several possible explanations for the increase in energy usage in two of the universities.

It must be noted that the winter and early spring of 2017-18 was the coldest since 2011 in Ireland, with extreme weather conditions resulting in a national Red Alert, a national shutdown and sustained sub-zero temperatures for more than three weeks. The impact was highly significant in more exposed parts of the country and resulted in a general warming response from the participating universities.

Both National University of Ireland, Galway, and National University of Ireland, Maynooth have electrically heated dormitories, therefore were particularly affected by the weather. Degree day analysis was performed at the National University of Ireland Maynooth, which helped stabilise the data; this however doesn't account for the fact that students were in their accommodation for longer periods of time/not attending lectures due to university shutdown, than they would otherwise (and therefore using extra energy). It was not possible to do degree day analysis on the National University of Ireland, Galway, due to granularity of the data (it was bi-monthly), therefore the energy increase resultant of the extreme winter temperatures could not be accounted for.

The final aspect to consider, is that the dashboard wasn't as regularly updated for the Irish universities, as it was for the ten other universities taking part in Student Switch Off, due to logistical issues obtaining manual

meter readings at more frequent intervals than a month. This meant students didn't receive regular feedback on how their dormitories were doing. This is being addressed for the 2018-19 academic year.

	Dublin City University	National University of Ireland, Galway	National University of Ireland, Maynooth	University College Cork
Baseline usage (kWh)	416,850	826,213	462,189	
2017-18 usage (kWh)	365,575	1,007,376	544,687	
kWh saving	51,275	-181,163	-82,498	
% saving	12.30%	-21.93%	-17.85%	
CO ₂ saving (tonnes)	21,497	75,953	-34,587	
Months used in analysis	(Sept-May) 9	(Oct-March) 6	(Oct-May) 8	
Extrapolations/ additional analysis			Degree day calculations performed	Error in data – will be supplied as soon as possible.

Table 9. Energy and carbon saving as a result of Student Switch Off in Irish SAVES 2 universities

2.1.3.5 Energy and carbon savings in Lithuania

As per Table 10, energy saving was noted in Lithuania; 7.64% was saved at the Vilnius Gediminas Technical University. This equates to a saving 90,406 kWh and 24.41 tonnes of CO₂.

	Vilnius Gediminas Technical University
Baseline usage (kWh)	1,183,584
2017-18 usage (kWh)	1,093,178
kWh saving	90,406
% saving	7.64%
CO ₂ saving (tonnes)	24.41
Months used in analysis	Oct-April (7 months)
Extrapolations/ additional analysis	

Table 10. Energy and carbon saving as a result of Student Switch Off in SAVES 2 Lithuanian universities

2.1.3.6 Energy and carbon savings in Romania

As per Table 11, energy saving was noted in Romania; 7.24% was saved at the University of Bucharest. This equates to a saving 171,970 kWh and 87.44 tonnes of CO₂.

	University of Bucharest
Baseline usage (kWh)	2,376,160
2017-18 usage (kWh)	2,204,190
kWh saving	171,970
% saving	7.24%

CO ₂ saving (tonnes)	87.44
Months used in analysis	September-May (9 months)
Extrapolations/ additional analysis	

Table 11. Energy and carbon saving as a result of Student Switch Off in SAVES 2 Romanian universities

2.1.3.7 Energy and carbon savings in the UK

As can be noted from Table 12 below, energy was saved across the four UK universities taking part in Student Switch Off. A saving of 772,661 kWh and 354 tonnes of CO₂ was observed, which equates to 3.43% saving when compared to the baseline.

In both London School of Economics, and King's College London, a small proportion of the data had to be extrapolated for 1,821 students (based on the average kWh saving/student/day), as the data for their dormitories wasn't available. In total there were 21,468 students living in dormitories in the four UK SAVES 2 universities, so this is only a minor proportion (8%). Between 6-8 months of data was available, so extrapolation was made for the missing months and this is presented in section 2.1.4.

	Kings College London	London School of Economics	University of Cambridge	University of York
Baseline usage (kWh)	4,211,024	1,955,614	11,886,131	2,829,496
2017-18 usage (kWh)	4,145,823	1,851,303	11,658,893	2,591,265
kWh saving	65,201	104,311	227,238	238,231
% saving	1.55%	5.33%	1.91%	8.42%
CO ₂ saving (tonnes)	29.90	47.82	104.19	172.36
Months used in analysis	Oct-March (6 months)	Oct-May (8 months)	Oct-April (7 months)	Oct-March (6 months)
Extrapolations/ additional analysis (if applicable)	Data was extrapolated for 1,048 students (kWh/student/ day saved) where data wasn't available.	Data was extrapolated for 773 students (kWh/student/day saved) where data wasn't available,		

Table 12. Energy and carbon savings as a result of Student Switch Off in UK SAVES 2 universities

2.1.4 Extrapolated energy savings for missing months

Due to missing/erroneous data/the Student Switch Off competitions lasting shorter than nine months (as a consequence of students not being in dormitories due to exams/academic year cycles), data for the missing months has been extrapolated, so that it can be compared to the target set, detailed in Chapter 4, for the campaign.

Table 13 below shows how much energy would have been saved had the campaign run for nine full months at each of the universities. This was done by upscaling the data for between 1-3 months to account for the missing months. As can be seen, in total an overall saving of 1,382,976 kWh of energy could have been expected. Given that our initial calculations yield 1,059,241 kWh of savings, it can be seen that an additional saving of 323,734 kWh has been extrapolated. The additional saving accounts for just 23% of the data calculated in our overall savings, meaning that 77% is based on actual readings.

	Number of months included in the analysis	Number of months data was upscaled for	Total estimated energy saved (kWh)
University York	6	3	563,865
University of Cambridge	7	3	292,164

London School of Economics	8	1	117,350
Kings College London	6	3	97,802
University of Bucharest	9	0	171,970
The University of Sofia "St. Kliment Ohridski"	6	3	214,202
Vilnius Gediminas Technical University	7	2	116,236
University of Cyprus	6	3	29,960
Technical University of Crete	8	1	15,398
National and Kapodistrian University of Athens	7	2	77,309
National University of Ireland, Galway	6	3	-271,745
National University of Ireland, Maynooth	8	1	-92,811
Dublin City University	9	0	51,275
TOTAL			1,382,976

Table 13 Overall savings through Student Switch Off (with missing months extrapolated)

2.2 Student reach and engagement

Data on student engagement activities were recorded throughout the 2017-18 academic year. The main activities carried out at each university included:

- Regular photo competitions on social media themed around energy saving actions
- Termly quizzes on climate change
- Face-to-face visits on campus raising awareness about the SSO campaign
- Communications training for student ambassador volunteers

Detail of the activities are available in country specific reports, found on the SAVES 2 website (www.saves-project.eu). As can be noted from Table 14, 11,793 students signed up to pledge their support for the campaign, which equates to 28% of all students living in the participating dormitories.

Name of University	No. students living in dormitories	No. students signed up to the campaign	% students signed up to the campaign	Number attending the Ambassador training	Climate quiz entries	Photo/online competition entries	Number of social media followers (specify which one)
London School of Economics (LSE)	1,286	451	35%	10	359	3	538 Facebook
Kings College London (KCL)	4,999	1,292	26%	39	1,006	36	229 Facebook
University of Cambridge	10,081	2,692	27%	86	5,623	86	3,512 Facebook
University of York	5,282	646	12%	35	748	67	892 Facebook
University of Cyprus	208	208	100%	15	104	12	247 Facebook
Technical University of Crete	76	76	100%	3	27	8	223 Facebook
National and Kapodistrian University of Athens	1,068	81	8%	8	107	2	248 Facebook

The University of Sofia "St. Kliment Ohridski"	6,200	52	-	-	-	-	52 Facebook
University of Bucharest	4,822	659	15%	43	308	41	436 Facebook
Vilnius Gediminas Technical University	3,740	3,740	100%	17	138	16	310 Facebook
Dublin City University	1,400	1,400	100%	1	235	41	81 Facebook 125 Snapchat (est) ⁴
National University of Ireland, Galway	1,100	71	6%	1	235	29	64 Facebook 125 Snapchat (est)
National University of Ireland, Maynooth	986	259	26%	2	250	8	74 Facebook 125 Snapchat (est)
University College Cork	1,000	218	22%	3	235	20	98 Facebook 125 Snapchat (est)
TOTAL	41,814	11,793	28%	263	9,338	383	

Table 14. Engagement statistics for Student Switch Off in SAVES 2 universities

3. Student Switch Off +

The Student Switch Off+ campaign ran in Cyprus, Greece, Lithuania and the UK for the academic year 2017-18. This was a pilot year for the SAVES 2 project, and activities didn't take place in Bulgaria, Ireland, and Romania (countries new to the Student Switch Off campaign). Activities undertaken as part of the Student Switch Off+, can be found in the country specific reports found on the SAVES 2 webpage (www.saves-project.eu).

Students that lived in dormitories in the UK that participated in SSO in 2016-17 were contacted with information of the Student Switch Off+ campaign. In countries where there isn't a high rate of students moving out of dormitories between each academic year (Lithuania, Greece and Cyprus) students already living in the private rented sector were also emailed, in addition to those few who left dormitories at the end of the academic year. In total, 25,036 students living in the private rented sector were emailed with advice on SSO+.

Country	University	Number of students reached with information on SSO+ via email	Notes
UK	University of Bangor University of Bath University of Brunel University of Greenwich University of Nottingham Middlesex University Keele University Bournemouth University University of Essex University of Gloucestershire University of Hull Kings College London Cranfield University De Montfort University University of Northampton University of Staffordshire	14,567	The 14,567 students that were emailed used to live in dormitories participating in SSO in 2016-17. Assuming that 90% moved out at the end of the 2016-17 academic year, the number living in the private rented sector that contributed to savings is 13,110 (14,567*0.9). We are assuming that 10% of students emailed continued living in dormitories.

⁴ In Ireland, the engagement through Snapchat across the country is an estimate because Snapchat does not furnish figures for use and sharing. Based on actual posting-engagement USI estimate engagement at around 500 on Snapchat alone.

	University of Sheffield University of Worcester University of York Foundation for International Education University of Liverpool Southampton Solent University University College London University of Winchester London School of Economics University of Southampton University of Aberystwyth University of Cambridge Kingston University University of Oxford Royal Agricultural University University of Surrey CLS/Fresh Living University of Cardiff University of Newcastle University of Strathclyde Warwick University University of Exeter		
Lithuania	Vilnius Gediminas Technical University	6,000	6,000 students living in the private rented sector were emailed with advice. Given that there is a turnover of 12% students leaving dormitories each academic year, and the SSO campaign ran in VGTU since 2014-15, we can assume 5,136 of the students emailed didn't live in a dormitory previously (2,400 lived in a dormitory that ran each academic year between 2014-17).
Greece	National and Kapodistrian University of Athens Technical University of Crete	327	None of the 327 students lived in dormitories in the previous years.
Cyprus	University of Cyprus	4,142	4,142 students were emailed with advice. Given that there is a turnover of 33% leaving dormitories each academic year, and the SSO campaign ran in University of Cyprus since 2014-15, we can assume 3,936 of the students emailed didn't live in a dormitory previously.
TOTAL		25,036	

Table 15. Universities where students received information on SSO+ in 2017-18.

3.1 Energy and carbon dioxide saving

This section gives an overview of how much energy saving can be attributed to the Student Switch Off+ campaign.



Unlike the Student Switch Off campaign, where it was relatively simply to obtain electricity data, it has not been possible to collect electricity data from students involved in the Student Switch Off+ campaign, as they live in the private rented sector (PRS). The private rented sector is defined as houses/flats that are rented out to students by private landlords (they are not controlled by the university, unlike student dormitories).

Questionnaire surveys from the IEE funded SAVES ⁵ project showed that 99% of student respondents who had adopted energy-saving behaviours when living in dormitories that participated in Student Switch Off, were carrying on their energy saving actions five months after moving out of their dormitory. This is not surprising as students have moved into a situation where they pay the utility bills themselves (representing an additional driver for energy-efficient behaviour), but it nevertheless shows the legacy aspect of the dormitories engagement work. Bearing this research in mind, we assume that the students who we communicated with carried forward an 8% reduction in their electricity consumption in the private-rented sector in comparison to what their usage would have been otherwise. This assumption is based on the average 8% savings that were achieved when the students were living in dormitories.

It was harder to maintain the consistency of the communications approach with students who had not participated in Student Switch Off, as it varied on each campus; in a number of cases we weren't able to do it directly. In these cases, the information was communicated by the university (or students' union), so even though it came from a trusted source, it was not backed-up by a more intensive engagement programme from dormitories the previous year, therefore we estimated a 2% reduction in electricity usage as a result of our communications.

3.1.1 Methodology and energy savings

To calculate the energy saved through our SSO+ campaign, we obtained data on student energy usage in the private rented sector from the UK (from Lancaster University students' union) to estimate that the typical student uses approximately 866 kWh of electricity/year. We applied an 8% saving on this amount for students who had previously lived in SSO dormitories, and a 2% saving on those that didn't.

As can be noted in Table 16 and Table 17, we estimate that in total 1,155,442 kWh of electricity was saved, in addition to 551 tCO₂. In terms of absolute savings, the UK had the highest proportion of the savings (909,127 kWh) and Greece the lowest (6,857 kWh); this was directly linked to the number of students reached. Full calculations are available upon request.

	Students living in PRS who were involved with SSO 2014-17 and received information on SSO+	Students living in PRS who received information on SSO+ but weren't involved with SSO in 2016-17	Typical yearly kWh electricity consumption in private rented accommodation (Sept-June)	8% reductions from students living in PRS involved in SSO in 2016-17 (kWh)	2% reductions from students living in PRS not involved in SSO in 2016-17 (kWh)	TOTAL (kWh)
UK	13,110	0	866	9,08,261	0	909,127
Cyprus	205	3,936	866	14,266	68,173	87,241
Greece	0	327	866	0	5,664	6,857
Lithuania	864	5,138	866	59,856	88,956	154,815
TOTAL	14,180	9,399	866	982,385	162,792	1,155,442

Table 16. Energy savings attributed to SSO+ in the UK, Cyprus, Greece and Lithuania in 2017-18

Carbon savings were calculated using the same conversion factors as in Chapter 2.1. Table 17 below shows the CO₂ savings that can be attributed to the SSO+ project.

⁵ <https://saves.unioncloud.org/about/what-is-saves>

Country	Carbon saving (tonnes CO ₂)
UK	416
Cyprus	22
Greece	4
Lithuania	108
TOTAL	551

Table 17. Overall tonnes of CO₂ saved through the SSO+ campaign in 2017-18

4. Reaching targets for the SAVES 2 project

A number of energy saving targets were set for the SAVES 2 project. Table 18 summarises the targets and the actual impact that the project had for the 2017-18 academic year. The actual saving through Student Switch Off have been below the target of 3.03 GWh as a saving of 1.059 GWh is reported. Taken into consideration the extra extrapolated months in section 2.1.4, we could attribute an overall saving of 1.382 GWh to the campaign. This figure however is still below target.

In relation to SSO+, 0.06 GWh saving was estimated, however for the purposes of the first year of the campaign we estimate a saving of 1.16 GWh. This is linked to a much bigger than expected population of students that we were able to reach with the campaign; we reached 25,036 students compared to the target of 800.

Overall, through SAVES 2, 6.355 GWh was saved, which is below the target of 7.71 GWh. This is attributed to a smaller overall percentage saving at the participating universities (3.33% whereas an 8% reduction was estimated). For the 2018-19 academic year, efforts will be made to ensure further savings, particularly in the Irish universities.

Academic year 2017-18	TARGETS	ACTUALS	OVERALL SAVINGS (incl. extrapolation)
Final energy consumption saving from the Student Switch Off competition in dormitories (8% reduction on baseline usage)	3.03 GWh	1.059 GWh	1.382 GWh
Final energy consumption saving from students previously involved in Student Switch Off who have moved into the private-rented sector (estimated at 8% lower than it would have been otherwise) – pilot year, 800 students	0.06 GWh	1.16 GWh	1.16 GWh
2017-18 final energy consumption saving annual GWh reduction target	3.09 GWh	2.219 GWh	2.542 GWh
2017-18 primary energy saving target (2.5 times the above value)	7.71 GWh	5.55 GWh	6.355 GWh

Table 18. SAVES 2 energy saving targets vs actuals for 2017-18



5. Conclusions

The Student Switch Off campaign ran in 14 universities in seven different European countries (Bulgaria, Cyprus, Greece, Ireland, Lithuania, Romania and the UK) in the 2017-18 academic year. Based on electricity readings, the campaign led to a 3.33% saving in electricity usage in the participating university dormitories, compared to a pre-intervention baseline, as a result of engagement activities carried out at each campus. An overall reduction of 1.382 GWh can be attributed to the campaign's various activities. Over 28% of students (11,793) pledged to save energy through the campaign, 263 volunteered to become ambassadors for the campaign through receiving in-depth training, and nearly 10,000 took part in online climate quizzes, raising their awareness on climate change and energy saving.

Through the SSO+ campaign 25,036 students in Cyprus, Greece, Lithuania and the UK received in-depth information on saving energy in their homes, Energy Performance Certificates, energy efficiency and smart energy meters. It can be estimated that a 1.16 GWh saving can be attributed to the campaign.

Overall an estimated saving of 6.355 GWh can be attributed to the SAVES 2. This is slightly below the 7.71 GWh target, and efforts will be made in 2018-19 to reach the target.

