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1.0 Introduction

The SAVES 2 project (www.saves-project.eu) brings together the Student Switch Off (SSO) and Student Switch Off + (SSO+) campaigns in universities across seven European countries; Bulgaria, Cyprus, Greece, Ireland, Lithuania, Romania and the United Kingdom. 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 2018-19 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; where possible, electricity meters from each of the participating dormitories are linked up to an online dashboard¹ that automatically calculates the savings. If no smart meters are available, readings are uploaded manually. 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 among students living in the private rented sector, helping them reduce their energy costs. It focuses on making students aware of energy performance certificates (EPC) of the property, how to get smart meters, energy efficiency and energy saving actions, and switching providers, thus helping reduce their exposure to 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 2018-19; Chapter 2 focuses on Student Switch off and Chapter 3 focuses on Student Switch Off+. Targets and conclusions are discussed in Chapters 4 and 5.

2.0 Student Switch Off

As part of SAVES 2, during the 2018-19 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). This is the second year of the campaign for the universities in Bulgaria, Ireland and Romania. Universities in Cyprus, Greece, Lithuania and the UK, have been previously running the campaign, as part of the IEE funded SAVES 1 project (2014-2017).

Table 1 summarises the number of universities, dormitories, and students taking part in the Student Switch Off campaign in 2018-19, under the SAVES 2 project.

In most cases, the Student Switch Off campaign was run directly by staff at the participating universities, apart from 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 2018-19 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.

University	Country	No. of dormitories taking part in SSO	No. of students in dormitories taking part in SSO
University of Cambridge	UK	16	9,307
Kings College London	UK	12	5,300

¹ <https://switchoff.nus.org.uk/>

University of Liverpool	UK	10	4,711
University of York	UK	9	5,667
National and Kapodistrian University of Athens	EL	4	1,068
Technical University of Crete	EL	1	76
University of Cyprus	CY	12	208
Dublin City University	IE	3	940
National University of Ireland, Galway University	IE	2	1,193
National University of Ireland, Maynooth University	IE	9	1,250
University College Cork	IE	5	1,278
Vilnius Gediminas Technical University	LT	5	3,740
University of Bucharest	RO	15	4,347
The University of Sofia "St. Kliment Ohridski"	BG	17	6,300
TOTAL		120	45,385

Table 1: Universities participating in Student Switch Off (as part of SAVES 2) in 2018-19

2.1 Energy and carbon dioxide saving

Quantifiable energy savings are an important aspect of the Student Switch Off campaign. Electricity data for 2018-19 (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 project level, country level, and university level. Dormitory level data can be provided upon request.

Carbon dioxide (CO₂) savings were calculated based on the amount of electricity (gas savings were not calculated) saved in each university, and the applicable electricity carbon conversion factor for that country. Carbon factors varied widely between the SAVES 2 countries, with Lithuania having the lowest carbon conversion factor (0.27000 kgCO₂/kWh) and Cyprus having the highest conversion factor (0.72825 kgCO₂/kWh). Table 2 below shows the conversion factors per country².

Country	Electricity carbon conversion factor - kgCO ₂ per kWh
Bulgaria	0.61086
Cyprus	0.72825
Greece	0.71821
Ireland	0.41925
Lithuania	0.27000
Romania	0.50845

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

UK	0.45850
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Table 2. Carbon conversion factors for SAVES 2 countries

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 2018-19. This data doesn't account for any missing data that had to be extrapolated. This full savings, including extrapolations are presented in Table 13. Tables 6-12 show energy savings per university in each country over the 2018-19 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 for 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 2016-17 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 corresponding data uploaded to the dashboard. Table 3 illustrates the frequency of the data uploaded to the dashboard, and whether it is automated, or manual.
- The electricity consumption data for each dormitory building during the academic year 2018-19 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 (only in one instance it was for 3). Where more data was available, it was included (the most months compared were 9). With the clarification of baseline data, particularly from Irish college NUI Galway and UCC, it is expected that data will now be stable going forward.

University	Data received on the dashboard	Data strategy	Data resolution	Data files uploaded
University of Cambridge	Y	semi-automated	daily	c2-monthly

³ <https://switchoff.nus.org.uk/>

Kings College London	Y	automated (push)	daily	daily
University of Liverpool	Y	manual	half-hourly	c2-monthly
University of York	Y	manual	monthly	c2-monthly
National and Kapodistrian University of Athens	Y	automated (pull)	15-minutely	daily
Technical University of Crete	Y	manual	hourly	c10 days
University of Cyprus	Y	manual	hourly	weekly
Dublin City University	Y	manual	daily	monthly
National University of Ireland, Galway	Y	manual	2-monthly	2-monthly
National University of Ireland, Maynooth	Y	manual	daily	monthly
University College Cork	Y	manual	monthly	monthly
Vilnius Gediminas Technical University	Y	Automated (pull)	hourly	daily
University of Bucharest	Y	Manual	Monthly	monthly
Sofia University "St. Kliment Ohridski"	Y	manual	monthly	monthly

Table 3. Frequency and method of uploading data to the dashboard in 2018-19

As has been the case throughout the project with buildings where direct programmatic access to data has not been possible, it has fallen to various individuals to obtain, process (where necessary) and upload data. Where there has been a gap in data crucial for baseline calculations (due to staff availability and workload or issues with metering or supplier) this has been retro-filled to enable a competition to run with realistic figures. Specifically: National University of Ireland, Galway data is currently being revised as a whole in preparation for the next competition due to a change in participating hall of residence; University College Cork data is now showing higher than expected savings, although there are gaps in the data for some residences, and there appears to be an issue with hysteresis in their data. Finally, after a period of usable data, National and Kapodistrian University of Athens is currently experiencing issues caused by the data provider, which they are addressing. The differing states of data provision, reliability, availability and metering in participating countries has given rise to unpredictable yet recurring issues such as these.

2.1.2 Overall energy and carbon dioxide saved through Student Switch Off

As can be seen in Table 4 below, in 2018-19 a total of **2,703,884 kWh of electricity** (a saving of **9.28%**) was saved as a result of the Student Switch Off campaign in the seven participating countries, when compared to the pre-intervention baseline. This figure doesn't include all the savings attributed to Student Switch Off; some extrapolation had to be done to account for missing data that are presented in Table 13. If we take upscaled data into account, the overall savings from the campaign are **4,036,247 kWhs**.

The 9.28% saving equates to **1,352 tonnes of CO₂** emissions saved. Taking upscaled data into account, this figure increases to **1,995 tonnes of CO₂**. The most absolute savings were achieved in the UK (1,337,849 kWh, 613 tCO₂), and the greatest percentage saving was achieved in Bulgaria (26.64%).

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 (Table 13). Table 4 doesn't include any extrapolated figures.

	Overall Student Switch Off savings
Baseline usage (kWh)	29,140,615
2018-19 usage (kWh)	26,436,731
kWh saving	2,703,884
% saving	9.28
CO ₂ saving (tonnes)	1,352

Table 4. Overall energy and carbon saving as a result Student Switch Off in 2018-19 (without extrapolation)

As per Table 5, it is worthy to note that data consumed by the UK universities accounts for 64% of all usage so the results from this country 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)	2,383,316	209,662	1,786,400	3,224,085	1,555,649	2,105,780	18,246,505
Usage 2018-19 (kWh)	1,748,427	164,655	1,685,561	2,951,413	1,039,137	1,911,220	16,908,656
kWh saving	634,889	44,968	100,839	272,672	116,512	194,560	1,337,849
% saving	26.64	21.45	5.64	8.45	10.08	9.24	7.33
CO ₂ saving (tonnes)	387.83	39.30	72.42	114.31	31.46	98.92	613.40

Table 5. Energy and carbon savings from Student Switch Off in SAVES 2 countries in 2018-19 (without extrapolation)

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 in 2018-19. Savings are presented per participating university in each country.

2.1.3.1 Energy and carbon savings in Bulgaria

As per Table 6, energy saving was noted in Bulgaria; 26.64% was saved at Sofia University 'St. Kliment Ohridski'. This equates to a saving 634,889 kWh and 387.83 tonnes of CO₂.

	Sofia University "St. Kliment Ohridski"
Baseline usage (kWh)	2,383,316
2018-19 usage (kWh)	1,748,427
kWh saving	634,889
% saving	26.64
CO ₂ saving (tonnes)	387.83
Months used in analysis	7

Extrapolations/ additional analysis	
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Table 6. Energy and carbon saving as a result of Student Switch Off in SAVES 2 Bulgarian universities in 2018-19

2.1.3.2 Energy and carbon savings in Cyprus

As per Table 7, energy saving was noted in Cyprus; 19.49% was saved at the University of Cyprus. This equates to a saving 46,563 kWh and 33.91 tonnes of CO₂.

	University of Cyprus
Baseline usage (kWh)	238,880
2018-19 usage (kWh)	192,317
kWh saving	46,563
% saving	19.49
CO ₂ saving (tonnes)	33.91
Months used in analysis	8
Extrapolations/ additional analysis/notes	

Table 7. Energy and carbon saving as a result of Student Switch Off in Cypriot SAVES 2 universities in 2018-19

2.1.3.3 Energy and carbon savings in Greece

As per Table 8, energy saving was noted at both the Greek universities, 12.10% and 4.86% at Technical University of Crete and National and Kapodistrian University of Athens respectively. This equates to a total saving of 100,839 kWh and 72.42 tonnes of CO₂.

	National and Kapodistrian University of Athens	Technical University of Crete
Baseline usage (kWh)	1,621,311	165,089
2018-19 usage (kWh)	1,542,455	143,106
kWh saving	78,856	21,983
% saving	4.86	12.10
CO ₂ saving (tonnes)	56.63	15.79
Months used in analysis	8	8
Extrapolations/ additional analysis/notes		

Table 8. Energy and carbon saving as a result of Student Switch Off in Greek SAVES 2 universities in 2018-19

2.1.3.4 Energy and carbon savings in Ireland

As can be noted from Table 9 below, energy was saved across the Irish universities taking part in Student Switch Off. A saving of 272,672 kWh and 114.3 tonnes of CO₂ was observed, which equates to 8.46% saving when compared to the baseline.

University College Cork savings seem rather higher than anticipated, but due to some gaps in the data available it is not possible to run a regression analysis with the necessary integrity.

NUI Galway data is not available, because NUI Galway's participation in the 2018-19 academic year is based on newly commissioned buildings with no baseline data. This year's usage will constitute the baseline data for next year.

	Dublin City University	National University of Ireland, Galway	National University of Ireland, Maynooth	University College Cork
Baseline usage (kWh)	334,465	n/a	598,739	2,290,881
2018-19 usage (kWh)	326,718	n/a	571,996	2,052,699
kWh saving	7,747	n/a	26,743	238,182
% saving	2.32	n/a	4.47	10.40
CO ₂ saving (tonnes)	3.2	n/a	11.2	99.9
Months used in analysis	8	n/a	8	8
Extrapolations/ additional analysis	Baseline adjusted by degree day regression analysis		Baseline adjusted by degree day regression analysis	Interpolation of data undertaken on a zero savings basis.

Table 9. Energy and carbon saving as a result of Student Switch Off in Irish SAVES 2 universities in 2018-19

2.1.3.5 Energy and carbon savings in Lithuania

As per Table 10, energy saving was noted in Lithuania; 10.08% was saved at the Vilnius Gediminas Technical University. This equates to a saving 116,512 kWh and 31.46 tonnes of CO₂.

	Vilnius Gediminas Technical University
Baseline usage (kWh)	1,555,649
2018-19 usage (kWh)	1,039,137
kWh saving	116,512
% saving	10.08
CO ₂ saving (tonnes)	31.46
Months used in analysis	9
Extrapolations/ additional analysis/notes	n/a

Table 10. Energy and carbon saving as a result of Student Switch Off in SAVES 2 Lithuanian universities in 2018-19

2.1.3.6 Energy and carbon savings in Romania

As per Table 11, energy saving was noted in Romania; 9.24% was saved at the University of Bucharest. This equates to a saving 194,560 kWh and 98.92 tonnes of CO₂.

	University of Bucharest
Baseline usage (kWh)	2,105,780
2018-19 usage (kWh)	1,911,220
kWh saving	194,560
% saving	9.24
CO ₂ saving (tonnes)	98.92
Months used in analysis	8
Extrapolations/ additional analysis/notes	

Table 11. Energy and carbon saving as a result of Student Switch Off in SAVES 2 Romanian universities in 2018-19

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 1,337,849 kWh and 613 tonnes of CO₂ was observed, which equates to 7.33% saving when compared to the baseline.

	Kings College London	University of Liverpool	University of Cambridge	University of York
Baseline usage (kWh)	2,204,849	3,340,351	11,066,074	1,635,231
2018-19 usage (kWh)	2,118,205	3,239,195	10,135,589	1,415,667
kWh saving	86,644	101,156	930,485	219,564
% saving	3.93%	3.03%	8.41%	13.43%
CO ₂ saving (tonnes)	39,726	46,380	426,627	100,670
Months used in analysis	6	4	6	3
Extrapolations/ additional analysis (if applicable)				

Table 12. Energy and carbon savings as a result of Student Switch Off in UK SAVES 2 universities in 2018-19

It has been a challenge to receive regular data from universities in the UK as most do not automatically upload their data to the dashboard; this varied between 3-6 months worth of data, as can be seen from Table 12. Historically, pre SAVES 2, NUS UK only received data for months that had full occupancy (October, November and February), and it has been difficult to get data for other months. As a result, data had to be extrapolated for the missing months.

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. Data available varied between 3-9 months depending on the university. The average number of months of data available was 7.

Table 13 below shows how much energy we expect the campaign have saved over nine full months at each of the universities. This was done by upscaling the data for between 1-6 months to account for the missing months, based on the average saving from data available for the other months in the respective university. As can be seen, in total an overall saving of 4,036,247 kWh of energy is expected to have been saved. Given that our initial calculations yield 2,703,884 kWh of savings, it can be seen that an additional saving of 1,332,364 kWh has been extrapolated; data was available for 77% of months (90 out of 117) and was only extrapolated for 23% of months (27 out of 117).

	Number of months included in the analysis	Number of months data was upscaled for	Total energy saved (kWh) incl. estimations
University York	3	6	658,692
University of Cambridge	6	3	1,395,728
University of Liverpool	4	5	227,601
Kings College London	6	3	129,966
University of Bucharest	8	1	218,880
The University of Sofia "St. Kliment Ohridski"	7	2	816,286
Vilnius Gediminas Technical University	9	0	116,512
University of Cyprus	8	1	52,383
Technical University of Crete	8	1	24,731
National and Kapodistrian University of Athens	8	1	88,713
National University of Ireland, Galway	n/a	n/a	n/a
National University of Ireland, Maynooth	8	1	30,086
Dublin City University	8	1	8,715
University College Cork	7	2	267,955
TOTAL	90	27	4,036,247

Table 13 Overall savings through Student Switch Off (with missing months extrapolated) in 2018-19

2.2 Student reach and engagement

A number of different engagement activities were run during the year to raise awareness about saving energy to engage students in the campaign. Data on student engagement activities were recorded throughout the academic year. The main activities carried out at each university included:

- Regular photo competitions/social media competitions 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, 18,132 students signed up to pledge their support for the campaign, which equates to 40% of all students living in the participating dormitories.

NB, in cases where there is a 100% sign up, the SAVES 2 team worked directly with the university to get regular emails sent to all their students via a centralised university system. In this case, students had the possibility to opt out of the communications. In more detail: at the University of Cyprus (UCY), students are asked to sign up on admission day so that they would receive emails and information about the campaign; most students signed up during that day. In addition, all UCY students (not just residents of student halls) when starting their studies at UCY are informed that their UCY email address may be used to send them information about their student life, studies, campaigns etc. If a student does not want to receive said emails from SAVES 2 they can unsubscribe at any moment. All students provided by VGTU are signed up unless they unsubscribe the engagement emails. At the start of each academic year, SAVES 2 staff members from TUC visit every dorm and hall of university via face to face and get students to sign up face-to-face; they do not have access to the university's email database. In Ireland, USI worked with the participating universities, to get them to send emails on their behalf. As part of those emails students were asked to follow USI's SSO social media. Finally, at UoS students are emailed from the general university database, however are also asked to sign up during end of year/start of year events, dorm visits etc.

In the case of UK universities, some emails (approximately 3-5 in a year) to all students were sent through university central services, however the majority were sent via the SAVES 2 team, and the latter numbers are recorded in Table 14.

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)
University of Cambridge	9,307	2,150	21%	42	2,650	110	FB: 3,489
Kings College London	5,300	367	6%	20	383	94	FB: 248
University of Liverpool	4,711	458	10%	5	798	89	FB: 853
University of York	5,667	825	16%	28	1,337	194	FB: 959
National and Kapodistrian University of Athens	1,068	122	11.42%	3	222	27	FB: 319
Technical University of Crete	76	76	100%	2	35	8	FB: 340 (SSO & SSO+)
University of Cyprus	208	208	100%	14	336	23	FB page: 582
Dublin City University	940	940	100%	2	84	12	FB page: 94
National University of Ireland, Galway University	1,193	1193	100%	2	84	12	FB: 68
National University of Ireland, Maynooth University	1,250	1250	100%	2	84	11	FB: 76
University College Cork	1,278	1278	100%	3	84	11	FB: 110

Vilnius Gediminas Technical University	3,740	3,740	100%	14	345	21	FB: 309
University of Bucharest	4,347	1,074	24,71%	13	315	24	FB: 645
Sofia University "St. Kliment Ohridski"	6,300	4,450	70.6 %	4	24	0	FB: 147
TOTAL	45,385	18,131	40%	154	6,781	636	

Table 14. Engagement statistics for Student Switch Off in SAVES 2 universities in 2018-19

3.0 Student Switch Off +

The Student Switch Off+ campaign ran in seven different countries in the European Union (Bulgaria, Cyprus, Greece, Ireland, Lithuania, Romania and the UK) during the academic year 2018-19. During the previous academic year 2017-18 the campaign ran as a pilot year in four countries, Cyprus, Greece, Lithuania and the UK, with 2018-19 being the first year for Bulgaria, Ireland and Romania. 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 were predominantly reached via a combination of email and social media. The number reached, and the channels used are summarised in Table 15.

For the 2018-19 academic year, students that lived in dormitories in the UK that participated in SSO in 2017-18 were contacted with information about the Student Switch Off+ campaign. Unlike the UK, where students tend to live in dormitories for the first year of their studies only, in the other six countries students tend to stay in dormitories for the duration of their studies. In these countries students already living in the private rented sector were contacted in addition to those few who left dormitories at the end of the academic year. Students were contacted from both institutions participating in SSO as well as those universities that didn't; in the latter case relationships were built with key contacts in academic departments and student residential departments who disseminated SSO+ advice to their students via email and social media. In total during 2018-19, **40,139 students were emailed** with advice on SSO+ across 59 institutions.

SSO+ was also promoted to students via social media; in some instances, this was on social media pages that reached students who may have been reached through email (e.g. SSO/SSO+ Facebook pages), in other instances this was reaching students that would not have been reached with other SSO+ communication channels, for example Facebook groups for students at universities that did not run Student Switch Off, or organisation-wide social media accounts (e.g. USI Twitter).

In some countries, such as Ireland, social media was the main tool used to engage students with SSO+ information. In Ireland the social media posts had a large reach as they were shared across national social media pages. In other countries such as Bulgaria social media was not used and instead the focus was on email communication. Due to the complexity of identifying students uniquely reached and engaged via social media (that did not receive SSO+ emails) we have instead calculated our average social media reach and engagement as an estimation. The combined social media reach was 75,930 and social media engagement was 3,424 across all the countries and all posts. We estimate that the **average reach of social media communications was 11,460 and engagement was 198**. Average reach was calculated by dividing the total reach by the number of posts, and average engagement was calculated by dividing total engagement by the number of posts. We define reach as views of social media posts and engagement as interaction with our social media posts, for example comments, clicks, shares and likes.

In addition to email and social media further channels were used to reach students. For example in Ireland SSO+ housing advice was included with the Accommodation and Housing guide that was distributed to 43,500 students. In Greece a focus was placed on face to face communications via stalls and events as well as printed materials such as posters. Notes have been provided on some of these highlights, however there will be many more examples of informal provision of SSO+ information that has been occurring but that has not been fully measured and monitored.

In total, **53,979 students were reached** with information on SSO+.

Country	University	Number of unique students reached with information on SSO+ via email	Number of students reached with information on SSO+ via social media	Estimated Total Reach
Bulgaria	Sofia University "St. Kliment Ohridski", University for National and World Economy, University of Veliko Tarnovo, New Bulgarian University	2,840	N/A	2,840
Cyprus	University of Cyprus, Technological University of Cyprus	6,831	Total Social Media Reach: 4,917 Total Social Media Engagement: 311 Average Social Media Reach per post: 454 Average Social Media Engagement per post: 30	7,285 Note: in addition to email and social media students were engaged at events with information leaflets and posters, reaching an estimated 1,200 students
Greece	National and Kapodistrian University of Athens, Technical University of Crete, University of Piraeus, International Hellenic University, Democritus University of Thrace	1,546	Total Social Media Reach: 10,438 Total Social Media Engagement: 769 Average Social Media Reach per post: 217 Average Social Media Engagement per post: 16	4,311 Note: in addition to email and social media the above reach includes the reach from the many other communication methods, such as event stalls and posters. With an estimated additional reach of 548 from regular face to face communications and 2,000 through posters and leaflets
Ireland	Dublin City University, National University of Ireland Galway University, National University of Ireland Maynooth University, University College Cork, Carlow Institution of Technology,	409	Total Social Media Reach: 35,700 Average Social Media Reach per post: 8,916	9,325 Note: in addition to email and social media a large range of communication methods were used such as information in 43,500 copies of Accommodation Guide and

	<p>Dublin Institution of Technology, St Angela's College</p> <p>All Ireland member organisations are reached via social media and National Council activities, these include 23 institutions.</p>			appearances on student radio with 21,000+ listeners.
Lithuania	<p>Vilnius Gediminas technical university, Vilnius University</p>	7,700	<p>Total Social Media Reach: 503 Total Social Media Engagement: 55 Average Social Media Reach per post: 503 Average Social Media Engagement per post: 55</p>	8,203
Romania	<p>University of Bucharest, National University of Physical Education and Sport, Bucharest Academy of Economic Studies, The National School of Political Science and Public Administration, Politehnica University of Bucharest, Technical University of Civil Engineering of Bucharest, University of Medicine and Pharmacy Bucharest</p>	1,137	<p>Total Social Media Reach: 7,554 Total Social Media Engagement: 864 Average Social Media Reach per post: 168 Average Social Media Engagement per post: 19</p>	1,305
UK	<p>University of Bath, University of Brunel, University of Greenwich, University of Nottingham, Middlesex University, Keele University, Bournemouth University, University of Essex, Kings College London, Cranfield University, De Montfort University, University of Northampton, University of Staffordshire, University of Sheffield, University of Worcester, University of York,</p>	19,508	<p>Total Social Media Reach: 16,818 Total Social Media Engagement: 1,096 Average Social Media Reach per post: 1,202 Average Social Media Engagement per post: 78</p>	20,710

	Foundation for International Education, University of Liverpool, Southampton Solent University, University of Winchester, London School of Economics, 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, University of Exeter, University of Warwick, Manchester Metropolitan University			
TOTAL		Total email reach: 40,139	Average social media Reach: 11,460	Total overall reach: 53,979

Table 15. Universities where students received information on SSO+ in 2018-19.

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 simple 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 ⁴ 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 dormitory's 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.

As the SSO+ campaign has a reduced package of face to face engagement opportunities compared to SSO (due to being unable to gain access to student houses as we do in dormitories), we have estimated that the average saving of a student participating in SSO+, that did not already participate in SSO, is a 2% reduction in electricity usage.

⁴ <https://saves.unioncloud.org/about/what-is-saves>

3.1.1 Methodology and energy savings

To calculate the energy saved through our SSO+ campaign, NUS UK 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 were unable to obtain similar figures for other countries, therefore the same usage is estimated across the seven countries. 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.

Due to the previously mentioned complexity of measuring unique reach (to avoid double-counting) from our social media communications we have applied the estimated savings solely to those students with whom we have communicated via our email lists. We estimate that our social media presence will have reached and engaged a larger number of students and so expect that our total energy savings could be higher than what we report.

As can be noted in Table 16 and Table 17, we estimate that in total **1,813,144 kWh** of electricity was saved, which is 857.41 tCO₂.

	Students living in PRS who were involved with SSO 2014-18 and received information on SSO+	Students living in PRS who received information on SSO+ but haven't involved with SSO previously	Typical yearly kWh electricity consumption in private rented accommodation (Sept-June)	8% reductions from students living in PRS involved in SSO (kWh)	2% reductions from students living in PRS not involved in SSO (kWh)	TOTAL (kWh)
Bulgaria	0	2,840	866	0	49,189	49,189
Cyprus	231	6,600	866	16,004	114,312	130,316
Greece	287	1,546	866	19,883	26,967	46,851
Ireland	409	0	866	28,336	0	28,336
Lithuania	1,344	6,356	866	93,112	110,086	203,198
Romania	650	487	866	4,157	8,435	8,435
UK	19,508	0	866	1,351,514	0	1,351,514
TOTAL	21,839	17,329		1,513,006	300,138	1,821,804

Table 16. Energy savings attributed to SSO+ in 2018-19

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.

Country	Carbon saving (tonnes CO ₂)
Bulgaria	30.05
Cyprus	94.90
Greece	33.51
Ireland	20.35
Lithuania	54.86
Romania	6.40
UK	619.67
TOTAL	859.75

Table 17. Overall tonnes of CO₂ saved through the SSO+ campaign in 2018-19

3.1.2 Reaching targets for the SAVES 2 project

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 2018-19 academic year. The actual savings through Student Switch Off have been slightly below the target of 3.03 GWh as a saving of 2.70 GWh is reported, however taking into consideration the extra extrapolated months (where data was unavailable) in section 2.1.4, we could attribute an overall **saving of 4.036 GWh** to the **SSO campaign**; this figure significantly surpasses the target.

In relation to **SSO+** the target for 2018/19 was a saving of 1.024 GWh. During the academic year 2018/19 we estimate a saving of **1.822 GWh**, surpassing the target savings for the year.

In total, the SAVES 2 campaign saved 5.858 GWh of energy, compared to a target of 4.06 GWh. Taking the primary energy saving target into account this equates to **14.645 GWh** was saved, which is significantly above the target of 10.14 GWh.

Academic year 2018-19	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	2.70 GWh	4.036 GWh
Final energy consumption saving from students previously involved in Student Switch Off who have moved into the private-rented sector (estimated at continued 8% reduction, due to students from 2017/18 assumed to be continuing their energy-saving habits)	0.28 GWh	1.513 GWh	1.513 GWh
Final energy saving from students reached by SSO+ who weren't reached by SSO (estimate at 2% reduction)	0.744 GWh	0.309 GWh	0.309 GWh
2018-19 final energy consumption saving annual GWh reduction target	4.06 GWh	4.520 GWh	5.858 GWh
2018-19 primary energy saving target (2.5 times the above value)	10.14 GWh	11.29 GWh	14.645 GWh

Table 18. SAVES 2 energy saving targets vs actuals for 2018-19

4.0 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 2018-19 academic year. Based on electricity readings, the campaign led to a 9.27% 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 4.036 GWh can be attributed to the campaign's various activities. Over 40% of students pledged to save energy through the campaign, 185 volunteered to become ambassadors for the campaign through receiving in-depth training, and nearly 7,000 took part in online climate quizzes, raising their awareness on climate change and energy saving.

Through the SSO+ campaign 41,139 students in seven different European countries (Bulgaria, Cyprus, Greece, Ireland, Lithuania, Romania and the UK) received in-depth information via email on saving energy, Energy Performance Certificates, energy efficiency and smart energy meters in their privately rented homes. An estimated additional 11,460 students were engaged via social media. In total 53,979 students were reached with SSO+ information over the 2018-19 academic year, with many more likely to have received information via events, stalls, posters, radio and accommodation guides. It can be estimated that during the 2018-19 academic year a 1.822 GWh saving can be attributed to the campaign.

Overall an estimated saving of 14.645 GWh can be attributed to the SAVES 2. This is above the 10.14 GWh target.