Project acronym: SAVES 2 Project title: Students Achieving Valuable Energy Savings 2 Contract number: 754203 Project duration: 42 months

Deliverable reference number and title:

D1.3 Common Performance Indicators update #3 (2019-20)

July 2020

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 754203



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1.0 Introduction

The SAVES 2 project (<u>www.saves-project.eu</u>) 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 CO_2) was saved as a direct result of the campaigns, and what were the levels of student engagement for the 2019-20 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 to reduce energy costs and exposure to fuel poverty. 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.

The report describes the impact of Student Switch Off and Student Switch Off+ (energy and carbon savings, and student engagement) during the academic year 2019-20; Chapter 2 focuses on Student Switch off and Chapter 3 focuses on Student Switch Off+. Targets and conclusions are discussed in Chapter 4.

2.0 Student Switch Off

As part of SAVES 2, during the 2019-20 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 third 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 2019-20, 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 2019-20 reports created for each of the seven countries. These are available on the SAVES 2 website (<u>www.saves-project.eu</u>). 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	8	4,915
University of Liverpool	UK	7	4,200

¹ <u>https://switchoff.nus.org.uk/</u>



University of Nottingham	UK	16	4,262
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	4	1,400
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	3,363
University of Bucharest	RO	13	3,790
The University of Sofia "St. Kliment Ohridski"	BG	9	3,097
TOTAL		104	35,767

Table 1: Universities participating in Student Switch Off (as part of SAVES 2) in 2019-20

2.1 Energy and carbon dioxide saving

Quantifiable energy savings are an important aspect of the Student Switch Off campaign. Electricity data for 2019-20 (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 the UK having the lowest carbon conversion factor (0.23104 kgCO₂/kWh) and Cyprus having the highest conversion factor (0.73521 kgCO₂/kWh). Table 2 below shows the conversion factors per country².

Country	Electricity carbon conversion factor - kgCO ₂ per kWh
Bulgaria	0.61086
Cyprus	0.73521
Greece	0.71821
Ireland	0.41925

² Sources: <u>https://ig-tools.com/files/International_elec_2015.pdf</u>; <u>https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2017</u>; https://www.eumayors.eu/IMG/pdf/technical_annex_en.pdf



Lithuania	0.27000
Romania	0.50845
UK	0.23104

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 CO_2 (t CO_2). Table 4 shows the overall savings for Student Switch Off for the academic year 2019-20. This data doesn't account for any missing data that had to be extrapolated. The full savings, including extrapolations are presented in Table 13. Tables 6-12 show energy savings per university in each country over the 2019-20 academic year. Full calculations are available upon request.

It is important to note that 2019-20 saw the COVID-19 pandemic close a number of university campuses (including student accommodation) from March 2020 onwards. This means that the number of months for which extrapolated data has been used is higher than in previous years of the project. Some students remained in university accommodation, but the exact numbers of students living in the dormitories from March onwards is unknown. For this reason, all universities ended their SSO competitions in February or March and stopped collecting data from that point on, in order to uphold an accurate representation of the savings as a result of student behaviour change (as opposed to savings as a result of low occupancy). No adjustments have been made to the extrapolation methodology in 2019-20 as we envisage that students will continue their energy-saving habits wherever they were living in this period, thus still achieving the energy reductions predicted in the extrapolation.

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 (<u>http://eemeasure.smartspaces.eu</u>) 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 <u>report</u>.

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 significant infrastructure and/or occupancy changes have occurred within the dormitories since the baseline period (for example at the University of York, University of Liverpool and Sofia University "St. Kliment Ohridski"), the baseline has been adjusted to reflect this.
- 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 2019-20 was compared against the baseline data from that dormitory – meaning the dormitory was competing to beat its own baseline usage.

³ <u>https://switchoff.nus.org.uk/</u>



- 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 is described in more detail in Tables 6-13, with section 2.1.4 outlining the extrapolation methodology.

University	Data received on the dashboard	Data strategy	Data resolution	Data files uploaded
University of Cambridge	Y	manual	daily	periodically
University of Nottingham	Y	manual	monthly	Only 2 uploads
University of Liverpool	Y	manual	daily	periodically
University of York	Y	manual	monthly	periodically
National and Kapodistrian University of Athens	Y	automated (push)	15- minutely	daily
Technical University of Crete	Y	manual	hourly	c10 days
University of Cyprus	Y	manual	hourly	weekly
Dublin City University	Y	manual	monthly	monthly
National University of Ireland, Galway	Y	manual	monthly	monthly
National University of Ireland, Maynooth	Y	manual	monthly	2-weekly
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 2019-20

Where data continued to be uploaded to the dashboard, despite SSO competitions ending as a result of COVID-19 closing university campuses, it was interesting and unsurprising to see large energy savings. The savings seen after a competition had ended (typically for April and May 2020) were not included in the reporting of the campaigns.

2.1.2 Overall energy and carbon dioxide saved through Student Switch Off

As can be seen in Table 4 below, in 2019-20 a total of **1,315,531 kWh of electricity** (a saving of **7.72%**) 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 **2,760,159 kWh**.

The 7.72% saving equates to **489 tonnes of CO₂** emissions saved. Taking upscaled data into account, this figure increases to **927 tonnes of CO₂**. The highest actual savings were achieved in the UK (587,464 kWh, 136 tonnes of CO₂), and the greatest percentage saving was achieved in Lithuania (26%).



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). Tables 4-12 do not include any extrapolated figures.

	Overall Student Switch Off savings
Baseline usage (kWh)	17,039,962
2019-20 usage (kWh)	15,724,431
kWh saving	1,315,531
% saving	7.72
CO_2 saving (tonnes)	489.03

Table 4. Overall energy and carbon saving as a result Student Switch Off in 2019-20 (without extrapolation)

As per Table 5, it is worthy to note that data consumed by the UK universities accounts for 61% 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)	1,454,884	181,762	1,134,505	1,955,117	758,171	1,420,530	10,134,993
Usage 2019-20 (kWh)	1,349,592	136,244	1,066,347	1,896,199	560,921	1,167,600	9,547,528
kWh saving	105,292	45,518	68,159	58,918	197,250	252,930	587,464
% saving	7.24	25.04	6.01	3.01	26.02	17.81	5.80
CO ₂ saving (tonnes)	64.32	33.47	48.95	24.70	53.26	128.60	135.73

Table 5. Energy and carbon savings from Student Switch Off in SAVES 2 countries in 2019-20 (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 2019-20. 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; 7.24% was saved at Sofia University 'St. Kliment Ohridski'. This equates to a saving 105,292 kWh and 64.32 tonnes of CO_2 .

	Sofia University "St. Kliment Ohridski"
Baseline usage (kWh)	1,454,884
2019-20 usage (kWh)	1,349,592
kWh saving	105,292
% saving	7.24



I				
CO ₂ saving (tonnes)	64.32			
Months used in analysis	October 2019 – March 2020			
	Baseline adjusted to reflect reduced			
Extrapolations/	occupancy in 2019-20, compared to the			
additional analysis	baseline period			
Table C. Ensure and each an envire as a merult of Chudent Cultab Off in Cafe				

Table 6. Energy and carbon saving as a result of Student Switch Off in Sofia University "St. Kliment Ohridski" in 2019-20

2.1.3.2 Energy and carbon savings in Cyprus

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As per Table 7, energy saving was noted in Cyprus; 25.04% was saved at the University of Cyprus. This equates to a saving of 45,518 kWh and 33.47 tonnes CO₂.

	University of Cyprus
	101 702
Baseline usage (kWh)	181,762
2019-20 usage (kWh)	136,244
kWh saving	45,518
% saving	25.04
CO ₂ saving (tonnes)	33.47
Months used in analysis	October 2019 – March 2020

Table 7. Energy and carbon saving as a result of Student Switch Off in University of Cyprus in 2019-20

2.1.3.3 Energy and carbon savings in Greece

As per Table 8, energy saving was noted at both the Greek universities, 3.90% and 25.51% at National and Kapodistrian University of Athens and Technical University of Crete, respectively (a country average saving of 6.01%). This equates to a total saving of 68,159 kWh and 48.95 tonnes CO₂.

	National and Kapodistrian University of Athens	Technical University of Crete
Baseline usage (kWh)	1,023,717	110,788
2019-20 usage (kWh)	983,820	82,527
kWh saving	39,897	28,262
% saving	3.90	25.51
CO_2 saving (tonnes)	28.65	20.30
Months used in analysis	October 2019 – February 2020	October 2019 – March 2020

Table 8. Energy and carbon saving as a result of Student Switch Off in Greek SAVES 2 universities in 2019-20



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 (where data was available). A saving of 58,918 kWh and 24 tonnes CO_2 was observed, which equates to a 3% saving when compared to the baseline.

	Dublin City University	National University of Ireland, Galway	National University of Ireland, Maynooth	University College Cork
Baseline usage (kWh)	210,118		422,961	1,322,038
2019-20 usage (kWh)	203,063		417,762	1,275,374
kWh saving	7,055		5,199	46,664
% saving	3.36		1.23	3.53
CO_2 saving (tonnes)	2.96		2.18	19.56
Months used in analysis	5		5	5
Extrapolations/ additional analysis		No data available		

Table 9. Energy and carbon saving as a result of Student Switch Off in Irish SAVES 2 universities in 2019-20

Due to the COVID-19 pandemic, and many university staff absent from work, energy consumption data was not obtained from National University of Ireland, Galway, and thus energy savings could not be calculated.

2.1.3.5 Energy and carbon savings in Lithuania

As per Table 10, energy saving was noted in Lithuania; 26% was saved at the Vilnius Gediminas Technical University. This equates to a saving 197,250 kWh and 53 tonnes of CO₂.

	Vilnius Gediminas Technical University
Baseline usage (kWh)	758,171
2019-20 usage (kWh)	560,921
kWh saving	197,250
% saving	26.02
CO ₂ saving (tonnes)	53.26
Months used in analysis	October 2019 – February 2020

Table 10. Energy and carbon saving as a result of Student Switch Off in Vilnius Gediminas Technical University in 2019-20

2.1.3.6 Energy and carbon savings in Romania

As per Table 11, energy saving was noted in Romania; 17.81% was saved at the University of Bucharest. This equates to a saving of 252,930 kWh and 128 tonnes CO₂.

	University of Bucharest	
Baseline usage (kWh)		1,420,530



2019-20 usage (kWh)	1,167,600
kWh saving	252,930
% saving	17.81
CO ₂ saving (tonnes)	128.60
Monthe used in analysis	6 months (October 2019 – March 2020)

Months used in analysis 6 months (October 2019 – March 2020) Table 11. Energy and carbon saving as a result of Student Switch Off in University of Bucharest in 2019-20

2.1.3.7 Energy and carbon savings in the UK

As can be noted from Table 12 below, energy was saved across three out of four of the UK universities taking part in Student Switch Off. An overall saving of 587,464 kWh and 136 tonnes of CO_2 was observed, which equates to 5.8% saving when compared to the baseline.

	University of Nottingham	University of Liverpool	University of Cambridge	University of York
Baseline usage	2 0 2 0 6 5 2	2 202 002	2 2 6 0 2 0	
(kWh)	2,939,653	2,292,082	3,268,030	1,635,228
2019-20 usage				
(kWh)	2,753,321	2,127,192	3,321,956	1,345,059
kWh saving	186,332	164,890	-53,927	290,169
% saving	6.34	7.19	-1.65	17.74
CO_2 saving (tonnes)	43.05	38.10	-12.50	67.04
Months used in analysis	5	3	4	3
E. to a station of	Degree day adjustment of	Degree day adjustment of		
Extrapolations/	electrically heated	electrically heated		
additional analysis	nalls has been	nails nas been		
(if applicable)	аррнеа	аррнеа		

Table 12. Energy and carbon savings as a result of Student Switch Off in UK SAVES 2 universities in 2019-20

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 3-5 months' worth of data, as can be seen from Table 12. Historically, before 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 of this, and the COVID-19 pandemic, data had to be extrapolated for the missing months.

At the University of Cambridge, the energy savings show an overall energy increase across the eight participating dormitories during the months October – March. It is believed this increase was due to decreased engagement from staff, green officers and students during 2019-20. Many university stakeholders shared that they were prioritising other campaigns and projects this year, including food waste, plastics and divestment which led to decreased promotion and fewer participating colleges, reducing the competitive nature of the campaign. There is also a belief that the rise in other student climate campaigns this year such as Extinction Rebellion (XR) and Youth Strike for Climate has engaged and encouraged students to take action on climate in alternative ways. SSO will continue to adapt and action will be taken in future years to increase engagement with key stakeholder by aligning SSO with their own priorities and collaborating on shared projects, with mutually beneficial outputs, rather than competing for students' attention.



2.1.4 Extrapolated energy savings for missing months

Due to missing or erroneous data, or 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, or in the case of 2019-20 the COVID-19 pandemic), 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 3-6 months depending on the university. The average number of months of data available was 5.

Table 13 below shows how much energy we expect the campaign to 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 2,760,159 kWh of energy is expected to have been saved. Given that our initial calculations yield 1,315,531 kWh of savings, it can be seen that an additional saving of 1,444,628 kWh has been extrapolated; data was available for 55% of months (64 out of 117) and was extrapolated for 45% of months (53 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	870,507
University of Cambridge	4	5	-121,335
University of Liverpool	3	6	494,670
University of Nottingham	5	4	335,398
University of Bucharest	6	3	379,395
The University of Sofia "St. Kliment Ohridski"	6	3	157,937
Vilnius Gediminas Technical University	5	4	355,050
University of Cyprus	6	3	68,278
Technical University of Crete	6	3	42,392
National and Kapodistrian University of Athens	5	4	71,815
National University of Ireland, Galway	N/A	N/A	N/A
National University of Ireland, Maynooth	5	4	9,359
Dublin City University	5	4	12,699
University College Cork	5	4	83,995
TOTAL	64	53	2,760,159

Table 13. Overall savings through Student Switch Off (with missing months extrapolated) in 2019-20

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 (<u>www.saves-project.eu</u>). As can be noted from Table 14, 15,772 students signed up to pledge their support for the campaign, which equates to 44% 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 were 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 living in VGTU dorms are signed up unless they unsubscribe from the engagement emails. In Ireland, USI worked with the participating universities, to get them to send emails on their behalf. At UoS students were emailed from the general university database, however, were also asked to sign up during end of year/start of year events, and dorm visits.

In the case of UK universities, some emails (approximately 3-5 in a year) to all students where sent through university central services, however the majority where 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	Online competition entries	Number of social media followers (specify which one)
University of							
Cambridge	4,915	966	20%	17	2,080	85	FB: 3,407
University of Liverpool	4,200	729	17%	11	746	107	FB: 849
University of Nottingham	4,262	758	18%	42	1,274	102	FB: 259
University of York	5,667	823	15%	55	1,158	125	FB: 980
National and Kapodistrian University of Athens	1,068	211	20%	4	219	90	FB: 352
Technical University of Crete	76	76	100%	4	173	57	FB: 394 IG: 204
University of Cyprus	208	208	100%	17	184	99	FB: 837
Dublin City University	1,400	940	67%	3	96	22	SC: 75 IG: 217 FB: 102
National University of Ireland, Galway	1 193	1 193	100%	2	96	22	SC: 75 IG: 216 FB: 67
National University of Ireland, Maynooth University	1,250	1,250	100%	1	96	23	SC: 75 IG: 217 FB: 81
University College Cork	1,278	1,278	100%	2	96	23	SC: 75 IG: 216 FB: 112
Vilnius Gediminas Technical University	3,363	3,363	100%	15	285	20	FB: 296



University of Bucharest	3,790	896	24%	24	721	111	(SSO&SSO+) FB: 1,484 IG: 140
Sofia University "St. Kliment Ohridski"	3,097	3081	99%	7	77	3	FB: 171
TOTAL	35,767	15,772		204	7,301	889	FB: 9,391 IG: 1,210 SC: 300 Total: 10,901

Table 14. Engagement statistics for Student Switch Off in SAVES 2 universities in 2019-20

3.0 Student Switch Off +

The Student Switch Off+ (SSO+) campaign ran in seven different countries in the European Union (Bulgaria, Cyprus, Greece, Ireland, Lithuania, Romania and the UK) during the academic year 2019-20. This is the third year of the SSO+ campaign for four countries, Cyprus, Greece, Lithuania and the UK, with 2019-20 being the second year of SSO+ for Bulgaria, Ireland and Romania. Activities undertaken as part of SSO+, 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 2019-20 academic year, students that lived in dormitories in the UK that participated in SSO in 2018-19 were contacted with information about the SSO+ 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 2019-20, **60,836 students were emailed** with advice on SSO+ across **81 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 78,029 across the countries Cyprus, Greece, Lithuania, Romania and the UK, with Ireland having a combined reach of over 100,000 across all of the social media platforms that were used. We estimate that the **average reach of social media communications was 18,902** although it is noted that this is likely far higher if all of Ireland's social media channels were included however the possibility of double counting across the platforms resulted in a conservative estimate being used. Average reach was calculated by dividing the total reach 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. NKUA, Cyprus, Ireland and Lithuania all used face to face communications to reach students, for example running regular engagement stalls and Ireland included information in housing guidance booklets and featured on student radio. Notes have been provided on some of these highlights and more information can be found in country specific reports.



In total, 89,620 students were reached with information on SSO+.

Country	University	Number of unique students reached with information on SSO+ via <u>email</u>	Number of students reached with information on SSO+ via <u>social</u> <u>media</u>	Number of students engaged with information on SSO+ via <u>additional</u> <u>communication</u> channels	Estimated <u>Total</u> <u>Reach</u> (inc students emailed, average social media reach and other channels)
Bulgaria	4 universities: Sofia University "St. Kliment Ohridski, University of National and World Economics, University of Veliko Tarnovo, New Bulgarian University	3,005	0	77 engaged via face to face communications	3,082
Cyprus	University of Cyprus	6,480	Total Social Media Reach: 4,926 Total Social Media Engagement: 380 Average Social Media Reach per post: 352 Average Social Media Engagement per post: 27 (Students reached via social media have also been reached via email)	1,000 In addition to email and social media students were engaged at events, face to face communications (Students reached via additional channels have also been reached via email)	6,480 (includes students reached via email, social media and additional communication channels)
Greece	11 universities: NKUA, Athens University of Economics and Business, Harokopio University, Panteion University of Social and Political Sciences Technical University of Crete, University of Piraeus, International Hellenic University, Democritus University of Thrace, University of Hrakleio, University of Rethimno, Hellenic Mediterranean University in Crete	17,499	Total Social Media Reach: 17,138 Total Social Media Engagement: 604 Average Social Media Reach per post: 341 Average Social Media Engagement per post:26	5,792 Engagement via face to face stalls, leaflets and posters, including 477 students who had previously participated in SSO in dormitories	23,632



Ireland	23 universities: Dublin City University, Dublin Institute of Technology, Dun Laoghaire Institute of Art, Design & Technology, National College of Ireland, National College of Art and Design, Trinity College Dublin, Athlone Institute of Technology, Dundalk Institute of Technology, Galway Mayo Institute of Technology – Castlebar, Institute of Technology Sligo, Letterkenny Institute of Technology, National University of Ireland Galway, National University of Ireland Maynooth, St. Angela's College Sligo, Carlow College, Cork Institute of Technology, Institute of Technology Carlow, Institute of Technology Tralee, Limerick Institute of Technology, Iimerick School of Art & Design, Templemore College Cork, Waterford Institute of Technology	278	Total Social Media Reach: 411k plus impressions relate to 21 Day Challenge. Applying trend for impressions and reach (ratio 1:4.04), this yields 100,900 student impressions Sustainable Calendar 10,586 (Facebook, Instagram, Twitter) Average Social Media Instagram story: 350 Average Social Media Instagram post on feed: 700 Note: whilst a range of social media platforms were used which had an overall very large combined reach, for the purpose of reporting we have estimated a reach of 10% of the 100,990 social media impressions = 10,090 . We estimate that the social media reach is significantly larger than this reported minimum estimate Total Social Media	Training/worksho ps 155 Booklets 1,608 (Rent and Information Booklet UCC & student handbook) Information stands: 9 in total with around 100 student engagement at each =900 Doesn't include reach via radio and articles as data couldn't be captured. Total: 2,663 350 students	13,031
	Vilnius Gediminas technical university Vilnius University		Reach: 13,912	engaged via face to face communications	



			Total Social Media Engagement: 1,332	
			Average Social Media Reach per post: 3,478	
			Average Social Media Engagement per post: 333	
Romania	3 universities: University of Bucharest Titu Maiorescu	2,366	Total Social Media Reach: 14,749	3,595
	University Artifex University Other universities (few		Engagement: 9,556	
	students)		Average Social Media Reach per post: 1,229	
			Average Social Media Engagement per post:796	
UK	37 Universities: Arts University Bournemouth, Bournemouth University, Brunel University, Cranfield University, De Montfort University, Goldsmiths University, Imperial College London, Keele University, King's College London, Kingston University, Lancaster University, Lancaster University, London School Economics, Roehampton University, Sheffield Hallam University, Southampton Solent University, St Mary's University, Staffordshire University, The Open University, University of Bath, University of Cambridge, University of Cardiff,	23,659	Total Social Media Reach: 27,367 Total Social Media Engagement: 1,405 Average Social Media Reach per post: 3,412 Average Social Media Engagement per post: 152	27,071



TOTAL	Universities: 81	Total email reach: 60,836	Average social media Reach: 18,902	Total reach from other channels: 9,882	Total overall reach: 89,620
	University of Essex, University of Exeter, University of Exeter, University of Law London, University of Liverpool, University of Newcastle, University of Newcastle, University of Newcastle, University of Northampton, University of Nottingham, University of Oxford, University of Sheffield, University of Sheffield, University of Southampton, University of Strathclyde, University of Surrey, University of Surrey, University of Worcester, University of Winchester, University of York				

Table 15. Universities where students received information on SSO+ in 2019-20.

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



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. The exemption of this is in Ireland where social media was the primary method of communication, in this case we used a conservative estimate of social media. 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 **2,705,638 kWh** of electricity was saved, which is 961.09 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 consumptio n in private rented accommod ation (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	3,005	866	0	52,047	52,047
Cyprus	520	5,772	866	36,026	99,971	135,997
Greece	477	17,499	866	33,047	303,083	336,129
Ireland	278	10,090	866	19,260	174,759	194,019
Lithuania	1,460	6,089	866	101,118	105,469	206,587
Romania	1,722	1,297	866	119,300	22,464	141,764
UK	23,659	0	866	1,639,096	0	1,639,096
TOTAL	28,116	43,752		1,947,846	757,792	2,705,638

Table 16. Energy savings attributed to SSO+ in 2019-20

Carbon savings were calculated using the same conversion factors as in Chapter 2.1. Table 17 below shows the CO_2 savings that can be attributed to the SSO+ project.

Country	Carbon saving (tonnes CO ₂)
Bulgaria	31.79
Cyprus	99.99
Greece	241.41
Ireland	81.34
Lithuania	55.78
Romania	72.08
UK	378.70
TOTAL	961.09

Table 17. Overall tonnes of CO_2 saved through the SSO+ campaign in 2019-20



4.0 Targets and Conclusions

4.1 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 2019-20 academic year. The actual savings through Student Switch Off have been below the target of 3.03 GWh as a saving of 1.32 GWh is reported, however taking into consideration the extra extrapolated months (where data was unavailable, largely due to the COVID-19 pandemic) described in section 2.1.4, we could attribute an overall **saving of 2.76 GWh** to the **SSO campaign.** This figure is very close to the 3.03 GWh target.

In relation to **SSO+** the target for 2019-20 was a saving of 2.21 GWh. During the academic year 2019-20 we estimate a saving of **2.71 GWh**, surpassing the target savings for the year.

In total, the SAVES 2 campaign saved 5.47 GWh of energy, compared to a target of 5.24 GWh. Taking the primary energy saving target into account this equates to **13.68 GWh** saved, which is above the target of 13.09 GWh.

Academic year 2019-20	TARGETS (GWh)	ACTUALS (GWh)	OVERALL SAVINGS (incl. extrapolation) (GWh)
Final energy consumption saving from the Student Switch Off competition in dormitories (8% reduction on baseline usage)	3.03	1.32	2.76
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 2018-19 assumed to be continuing their energy-saving habits)	0.51	1.95	1.95
Final energy saving from students reached by SSO+ who weren't reached by SSO (estimate at 2% reduction)	1.70	0.76	0.76
2019-20 final energy consumption saving annual GWh reduction target	5.24	4.02	5.47
2019-20 primary energy saving target (2.5 times the above value)	13.09	10.05	13.68

Table 18. SAVES 2 energy saving targets vs actuals for 2019-20



4.2 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 2019-20 academic year. Based on electricity readings, the campaign led to a 7.72% 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 1.32 GWh can be seen from actual data readings, which increases to 2.76 GWh attributed to the campaign's various activities when taking into account extrapolation of unavailable data. Over 45% of participating students pledged to save energy through the campaign, over 200 volunteered to become ambassadors for the campaign and received in-depth training, and over 7,000 took part in online climate quizzes, raising their awareness on climate change and energy saving.

Through the SSO+ campaign 60,836 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 18,902 students were engaged via social media and 9,882 students via other communications such as poster, engagement stalls and information booklets. In total 89,620 students were reached with SSO+ information over the 2019-20 academic year. It can be estimated that during the 2019-20 academic year a 2.71 GWh saving can be attributed to the campaign.

Overall an estimated saving of 5.47 GWh can be attributed to SAVES 2 in 2019-20. This is above the 5.24 GWh target.

