

**Do It In The Dark:
Energy Competitions as an Effective Means of Student Engagement around
Energy Consumption**

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Executive Summary



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Climate change is the greatest issue of our time. The International Panel on Climate Change has reported that eleven of the 12 years between 1995 and 2006 have been among the 12 warmest years documented since record-keeping began in 1850. This level of urgency for action has led to a push for energy consumption reduction competitions on university and college campuses. Youth in universities are a target group because they will be the leaders who will need to tackle climate change during their working lives. As well, universities are a place of research and innovation and, as the University of British Columbia has stated, “living laboratories.”

The University of British Columbia, in November 2010, took on one such energy consumption reduction competition, entitled *Do It in the Dark*. This competition was two-tiered: firstly, it took place within a first year residence, Totem Park, between six houses (each home to about 200 students) and, secondly, it placed UBC in competition with 39 American colleges and universities through the Campus Conservation Nationals. The competition itself ran from November 1st to 19th, 2010 and success was based on the percent reduction of energy consumption below the baseline measurement (taken the week prior to the competition).

The competition at UBC developed through the Association for the Advancement of Sustainability in Higher Education (AASHE) conference at which point the UBC Campus Sustainability Office staff received information from Lucid Design Group. Lucid was at the forefront of energy competitions at Oberlin College in Oberlin, Ohio and designed the online building dashboard software used to monitor energy consumption through information from hardware set up in the buildings. The competition at UBC specifically grew out of conversations taking place around the University’s Climate Action Plan. The key organizers of the competition were the UBC Campus Sustainability Office, UBC Common Energy, and the Totem Sustainability Committee.

The competition operated through a series of events which aimed to engage students in a new, fun and exciting way; get students thinking about the energy competition and their own energy consumption; connect with every Totem Park student in at least one way; significantly reduce the overall energy consumption in Totem Park; and, finally, make long-lasting changes to student behaviour. The competition began with a teaser event the week prior which was through collaboration with residence advisors in Totem Park. This teaser was *Sex with your Advisors*, an extremely popular sex education event, at which glow-in-the-dark condoms were distributed to students with competition dates written on them. The kick-off event took place on the first evening of the competition and was *Dine in the Dark*. This was a candle-lit cafeteria dinner used to engage all students in the competition. Since all students come through the cafeteria this event offered an important opportunity to engage with students who may not have otherwise expressed interest in a sustainability initiative. The feedback regarding this event was incredibly positive and so the finale event took on the same format. In addition to dining in the dark, though, the finale event also featured a magician. This was to celebrate the students' success and allow students to engage in the competition through a fun and silly activity. Throughout the entire three weeks of the competition "boothing" took place twice-weekly in the Commons Block (the central building in residence in which no students live but are able to access all amenities). The booth allowed students to share ideas, see the online dashboard to view current competition standings, interact with BC Hydro representatives who shared facts about energy consumption and gave prizes, and enter a draw to win a number of general prizes at the end of the competition. Mascots were also a component of the competition. The two mascots were "Captain Kilowatt" and "Phantom Power." These two characters made frequent appearances at the booth and at the *Dine in the Dark* events. Although they were a fun way to engage students it must be

noted that the time and energy commitment to making mascots a fundamental part of the competition is significant. Therefore, they should be planned for well in advance and specific individuals should take that role on. Other events during the competition included *Capture the Flag in the Dark* and *Camp-Out in the Dark* these two events took place purely for the purpose of engaging students who would not typically take part in environmental initiatives. Such events were meant to simply send students home thinking about the energy competition and in the hope that if it is on a student's mind they will be more likely to engage in energy conserving behaviours. Lastly, the Earth Hour event resulted in the most significant reduction in energy consumption. This event mimicked the World Wildlife Fund's global event by encouraging students to shut off all power-consuming items for one hour (8:00-9:00pm), thereby allowing participants to see the reduction in power consumption on the online competition dashboard. The reductions were, indeed, significant ranging from 10-36% reductions below the same time period the night prior. These events, together, formed an engaging and exciting competition in which students wanted to take part.

The messaging of the competition was also an important factor for engaging students. Firstly, the use of the online building dashboard software allowed student to see their house's energy consumption being monitored with realtime data online. As well this offered an online space for ideas sharing. Secondly, posters were created both formally by the Campus Sustainability Office and informally by residence advisors. Thirdly, Facebook became an important medium for sharing updates and actions. The *Do It in the Dark* Facebook page attracted over 1000 users daily. As well, the ideas board located at the booth and as a permanent fixture in the Commons Block allowed students to share ideas by writing them on paper stars and pinning them to the board.

The actual actions that students were able to take were turning out the lights, unplugging chargers to combat phantom power use, using sleep mode on computers, taking the stairs rather than the elevator, hanging clothes to dry, not using hairdryers, and unplugging vending machines.

The barriers to action that students faced were both infrastructural challenges and simple forgetfulness. The infrastructural barriers were that the heating was not electric and the Commons Block was not being monitored. The challenge of forgetfulness was a result of the fact that many of the encouraged actions had to take place in one's room. This individualism was combated through use of posters, events, Facebook, and Residence Advisors.

The actual results of the competition are significant and a testament to the success of the events, messaging, and key actions. The overall reduction in energy consumption was 16.3% below the baseline measurements. This placed UBC in second out of the 40 participating colleges and universities across North America. The greatest reduction in a single house within Totem Park was Haida house which achieved a 24.1% reduction. There was a direct correlation between the number of ballots received and the percent energy reduction in each house. The ballots were collected for a prize draw at each individual event and while students were entering simply to win a prize, the organizers kept track of the number of ballots entered and from which houses they came. This finding shows that the students who came out to the *Do It in the Dark* events did, indeed, reduce more energy.

As well, the Facebook page had 2224 logged-in page views during the competition period, thereby engaging students through a different medium. The competition as a whole saved a total of 510,191 kilowatt hours which is enough power to operate a 60-watt lightbulb for a thousand years.

In looking to the future, the success of the competition must be built upon. Improvements to evaluation mechanisms can be made through two routes. Firstly, surveys of the participants should take place to measure their personal thoughts about the competition. These could take place before, during, and after the competition. Secondly, in order to measure the longevity of the changes brought on by the competition, the energy consumption should be measured for a longer amount of time after the competition.

Potential adaptations that could take place would be an adjustment to tailor the program for upper-year residences. This should be done, however, with careful consideration to the involvement levels of residence advisors, involvement of residents in residence activities, the turnover of residents, the control that residents have over their energy consumption, and the level of entrenchment of energy consumption habits (from previously living away from family). As well, a greater involvement of residence advisors would be highly beneficial given that the house with the most residence advisors involved in the competition's planning had the highest levels of energy consumption reduction.

In conclusion, *Do It in the Dark* was an extremely effective means of reducing energy consumption in a residence setting. Through events and messaging the program engaged students and instigated behaviour changes in the energy consumption lifestyles. By implementing *Do It in the Dark* programming in the future, UBC, as well as other institutions, have the ability to affect real behaviour changes among students.

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Abstract

Energy competitions have been identified in the post secondary sphere as an effective means of instilling behaviour changes among students. The *Do It in the Dark* competition in the University of British Columbia's Totem Park residence did just that, reducing overall energy consumption by 16.3%. *Do It in the Dark* took place November 1-19, 2010 and combined an inter-house competition with an inter-university competition as a part of the Campus Conservation Nationals. This competition was an effective means of instilling better energy consumption habits among the student body. This report describes, in detail, the best practices of Totem Park's *Do It in the Dark* competition and will serve as a template to help replicate its success in future competitions.

Introduction

Climate change is presently the world's most important environmental issue (International Panel on Climate Change). Young people currently attending universities and colleges around the world will soon become the business owners, teachers, doctors, scientists and politicians required to lead our global community through finding solutions to the extensive negative consequences of climate change. They are, therefore, an essential group of individuals needed to help to develop low-energy consumption strategies in their own lives. It is for this reason that students in post-secondary institutions are being targeted with energy reduction competitions in student residences as a behaviour change strategy (Parece, 1).

On a university campus, student housing and residences present a platform of opportunity upon which the best practices for energy consumption can be taught and attained. Students living in first-year residences are a particularly critical group because, for many, it is their first time living on their own. This means that rather than trying to change the habits of an individual who has controlled their personal energy consumption for many years (such as upper-year students or in the household), these students are developing these habits while living in residence.

Additionally, universities are a hub of research and innovation. This gives these educational institutions all the more reason to become a "Living Laboratory" as has the University of British Columbia (Campus as a Living Lab). In this sense, an energy competition gives a university the opportunity to experiment, learn, and alter the future right on its campus.

In November 2010 one such energy competition, entitled *Do It in the Dark*, took place in the University of British Columbia's Totem Park residence. It brought together event programming, an online real-time energy monitoring dashboard, and both an inter-house competition (between the six Totem Park houses) and an inter-university competition (between

40 colleges and universities across North America). Baseline measurements were taken just prior to the competition and the competition itself was based upon reductions below those values.

The *Do It in the Dark* competition achieved an overall reduction of 16.3% below initial baseline measurements, placing UBC in second place out of 40 participating institutions in the Campus Conservation Nationals. This report describes the competition in detail, allowing it to be used as a guide in future competitions; discusses the reasons for success; explains the results of the competition; and looks ahead to make recommendations for competitions and associated research in the future.

Scope

The *Do It in the Dark* energy competition took place November 1-19, 2010 in the Totem Park residence at the University of British Columbia. *Do It in the Dark* was both an intra-Totem Park competition consisting of six houses (each of approximately 200 students) battling against one another and an inter-school competition placing Totem Park in competition with 40 other colleges and universities. The overall purpose of the competition (though additional goals will be discussed later on) was to put into practice long-lasting behaviour changes in energy consumption among the student body. This would reduce energy consumption both in residence (which creates savings in the University's power costs) and, upon leaving Totem Park, reduce the students' overall impact on the environment. It was decided to have the competition take place in Totem Park because it is primarily a first-year residence. First-year students were identified as a target group because, for many, this was the first time that they were living on their own. For this reason, they develop energy consumption habits as individuals rather than as a part of a family unit. This allows the University to change such habits before they are totally engrained in their daily actions as one may expect in upper-year students. Totem Park was chosen over the other first-year residence, Place Vanier, because it was identified as being simpler to set up the hardware (although this information is actually questionable and may have not been proven) (Ferris).

The concept of the energy competition was identified as an effective means of bringing about behaviour change during discussions around the University's Climate Action Plan (Ferris). The University's support for a behaviour change campaign for the UBC community meant that funding was provided for the installation of each building's energy monitoring hardware as well as the connection to the online real-time energy monitoring dashboard. The dashboard was

simply a website that students could visit on their personal computers which displayed the energy conservation data in an engaging and interactive format. The competition itself was overseen by the Campus Sustainability Office and implemented by the UBC Common Energy Challenges Team and the Totem Park Sustainability Committee. For clarity, my role in the competition was as the coordinator of the UBC Common Energy Challenges Team.

The deliverables of the competition were to provide students with the motivation and strategies for reducing their energy consumption and, therefore, reduce the overall energy consumption in Totem Park. This was accomplished through strategic programming, outreach, and both of the competitions while teaching the student body life-long energy consumption reduction behaviours. The deliverables of this analysis of the competition are to give context this paper in relation to other works through the literature review; provide a detailed description of the competition that can be used by future competition organizers either at UBC or at other institutions; make recommendations as to how the University, and specifically the Campus Sustainability Office, can support future competitions; and, lastly, suggest additional evaluation mechanisms for future competitions.

The success of such competitions is firstly determined by the overall reduction in energy consumption below the baseline values as well as the levels of student engagement overall. This paper will discuss the results, both quantitative and qualitative, in the evaluation section.

Literature Review

The Intergovernmental Panel on Climate Change stated that “most of the observed increase in global average temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic GHG concentrations” (Intergovernmental Panel on Climate Change). This means that climate change is primarily human-caused and many believe that people can, therefore, be expected to take some kind of responsibility for the changes that are occurring. Eleven of the 12 years between 1995 and 2006 are on the list of the 12 warmest years since 1850 (Intergovernmental Panel on Climate Change). This indicates that the effects of climate change are going to dominate the same timeline as the working lives of today’s younger generations. The youth that presently make up university populations will soon dominate the workforce and will have to negotiate the effects of and the solution strategies for climate change. Considering this “connection” between today’s post secondary students and the observable effects of climate change the young people of today compose a key cohort in terms of creating tangible and effective solutions. Indeed, “a central goal of campus sustainability efforts should be to transform students’ daily experience on campus such that this experience conveys lessons of environmental stewardship” (Murray et al. 1).

One such lesson which, in the past decade or so, has grown in popularity is the teaching of more conservative energy consumption habits through a dormitory residence competition format (Brewer et al. 1). In November 2010 the University of British Columbia’s Vancouver campus took part in such a competition. The Totem Park Residence represented the University in the Campus Conservation Nationals, competing against 39 colleges and universities from across the United States. Totem Park is primarily a first-year residence which encompasses six 200-

student houses (approximately 1200 students). Similar competitions have taken place all across North America.

Energy competitions have been seen as an effective means of reducing energy consumption in the university or college residence setting (Janda et al. 20). Their popularity has been increasing and, thus, studies and research on the topic have been, as well. This Literature Review is a component of “Do It in the Dark: An Effective Means for Student Engagement around Energy Consumption,” which is one such research project on the topic of energy competitions in university settings with a focus on the best practices of and recommendations for the UBC *Do It in the Dark* competition.

In Tammy Erlene Parece’s Master’s Thesis “Managing Water and Electricity Consumption in University Residence Halls” Parece lists the studies that have taken place in university settings throughout the past 25 years (83). Environmentally-Relevant Behaviour (ERB) related competitions and initiatives have taken place primarily for two reasons: to minimize energy- or water-related costs and to minimize impacts on the environment (Parece 16). Energy competitions have changed and developed so as to meet a variety of different needs and suit a wide range of dorm styles. The first of such competitions took place in 1983 and addressed water consumption through showering prompts (Parece 83). Since 1983 competitions have grown and adapted to better suit residence settings. In 2008, Oberlin College in Oberlin, Ohio took part in an energy competition that incorporated, for the first time, realtime displays of energy consumption (Murray et al. 2) This component added significantly to the successes of the competition and has since been replicated (Murray et al. 3). The UBC competition incorporated this technology which resulted in enhanced involvement from the student body and a greater connection to their personal energy consumption.

Lucid Design Group, which is composed of graduates from Oberlin College, developed “Building Dashboard” software (Murray et al. 2). The “Building Dashboard” displays realtime (or, alternatively, manually uploaded) data about energy and water consumption so as to allow students to take part in “active learning” (Murray et al. 7). Lucid Design has published some of the most useful and relevant studies in regards to the UBC competition because Totem Park did actually utilise the “Building Dashboard” software (and related hardware) in the 2010 energy competition. The benefit of having an online display is the audience to which the information becomes available (Murray et al. 7). Lucid Design’s research has concluded that software such as the “Building Dashboard” makes the idea of energy consumption more accessible to a “non-technical” audience (Murray et al. 2). Additionally, Oberlin College tracked hits to the dashboard website which had approximately 70,000 hits per year with over 25% coming from international sources (Murray et al. 7). This indicates the ability for such a tool to be used as an educational strategy both for the building’s inhabitants/users as well as university and public communities. The connection between the hardware that actually monitors the energy consumption in each building with the “Building Dashboard” software created much more substantial results (Murray et al. 5). The “parallel efforts focused on facilities and on culture are linked by the fact that changes in the attitude and then in the behaviour of members of the campus community are critical for both their education value and for their actual effect on campus resource use” (Murray et al. 1). Though the online realtime updates were extremely engaging for participants, the University of Hawaii states that this is one of the “complex” forms of competition rather than having weekly manually loaded updates on a website (Brewer et al. 2). Another energy competition taking place in March 2011 across the province of British Columbia had twice-weekly manual updates to an online “building dashboard” system. The variations in how data

can be displayed online certainly are one of the greatest differences between competitions. However, regardless of the competition, it seems that a vast majority incorporate some type of online component in the engagement strategy.

Energy competitions can be an effective way of addressing the so-called “value-action gap” that can often occur not only on campuses but in everyday life (Ageyman et al. 3) This is the difference between the knowledge about environmental issues, particularly climate change, and the actions (or lack thereof) that students (or other citizens) take to combat such issues (Ageyman et al. 3). The UBC competition certainly incorporated this in the formatting of the competition – students at the University are, for the most part, already knowledgeable about the consequences of climate change. Yet, throughout the competition, many students were identified who were unaware of the actions that they could take to make a difference. UBC’s Totem Park Competition did not partake in any surveying of students to measure gained knowledge and/or motivation other than qualitative understanding. The Oberlin College competition, however, surveyed students and found that 52% felt that they had learned new electricity conservation strategies and 45% felt more motivated by even just the realtime feedback through the online “Building Dashboard” (Murray et al. 5). This shows that an energy competition is an effective way of engaging students in action, and not simply knowledge, about energy consumption issues.

The effort to fairly compare energy reductions between campuses has given rise to some issues. This is especially in regards to how to judge students as individuals, in their respective houses, or as entire campuses. Parece suggested having per person GHG emissions dictate the levels of achievement (Parece 56). The competition in which UBC participated judged reductions as a percent reduction below baseline values (taken the two weeks prior to the competition). One other difference in engagement strategies is that UBC’s Totem Park

competition did not actually include a physical “Building Dashboard.” Many buildings that have the hardware and software installed also choose to engage building users through the use of a dashboard installed in a central location (Murray et al. 2). Another logistical variation between energy competitions was the length. Some were as long as five months while others were as short as a week. These variations, however, seem to minimally effect the success of the competitions during the time period although the extent to which those changes last may be altered. This is certainly something that should be addressed in future research on the topic.

In general, the research behind energy competitions is somewhat limited because much of what is available does not actually give recommendations or feedback on best practices. Comparatively, there is a significant amount of literature that states the practicality and benefits of energy which has been discussed in this review. “Do It in the Dark: An Effective Means for Student Engagement around Energy Consumption” pursues the closing of such gaps in academic works. It will provide students with tangible routes to achieving significant energy reductions. The necessity, the interest, and the support of many post-secondary institutions have been proven in already existing literature.

Energy consumption is a simple yet crucial component of people’s impact on the environment. Residence energy competitions offer an effective strategy to teach students good energy practices through an active form of learning. The present generation of post-secondary students will soon dominate the workforce that will encounter many of the most pressing issues in the environment and teaching good energy habits today may well contribute to a more positive future.

Purpose and Goals

The overarching purpose of the *Do It in the Dark* competition was to create a program which, by tying in strategic event programming, messaging, and the online realtime dashboard, would inspire students and give them the tools to reduce electricity consumption. The Campus Conservation Nationals, the North America-wide competition in which Totem participated, listed a number of goals:

Engage, educate, motivate, and empower students to conserve resources in their residences; achieve measurable reductions in electricity and water use in the residences, and prevent the associated carbon dioxide emissions; save money on utility bills; foster a culture of conservation within [the] campus community; [have campuses] participate in a program that enables students to teach themselves conservation behaviours that they can employ in the home and workplace in the future; [and] enable students to develop leadership and community organizing skills (About CCN)

Engagement, education, motivation, and empowerment of students were certainly at the forefront of the competition planning, all the while promoting life-long behavioural changes so as to reduce impact on the environment. The success of the program in achieving these goals is discussed in the evaluation section.

Pre-Competition Planning

The *Do It in the Dark* competition had been a long time in the making before it actually came to fruition. The concept of a behaviour change initiative developed through collaboration between the UBC Climate Action Plan developers, the Campus Sustainability Office, UBC Common Energy, and Totem Park Residence staff and students. These key players each worked to take the idea from a boardroom discussion to an energy competition which engaged over a thousand students.

The competition organizers began conceptual planning during the Climate Action Plan roundtable discussions and visioning process. The initial thoughts behind a behaviour change campaign at UBC began to develop at this time while the concept of an energy competition developed quite gradually. These first discussions led to the decision that a behaviour change initiative for the UBC community should take place. However, exactly within what context was still in question.

Meanwhile, the sustainability academic community was gaining interest in energy competition through forums such as the Association for the Advancement of Sustainability in Higher Education (AASHE) conference. At the AASHE conference, Oberlin College featured its competition success and use of the online realtime monitoring dashboard (Ferris). It was at this time that UBC staff connected with Lucid Design and the Campus Conservation Nationals. Lucid Design is composed of a group of Oberlin College graduates who, after having developed the building dashboard software, designed the Campus Conservation Nationals which allows universities and colleges across North America to compete against one another to achieve the greatest percent reduction in electricity and water consumption below baseline values. The competition idea itself then began to be expanded by the UBC Campus Sustainability Office.

The Campus Sustainability Office already had a close relationship with the goBeyond project, a BC campus network for climate action, and Common Energy UBC, a group that works to bring the university beyond climate-neutral (essentially the university would be doing more to solve climate change than to cause it). Since these relationships were already established the Sustainability Office then connected with the Common Energy Challenges team (of which I am 2010-2011 coordinator) to pursue the energy competition. It was at this point, in July and August 2010, which I became much more involved in the planning of the competition. Over the same period investigation took place into the best-practices and strategies of other university and college energy competitions. This was so as to develop a better understanding from which planning could begin. The Common Energy Challenges team then took on a significant role in the on-the-ground implementation of the competition in collaboration with the Sustainability Office staff and the Residence Life staff.

By September 2010, the full competition planning team was organized. It was composed of the Common Energy Challenges Team, the Totem Sustainability Committee, and Liz Ferris, an intern with the Campus Sustainability Office. This group went on to lay out a plan for the entire competition. The support of the university staff through the facilitation of meetings by Ferris, a budget provided for prizes and miscellaneous costs, and, of course, the actual installation and upkeep of energy monitoring hardware in the buildings and the software of the online building dashboard program was certainly crucial in making the competition possible. The university's support of the full team then allowed that group to focus on student engagement whilst the Sustainability Office managed the energy monitoring itself.

The entire process which led to the eventual planning (and implementation) of the competition involved a number of different campus stake-holders. As Liz Ferris put it, the entire

planning process was a “really synergistic thing in which all of the pieces just fell into place [...] the right people were sitting down at the right times in the right conversations [and] everyone was involved” (Ferris). This synergism and inclusion found in the process acted as a true catalyst for the later success of the student engagement events and initiatives.

Key Players

There were three key players who all played a significant role in the organization of the *Do It in the Dark* competition. The three main groups involved in the implementation and planning of the *Do It in the Dark* competition were the UBC Campus Sustainability Office, the Common Energy Challenges Team, and the Totem Park Sustainability Committee. Each group had specific roles within the competition but the cooperation between the three is certainly a contributing feature to its success.

The Campus Sustainability Office (CSO) was certainly a key player in the organisation of the competition. The CSO worked with Building Services to have energy monitoring hardware correctly installed in each building as well as connecting that hardware to the software program of the building dashboard. Additionally, a significant amount of research was conducted the summer prior to the competition by CSO staff who were a great resource when determining the programming for the *Do It in the Dark* competition. During the competition planning itself, Liz Ferris, a UBC MA student and CSO intern, facilitated meetings between the groups and acted as an incredibly knowledgeable resource because of her history of involvement in campus sustainability. Lastly, the University also offered financial support in the form of funding for the house prize, booth supplies, and t-shirts as well as some other miscellaneous items. This budget not only eased the funding of the initiative, it also allowed the student volunteers who were planning the competition to feel legitimate support from the university in their endeavours. Overall the CSO's support of the competition was certainly a crucial component of the team.

The Common Energy Challenges Team's main role was the planning of student engagement programming. Common Energy is a five-year-old student-led environmental group on campus with the mission statement to "bring the university beyond climate neutral." Common

Energy is broken down into four distinct subgroups: Tangible Solutions, Education, Dialogue, and Challenges. During the competition planning and implementation period the Challenges team had six members. The Challenges Team worked closely with the Totem Sustainability Committee to implement many of the student engagement programming.

The Totem Sustainability Committee is composed of a Residence Coordinator (who oversees an entire house), a Residence Advisor (who oversees a floor), and a number of residents. The Totem Sustainability Committee has the mandate to implement sustainability initiatives in Totem Park so as to better engage students in sustainable actions and issues. The support of the Sustainability Committee, in turn, gave the Challenges Team and the Sustainability Office a more direct relationship with Residence Advisors throughout Totem. Working more closely with the Residence Life Staff was a great advantage because Residence Advisors have a very close relationship with their residents and so, when at events, Residence Advisors could better engage students than what other competition organizers would have been able to do. The Sustainability Committee, together with the Challenges Team, organized the student engagement aspects of the competition.

The Campus Sustainability Office, the Common Energy Challenges Team, and the Sustainability Committee together produced a successful student engagement strategy which will be completely described later on. The cooperation of these three groups was critical in reaching as many useful resources as possible and connecting with the students through the best routes. Just one of these three teams would not have likely been able to produce the same results alone – it was the cooperation that truly brought about success.

Events

Events and outreach in Totem Park were large contributors to Totem's success. The student engagement activities ranged from magicians to booths in the Commons Block and mascots to glow-in-the-dark condoms. The goals of the team's outreach were to engage students in a new, fun and exciting way; get students thinking about the energy competition and their own energy consumption; connect with every Totem Park student in at least one way; significantly reduce the overall energy consumption in Totem Park; and, finally, make long-lasting changes to student behaviour.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<i>Calendar of Events:</i>				28: Sex with Your Advisors	29	30
31	1: <i>Competition Kick-Off!</i> Dine in the Dark; Booth; Study Ballroom	2	3	4: Earth Hour Kick-Off, 8-9pm; Booth; Study Ballroom	5: Capture the Flag in the Dark	6
7	8: Booth; Study Ballroom	9	10	11: Booth; Study Ballroom	12: Camp-Out in the Dark	13
14	15: Booth; Study Ballroom	16	17	18: Magic in the Dark; Booth; Study Ballroom	19: <i>Competition's Final Day!</i>	20
21	22	23	24	25	26: Totem Formal, Prize Draws and Winner Announcements	27
28	29	30				

The "teaser campaign" began on October 28th, four days prior to the start of the competition, in conjunction with the annual sex-education event in Totem Park called *Sex with*

Your Advisors. At this event the *Do It in the Dark* team handed out glow-in-the-dark condoms featuring information about the upcoming competition. They simply read: “Do It in the Dark: November 1-26th.” This simple campaign raised interest about the competition and, by connecting with the most popular Residence Advisor-led event in Totem Park, the *Do It in the Dark* team was able to reach out to a number of students, in particular those who may not have attended a “sustainability-labelled” event.

The kick-off event took place on the first day of the competition, November 1st and, again, included all students and not just those who have a predisposed interest in environmental initiatives. The *Dine in the Dark* event featured a candle-lit dinner in the dining hall and a booth at which students could find out how to get involved (and why they were eating in the dark). Additionally, volunteers from the *Do It in the Dark* team spoke with every individual student about the competition. By hosting the kick-off in the dining hall the team was able to engage all Totem Park students and, by having the booth, students who wanted to become more engaged were able to do so while those who may not have been as interested could still become better informed. The logistics behind planning this event were as simple as speaking with the dining hall staff to allow for the lights to be shut off and buying the tea-lights which were lined along each table. The issue of environmental soundness of tea lights was brought up in several circumstances. It was not known whether the energy saved by turning out the lights actually offsets the amount of energy and resources used in the production of tea lights. However, it was disregarded because the net gain of the eventual energy reductions made by students in their daily lives would certainly offset any differences. A significant amount of good feedback was received from both students and Residence Advisors about the *Dine in the Dark* event because it sparked interest and involvement without students having to commit any more time or energy

than eating dinner. It was suggested that in the future *Dine in the Dark* should take place much more often because of its fun atmosphere, ease of organisation, and engagement of all students.



Figure 1: *Dine in the Dark*.

In response to the enthusiasm received about the kick-off *Dine in the Dark* event, it was decided that the finale event would also take place in the same form. An added dimension to the finale *Dine in the Dark* was a magician's performance. A magician who is a UBC alumnus and goes by the stage name Aaron Martini performed during dinner in the dining hall. The purpose of having a magician perform was two-fold. Firstly, it was a celebration of the students' success throughout the competition. Secondly, by engaging students in a fun activity, the event ensured that students were thinking about *Do It in the Dark* throughout the evening. Although the event itself did not reduce energy consumption, the increased awareness of the competition likely would have done so. Since this event occurred on the last night of *Do It in the Dark* it was an effective way to communicate to students that they take part in what was labelled "the final

push.” Essentially, the second *Do It in the Dark* event acted as a fun way to celebrate accomplishments and push students to continue to reduce for the final 24 hours.

“Boothing” occurred every Monday and Thursday throughout the three-week-long competition. The first booth was set up in the dining hall for *Dine in the Dark*. After that the booth was located in the main concourse of the Commons Block. The booth was staffed by the organising team’s members and was one of the most effective ways to engage students. Each evening, students were encouraged to visit the booth through a number of incentives. Firstly, students had the opportunity to check the online energy monitoring dashboard on one of a number of laptops set up at the booth. This new environment, in which they could investigate the standings, meant that rather than students viewing the dashboard alone they viewed it together. The collective viewing of the dashboard instigated conversation, competition, and inspiration. Secondly, the booth allowed students to share ideas. Whether this occurred organically through conversation with competition organizers and one another or through the prompt of the “ideas board,” the ability to gain knowledge from others was a key component of the booth. The “ideas board” allowed students to share by offering a paper star to all students at the booth upon which they would write one commitment or idea that they could share for energy conservation. The ideas board is discussed in more detail in the following “messaging” section. Thirdly, BC Hydro campus representatives were able to booth in partnership with the competition organizers. At that time students were offered a number of fun prizes for answering questions about energy conservation. Lastly, general prizes were also available to students. At the booth (as with all of the outreach events) students were able to fill out a ballot with their name, room number, and house and enter it into a draw which took place at the Totem Formal a week after the competition. Prizes included 14 *Do It in the Dark* t-shirts, four \$30.00 gift cards to a nearby

restaurant, three Grouse Mountain lift tickets, three \$75.00 UBC Food Services gift cards, and an iPod Nano. Additionally, a House Brunch was awarded to the house with the highest percent reduction in energy consumption. The booth was one of the most effective ways to engage students because it was simple, could take place often, and helped to provide interaction with all students (typically as they went to the dining hall).

The *Do It in the Dark* mascots made up another fun engagement strategy for Totem students. The two main competition mascots were “Captain Kilowatt” and “Phantom Power” both of whom were dressed in morph-suits and were used to promote the energy competition. The mascots, however, were less successful than other outreach campaigns simply because of the people-power required to implement such a strategy. This would be an interesting type of outreach to re-approach in later competitions because its potential was certainly visible. Students were receptive to the mascots; they just needed to be “played” by committed, outgoing individuals who could do so throughout the competition period.

The most exciting event in terms of actual energy consumption reductions was certainly our “Earth Hour” kick-off event. This event encouraged students to turn off anything over which they had control for one hour, 8-9pm, on the first Thursday of the energy competition. Earth Hour was based on the World Wildlife Fund’s global Earth Hour event which takes place in March of every year. That event encourages individuals all around the world to shut off their lights for one hour. The *Do It in the Dark* Earth Hour allowed students to observe a visible reduction in their energy consumption during that hour on the online energy dashboard. This engaged students with the dashboard because of the immediate excitement when a noticeable drop occurred. A more in depth discussion of the actual energy reduction during Earth Hour is in the “Evaluation” section.

A significant focus of the competition was to connect with students who may have otherwise not engaged in climate action and certainly those who would not come out to a sustainability-themed event. This was apparent in the *Dine in the Dark* events and twice-weekly boothing. In addition to these, two events took place which directly targeted the so-called “disengaged” cohort of students. The first of these events was *Capture the Flag in the Dark*, which took place on the first Friday of the competition. This was a simple game of *Capture the Flag* which took place on the back field. The hope of the event was that it would attract disengaged students and thereby ease them into starting to think about the energy competition because they could actually associate with it in a fun way. The second event was *the Camp Out in the Dark*. This was set to take place outdoors and was to allow students sleep on the backfield. However, due to weather, it actually happened in the ballroom in the Totem Commons Block. At the Camp Out a sustainability-themed documentary was screened against the wall and students were encouraged to spend time together watching an entertaining movie which opened up a platform of discussion about sustainability. The turn-out to this event was less than expected likely because of its timing on the second Friday of the competition which was in the midst of mid-term exams. It also entailed a longer time commitment than other events.

The events, together, created an effective engagement program for students. The teaser and kick-off excited students with all that was to follow. The Earth Hour event showed students their potential reduction capabilities.

Messaging

Messaging played a crucial role in the competition because it allowed the organizers to share critical information with residents about the competition itself, upcoming events, and ways to reduce energy consumption. Contact with residents prior to and during the competition was incredibly important to the competition's success. Messaging was primarily through posters, the branding of the competition, Facebook, and an ideas board in the Commons Block.

Firstly, the posters for the competition came in two forms: formal and informal. The formal posters were produced by the Campus Sustainability Office. These posters also featured the *Do It in the Dark* logo which was created so as to actually represent the layout of the Totem Park residence houses through the positioning of the stars (see Figure 2). The Sustainability Office's posters were designed so as to engage students in the concept of the competition itself. The more informal posters, on the other hand, were designed by the Totem Sustainability

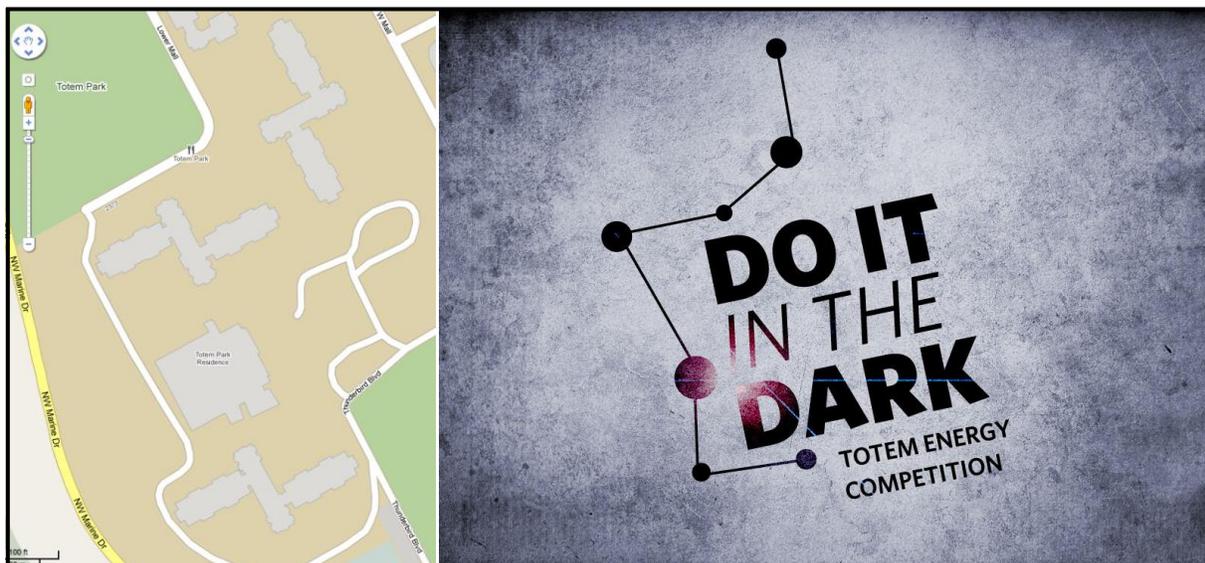


Figure 2: (1) Google Map of the Totem Park residence houses. (2) *Do It in the Dark* logo with a "constellation" mimicking the layout of the Totem Houses.

Committee and featured fun slogans about energy conservation. For example, one read “Keep off the Freshman 15 and take the stairs.” (The so-called Freshman 15 is a colloquial term for the 15

pounds that first-year students can “expect” to gain as a result of a change in lifestyle when moving away from home.) These posters were hung throughout each residential house’s floors as well as around the Commons Block in study spaces and in the dining hall. They were also displayed at the twice-weekly booth set up in the Common Block. Posters were a useful component of outreach because the formal ones were able to build interest in the competition while the informal ones gave students tangible ways to reduce their energy consumption. Together, these posters were a valuable form of outreach.

Secondly, the overall branding of the competition, which is apparent in the posters, was also an incredibly important component of the messaging. Though quite basic, the use of the somewhat racy-sounding slogan, *Do It in the Dark*, was an instant attraction for students. It was important to the competition organizers that the name of the competition and its branding not be boring or “too sustainability sounding” for fear of disengaging students who do not have an interest in environmental issues. By introducing the event at *Sex with Your Advisors* and handing out condoms (as discussed in the events section), *Do It in the Dark* immediately became a popular concept.

Thirdly, messaging was used most advantageously through Facebook. The successes of the Facebook site were incredible, reaching over 1000 Facebook users each day. The Facebook page for the *Do It in the Dark* contest allowed students to view upcoming events, share ideas, learn the actions that could be taken, check the daily results from the dashboard, and access the link to the dashboard. The URL to the online dashboard was somewhat long and complex so the links on the Facebook page were frequently used to access the page. The Facebook page was used, for the most part, to share information. There was certainly great potential to take further advantage of the Facebook page through the incorporation of online competitions such as photo-

upload contests. This is something that can be considered in the future when examining the uses of Facebook as even more than simply an informational tool.

Lastly, the ideas board was the most interactive form of messaging engagement. The ideas board was a central part of the Commons Block outreach during the competition. It was a board on rolling wheels located in the Commons Block for the duration of the competition. It allowed students to actively share ideas and learn from one another as well as make a public commitment to take action. The ideas board was composed of a calendar of upcoming events, current house standings, and, most importantly, the “ideas” section allowed students to post

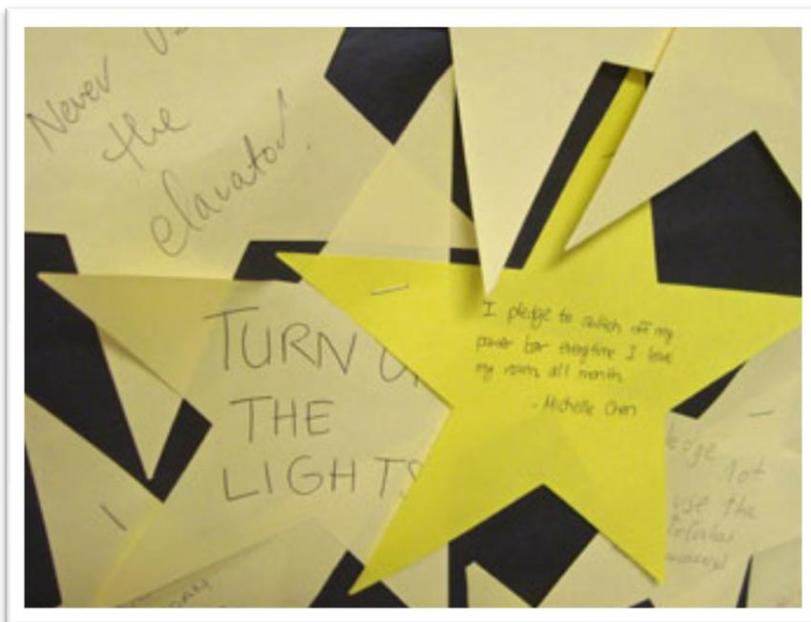


Figure 3: The paper star commitments on the ideas board.

students chose to make an anonymous contribution whilst others listed their names. The range in the content on the stars on the ideas board was truly impressive. From the very simple, “I commit to turning out my lights whenever I leave the bathroom” to the more complex “I commit to creating a carbon-neutral campus”, the ideas board was an exciting way to engage students with an informative and involving activity at the booth.

paper stars upon which they had written their personal commitment for the competition. This “earned” students a ballot with which they could enter the draw. Names were not mandatory to include on the star and so some

Overall, these messaging strategies worked well to promote the competition as well as communicate sustainable actions to be taken in order to reduce energy consumption. The combination of posters, Facebook, and the ideas board created an effective means of communicating key messaging with students. Each of these components of messaging was useful in bringing students together and mobilizing positive involvement.

Actions

For the students participating in an energy competition it is critical for them to have a number of actual tangible actions that they can take to reduce their energy consumption. For students at Totem Park there were a number of incredibly effective targeted actions that students were able to implement in their daily lives. The actions that students were able to take in the Totem Park residence included:

1. Turning off the lights: these included lights in their own rooms as well as common spaces such as the floor lounges, hallways, and washrooms. Residence Advisors contributed greatly to the success of shutting off lights in shared spaces because when doing “rounds” through the house each evening they would shut off unnecessary lighting.
2. Unplug chargers when not in use: education around phantom power (the power consumed by electronics when not in use) was one of the most meaningful new components to energy consumption that students learnt during the competition. Students began habitually unplugging chargers (iPod, cell phone, and laptop) as well as other electronics (TV’s, DVD and CD players) when not in use.
3. Use sleep mode on computers: switching the settings on laptop computers became a very useful tool for Totem Park students because most students had never actually investigated their power settings.
4. Take the stairs, not the elevator: the habitual action of taking the elevator was only changed as a result of collective pressure. Posters were hung on the front of the elevator encouraging students to take the stairs instead. Whereas many of the encouraged actions were more personal and limited to the dorm rooms themselves, the use of the stairs became a collectively encouraged action which could be implemented through posters at

the point of decision (the elevator door). Students pushed one another to take the stairs and a “stigma” grew around taking the elevator instead.

5. Hang clothes to dry: since the laundry rooms were monitored for the energy competition many students simply did not do laundry! However, this is clearly not a practical action and therefore the competition encouraged students to wash in cold water and hang their clothes to dry. Some residence advisors also organized the sharing of drying racks on their floors.
6. Not use hairdryers: primarily for female residents, the act of air-drying their hair became an effective energy saving strategy. It is unknown just how many students put away their hair dryers for the duration of the competition though it is known that students found this to be an interesting energy saving strategy because many had not previously considered the impact that their daily routine may have been having on their energy consumption.
7. Unplug vending machines: this was, without a doubt, the most creative way in which students saved energy. The first-place house, Haida, actually came up with the idea of unplugging their vending machines and then simply plugging them back in to buy a drink. The students found the machines to function just as well as if they had not been unplugged and were not bothered by the fact that it did result in room-temperature beverages.

These actions all offered students effective ways to reduce their energy consumption. Some of the actions were entirely individualistic while others incorporated collective action. Some allowed students to be held accountable by their peers while others were implemented by students completely solitarily. No matter which action or collection of actions students chose to

implement, the total collective energy savings were certainly the result of a high number of students taking part in a wide variety of actions.

Barriers to Action

Students taking part in *Do It in the Dark* had great successes because they were able to become incredibly involved in the competition. While students had a variety of actions they could take to reduce their energy consumption some still faced barriers. These barriers were, firstly, infrastructural and, secondly, out of forgetfulness.

Totem Park students had somewhat limited actions they could actually take. This was as a result of the combination of the fact that heating was not electric and the Commons Block was not monitored. The heating in the Totem Park residence is not powered by electricity which created a source of confusion for many students. Questions like, “Why am I not being encouraged to turn down my heat?” or “Why doesn’t heat matter?” led students to make conclusions that heat does not have an effect on electricity consumption. Though true in Totem Park, that condition does not apply very widely to other living situations which students may later encounter. This made the heat component of the energy reduction actions conversation very important because of the danger of students assuming that heat does not make any difference. It became important to explain to students that, though the heating did not contribute to the competition, it is still important to be conservative in any consumption of energy in one’s daily life.

The location of the Commons Block also played an interesting role in the competition. That is because only the houses themselves were being monitored while the Commons Block, which is separate from all of the houses and shared among all residents, was not. This meant that students could not affect their energy consumption in the form of how meals were prepared or how shared spaces were lit. One suggested event was a “cold food” day which would feature oven-free cooking. However, the feasibility of this was difficult and, since it would not have

changed the energy consumption, it was decided not to be worthwhile. The Commons Block would certainly be an interesting building to monitor in the future so as to allow for more collective action and a wider range of actions to be taken.

The greatest barrier to action, other than the physical infrastructural variables, was simply forgetfulness. Many of the actions that students were encouraged to take happened in the dorm room. Even though students had committed at the involvement booth in the Commons Block and were excited about the competition they sometimes had a more difficult time staying engaged enough to take action on their own. The forgetfulness experienced by some students certainly is indicative of just how engrained many of these actions are in daily life. However, this was counteracted as much as possible by engaging residence advisors living on each floor, increasing posters, engaging over Facebook, and designing events that students would keep thinking about later.

Residence advisors played a critical role in combating forgetfulness. Given that residence advisors live on every floor, they have an extremely close connection with their residents. This allowed them to encourage energy reduction at any time of the day or night, often in situations in which an “outside” organizer would have been unable to intervene. Additionally, residence advisors frequently turned off lights in public spaces which encouraged a community of energy conservation. Residence advisors’ encouragement was incredibly important in reminding residents to take part in the *Do It in the Dark* competition.

Posters acted as the simplest form of deterring forgetfulness. They were hung in key locations such as the elevator doors to encourage taking the stairs, the bathroom stalls, and in the busiest place in Totem Park (the cafeteria, stairways, and halls). The posters at point-of-decision locations were the most effective, such as those hung on the doors of the elevators versus those

hung on bulletin boards. Overall, posters allowed the *Do It in the Dark* team to share actions with the residents at key locations when it may have been impossible to actually have an individual there encouraging such an action.

Facebook was also a useful tool in implementing behaviour change actions because students often check Facebook when in their dorm rooms at which time the Internet is the only possible route to reach them. With over 1000 daily hits, the Facebook page certainly acted as an effective means of communicating with students.

The events were the last combatant of forgetfulness. Events were designed, as discussed earlier, to attract students who may not have had a pre-disposed interest in energy conservation and to be exciting enough to keep thinking about in the future. The hope behind this philosophy is that, after a student has a fun evening, they will likely keep thinking about the event and *Do It in the Dark* well past the event's end. This made events a fun way to encourage engagement in the competition and ensure that students remembered to take action.

It is impossible to always be present to encourage positive action, especially in the case of an energy competition when the responsibility is on the student to actually turn off the lights or hang their clothes to dry, for example. The infrastructural challenges are not easily dealt with while the combating of forgetfulness was a central goal of the competition outreach. More actions can certainly be taken to deal with forgetfulness all of which are discussed in the recommendations section.

Evaluation

The *Do It in the Dark* competition achieved significant energy reductions throughout the competition period. Both the quantitative and qualitative results offer considerable evidence for the effectiveness of the energy competition format for instilling energy reduction practices in students living in residence. The evaluation mechanisms discussed include the style of data collection, possible problems associated with the data, the overall consumption of data in both the inter-house and inter-university competitions, as well as quantitative data collected through prize ballots and Facebook, and, lastly, qualitative observations made by residents and residence advisors.

The online dashboard software (see screen shot on next page) is a useful tool in the collection of quantitative data. Students were able to access the dashboard throughout the competition so as to individually examine the data themselves, thereby allowing the data itself to become a motivator in the competition. The placing on the dashboard was determined by a percent reduction below the baseline measurements. The baseline measurements were taken the week prior to the competition. The team strategically did not begin advertising the competition (except perhaps by minimal word of mouth) until the *Sex with your Advisors* event because any energy reductions during the baseline period would have negatively affected UBC's standings during the competition. The baseline can therefore be accepted as an accurate representation of the typical energy consumption throughout the competition. The placing of each house and of each college was determined by the percent reduction from the baseline.

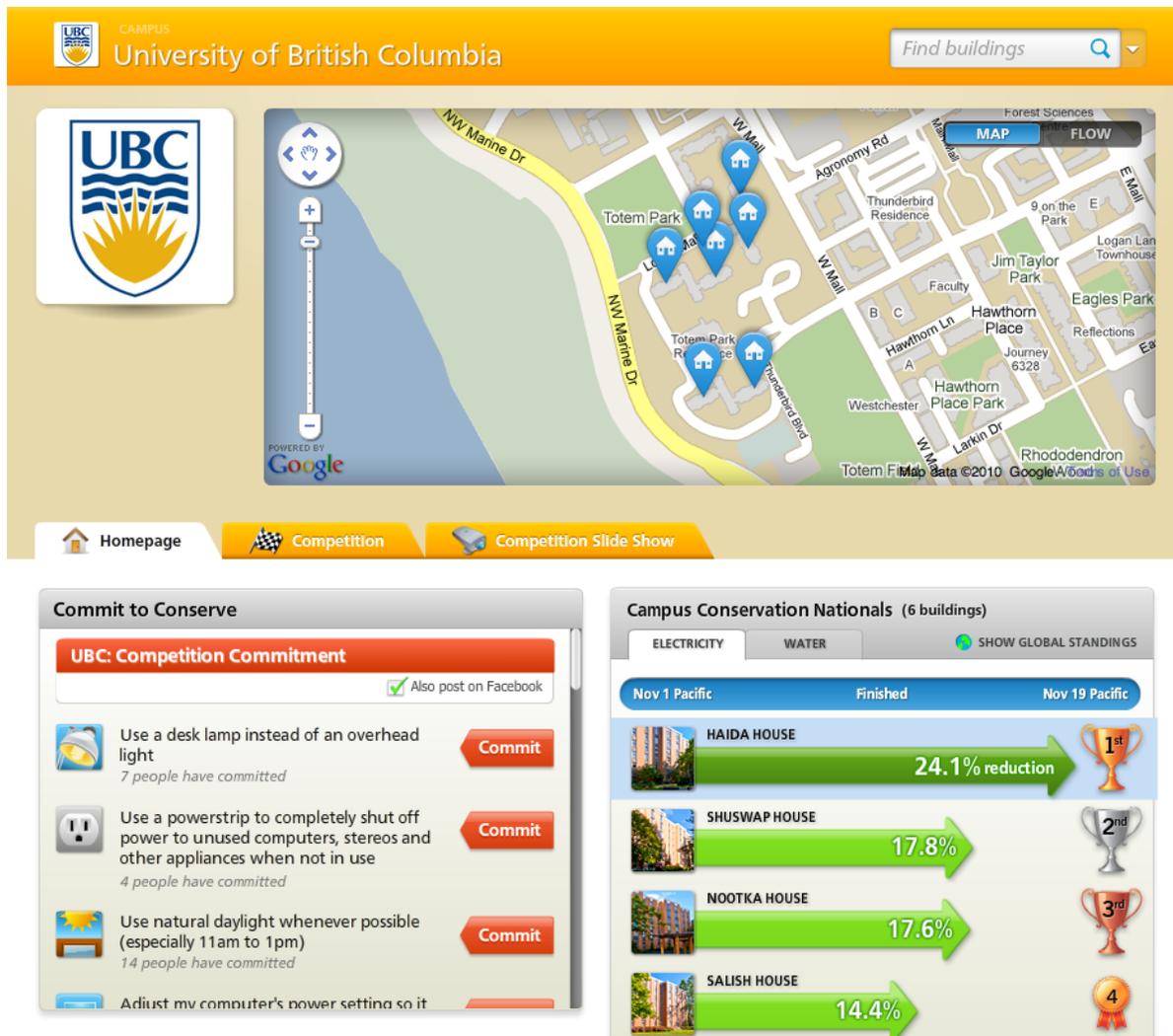


Figure 4: A screen shot of Lucid Design Group's online building dashboard for Totem Park.

Of course, some problems are associated with the percent below baseline style of monitoring. There are obvious variations between residences which may affect their ability to reduce energy. Variants include laundry facilities, elevators, weather, heating, cafeteria location, and prior behaviour of residents. For Totem Park, most laundry facilities are shared between two houses and therefore the hardware wiring was done so as to evenly divide the electricity consumption between the houses. There are elevators in every house in Totem which may have provided students with an advantage because when elevators stopped being used (for the most part) the students achieved significant reductions. Weather has been consistently offered as

possible variant because November is likely always colder than October. This could negatively affect locations where the weather becomes significantly colder in November compared to those places where the temperature does not change. However, for Totem, the heating system is steam-powered and not included in the competition because it was based on electricity consumption. The cafeteria location may be one of the most prominent variations between residences. Totem's cafeteria is shared by all six houses. It is located in the Commons Block which is a central building detached from all houses and was not on the grid for energy consumption. This may have offered Totem an advantage in the competition due to the fact that students could have decided to spend all of their time in the Commons Block and therefore have been "off the grid." However, through investigation of the Commons Block, this was seen to not be the case as study and lounge spaces in the Commons Block did not become any busier than usual. These apparent possible advantages to Totem could have affected its overall standings against the other universities as it is unknown whether other institutions also had similar formats, challenges, or locations. Regardless of the standing in the competition, however, a percent reduction of any type does indicate changes made to student behaviour. One variant that may have affected different houses or different campuses and certainly will affect Totem Park in the future is the prior behaviour of building residents. A house which is consuming high amounts of electricity before the competition is potentially able to reduce much more than a house that is already acting sustainably. This factor may be unintentionally "punishing" houses that already have low levels of energy consumption. For this reason, some may advocate for energy competitions taking place only in first year residences because of the increased rates of turn-over. In this sense, students who learn more conservative energy consumption techniques will not be "punished" the following year when they are already consuming less energy. For the most part, however, none

of these factors should cause the reader to disregard the accomplishments of the energy reductions during the competition period.

The overall reduction in energy consumption for the entirety of Totem Park was 16.3%.

This put Totem in second place in the overall competition with DePauw University of



Figure 5: Screen-shot of the online dashboard display at the end of the competition showing the top seven universities out of the 40 competitors.

Greencastle, Indiana taking first place with a 25.8% reduction. The 9.5% difference between first and second place compared to just 0.8% between second and third indicates significant potential for higher reductions in future competitions. See Figure 5 for a display of the final standings of the

competition. Although the strategies of DePauw's

competition are not known, a possible reason for their success may simply be the size of the university. DePauw's total student population is just 2,394 while UBC's is about 40,000. Indeed, just the population of Totem Park alone is about 1,200. In terms of engagement, one would expect a smaller campus to take less effort to involve all students. The reduction of 16.3% below

the baseline was equivalent to 8989 kilowatt hours which is enough power for one 60-watt light bulb to run for 17 years, or 200 bulbs for one month. These reductions show significant student efforts and the potential to truly change the energy consumption behaviour in student residences.

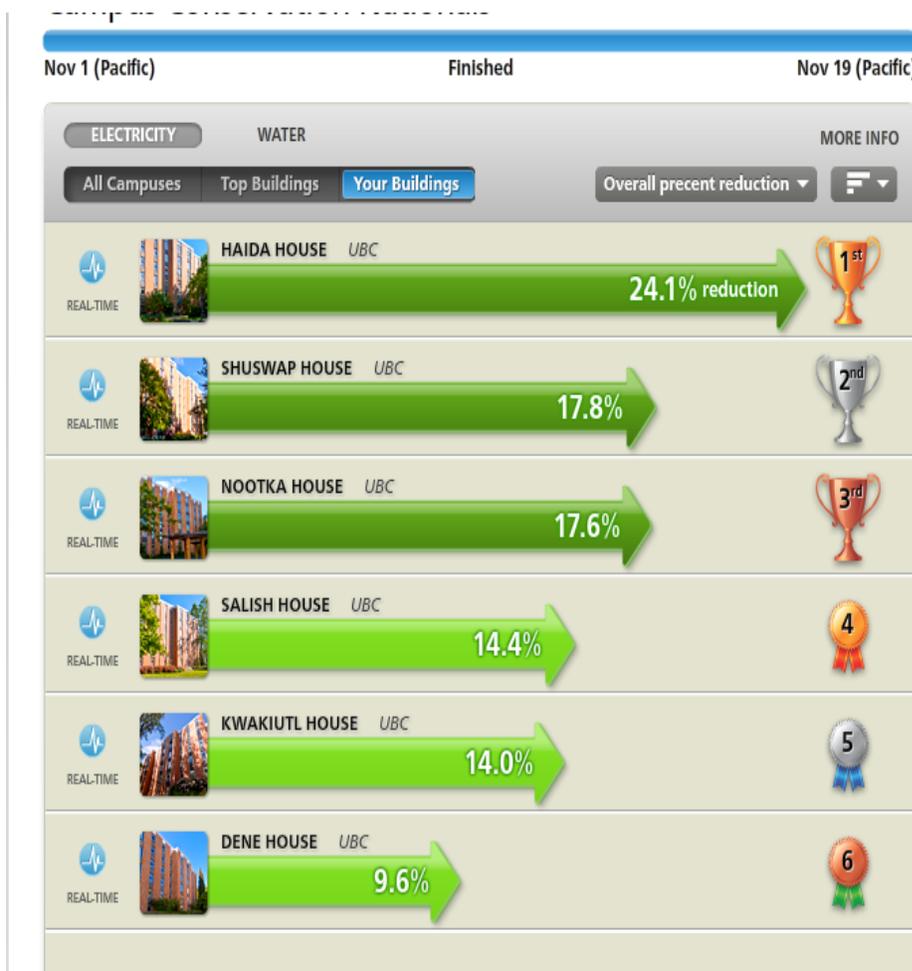


Figure 6: Screen-shot of the online dashboard display at the end of the competition showing the six houses in Totem Park.

shot of the final competition standings for the inter-house competition. The 14.5% range in the competition standings between Haida's significant 24.1% reduction and Dene's more minimal 9.6% reduction is certainly a point of interest. The same programming, advertising, and outreach were offered to all Totem residents which raises the question of why Haida reduced so much more than Dene.

The six houses within Totem Park took part in the inter-house competition, as well. This competition was won by Haida House with a 24.1% overall reduction in consumption, followed by Shuswap with 17.8% and Nootka with 17.6%. Figure

6 displays the screen

This question can be answered by investigating the involvement statistics. So as to monitor involvement a ballot system was implemented in the competition. Simple paper ballots were offered to students at all events and at the twice-weekly booth when students spoke with *Do It in the Dark* organizers. These ballots were entered into a draw in which students could win a number of different prizes, as listed earlier. On the back of each ballot students had to list their name, house, and room number so that we could contact them after the draw. Each house's involvement in events was tracked by the number of ballots submitted throughout the competition by students from that house.

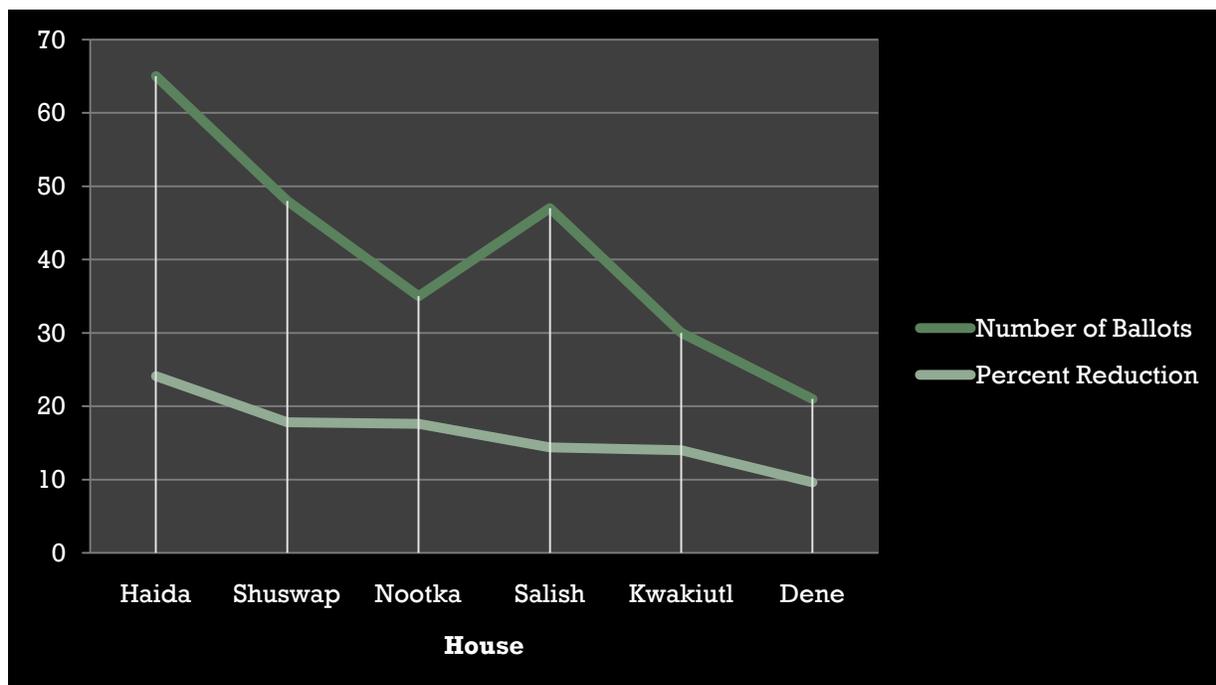


Figure 7: A comparison of ballots per house collected and the percent reduction per house showing a connection between student engagement and energy reduction.

There is a fairly clear correlation between the number of ballots collected from a particular house and that house's percent energy reduction. This shows that there is, indeed, tangible value in the programming in the *Do It in the Dark* competition. The above comparison between Haida's 65 ballots and Dene's 21 ballots shows that student engagement led to higher energy reductions.

One counter-argument could be that, in fact, this shows that students who are pre-disposed to interest in energy reduction will come out to events as well as reduce their energy consumption. This may in fact be the case but would not affect each house's standing because UBC Housing purposefully diversifies each house by not distributing students by where they are from or what they are studying. Therefore, the chances of some houses having high concentrations of students who are interested in sustainability issues are diminished. A factor which certainly may have contributed to this correlation is that several of the Residence Advisors in Haida house were on the Totem Sustainability Committee whereas none of the Advisors from Dene house were. Indeed, Haida house had very high representation in the Totem Sustainability Committee in terms of the number of Residence Advisors indicating that engaged Advisors led to higher reductions. This observation is elaborated upon in the "Potential Adaptations and Recommendations" section later on.

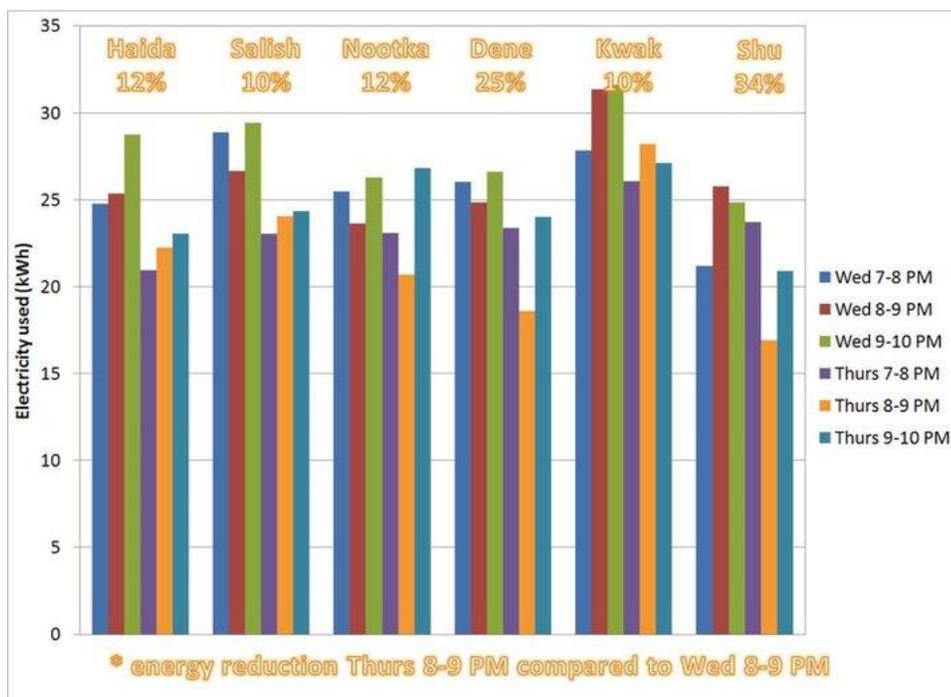


Figure 8: Students were encouraged to shut off all power on the Thursday from 8-9pm. This reduced power consumption significantly below the consumption the night before in the same time period.

In order to engage students in the use of the dashboard and inspire students by displaying the true ability to reduce, the organizational team ran the pseudo Earth Hour event on the first Thursday

of the competition. This, based on the World Wildlife Fund event, was a huge success in Totem Park in encouraging students to take more “extreme” measures.

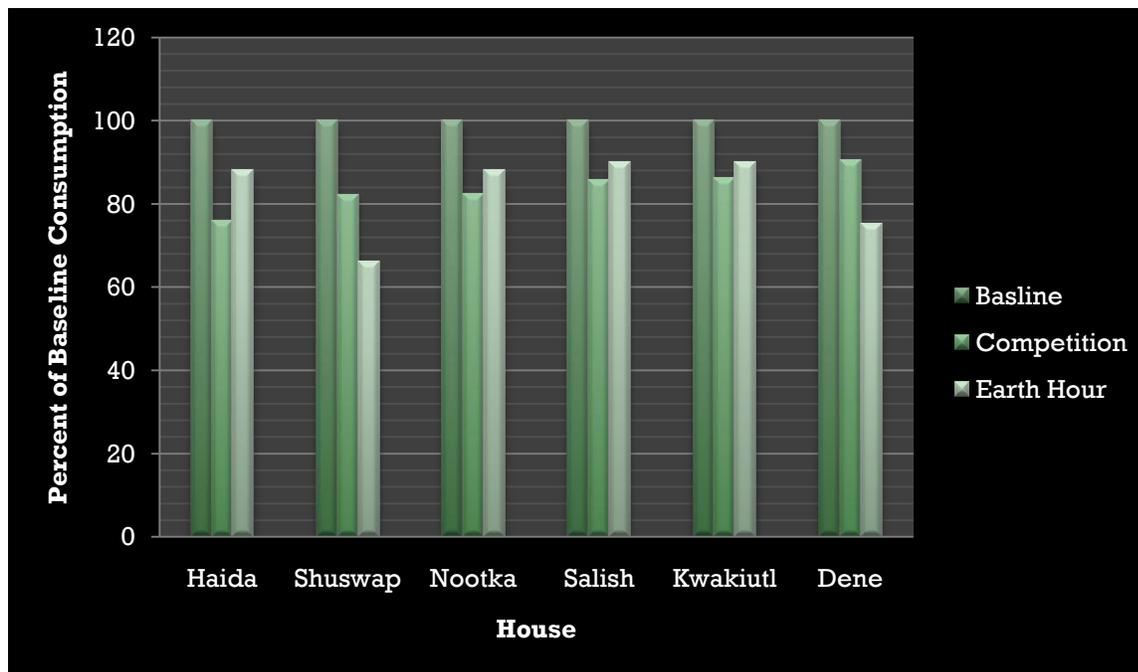


Figure 9: This graph compares the baseline consumption to the values of consumption below during the competition period and during Earth Hour alone.

Other than the quantitative data retrieved from the online energy competition dashboard, visits to the Facebook page were also being monitored. The Facebook page truly indicates the high level of engagement in Totem Park. Throughout the competition period there were 1094 unique daily visits. Additionally, there were 2224 logged-in page views during the competition which makes it safe to believe that a huge portion of Totem students actual did visit that page considering that there are only 1200 students in total. The fact that the Facebook page attracted 1000 views more than the number of students participating also acts as an exciting indication of the potential for one competition to share knowledge and engagement with those who may not actually be participating. Not only was the Facebook page an effective means of communication and messaging, it also acted as an important data collection method.

The qualitative indicators of energy conservation also serve an important purpose in evaluating the effectiveness of the *Do It in the Dark* competition. Considering no surveys were conducted to judge changes in attitude due to time constraints at the beginning of the project, observed and discussed evaluations have, instead, become incredibly important. In discussions with residents and residence advisors alike, changes have been observed.

Students have observed that a number of actions have remained in use as a part of the Totem culture, even after the competition came to an end. The most significant changes in action have been the fact that elevators continued to go unused because students had simply become accustomed to taking the stairs instead. As well, the awareness of phantom power increased significantly and students now understand the importance of unplugging unused electronics and chargers. This action, in particular, was unknown to many students prior to the competition whereas actions like turning off the lights were much more obvious. That being said, even though students knew that turning off the lights was the easiest way to conserve energy many did not know that they were allowed to shut off lights in common spaces. The competition instigated a sustainable community in which students proactively shut off lights whereas before the competition students did not feel qualified to take such actions. These actions have been adopted by the student body as the norm now, rather than restricted to competition behaviour (such as not doing laundry).

Important observations have been made by a number of members of the Totem Park community. This includes residence advisor Roshni D'Souza who was also a Sustainability Committee Member. She observed the following:

The competition has been a fun and effective way of promoting sustainability at UBC and around Totem. As far as I can tell 'conserving energy' has not been a bother or hindrance

to anyone, but instead something that everyone just does. If nothing else many Totem residents are now aware of what ‘phantom power’ is and how much energy using an elevator really takes. (Do It in the Dark: Part 2)

Such an observation truly does indicate the strength of the competition in instilling long-lasting behaviour changes.

Across North America the competition conserved a total of 510,191 kilowatt hours throughout the 40 participating colleges and universities. This incredible reduction in energy consumption saved enough power for one 60-watt light bulb to run for a thousand years, or a thousand bulbs for one year. The quantitative data from the online building dashboard and the Facebook page as well as the qualitative observations indicate the significant effect of *Do It in the Dark* on energy consumption behaviours.

Future Evaluation Mechanisms

The evaluation mechanisms of the *Do It in the Dark* competition were somewhat restricted because the competition did not take place for the purpose of research. The quantitative data collection was limited to that which was derived from the online building dashboard, the ballot system, and the Facebook page. The qualitative data was retrieved purely through conversation with residents and residence advisors. These restrictions did not severely limit the ability to observe the successes of the competition itself although they did limit the ability to see the competition's greater effect and its longevity.

The larger effects of the competition on residents' behaviour, knowledge, and opinions would be better observed through a simple survey system. This was suggested during the competition but due to limited time and people power it was not feasible. However, a well-designed and properly implemented survey would effectively measure these greater effects of the competition. The survey would need to take place at least before and after the competition to measure net changes though there may be value in doing even weekly surveys so as to measure levels of involvement and engagement depending on each week's activities. The implementation of surveys would certainly be a useful means of measuring the competition's impact upon residents.

The competition's longevity is unknown in terms of quantitative data. Conversations with residents and residence advisors do indicate that continuity in energy conservation behaviours is observable. However, without measuring quantitatively, this cannot be scientifically proven. In order to truly observe the longevity of the behaviour changes during the competition it would be beneficial to continue to monitor energy consumption on the online building dashboard. This would allow the actual effectiveness of the competition to be measured in its implementation of

positive life-long energy consumption habits. For this reason, it would be valuable to monitor energy consumption after the competition itself ends.

Some simple alterations to the ways in which data was collected would offer beneficial information in evaluating the overall effectiveness of the competition. By conducting surveys of the residents before, after, and perhaps during the competition the educational value of the competition could be better understood. Additionally, the continual monitoring of actual energy consumption would allow for a better understanding of the longevity of the changes implemented during the competition. These are important variables for the University to take into account when considering the spread of energy competitions to other residences and/or before investing in other energy monitoring hardware.

Potential Adaptations & Recommendations

The success of the *Do It in the Dark* competition shows that behaviour change competitions are an effective means of creating cultures for improved energy consumption. As with any project, when reflected upon in retrospect, opportunities for adaptations and recommendations for the future become increasingly apparent. In looking forward to future competitions, both in Totem Park and other residences, there are a number of different components to take into consideration. The aspects of the competition that can be further examined for the purpose of planning ahead include a brief comparison of upper-year versus first-year residences, successes that can be built upon, additional programming options, further research opportunities, and more substantial for long term implementation.

In comparing first-year and upper-year residences one must consider a number of factors which may alter the way in which an energy competition would be implemented. These factors are described below:

	First-Year Residence	Upper-Year Residence
Involvement of Residence Advisors	High	Low
Turnover of Residents	High	Low
Control of Energy Consumption	Moderate	High
Engagement in Residence Activities	High	Low
Entrenchment of Energy Consumption Habits	Low	High

The involvement of residence advisors in the daily life of residents differs greatly between first-year and upper-year housing. Given that the residence advisors in Totem Park played such a critical role in the engagement of their respective floors and houses, alternative forms of engagement must be considered when looking to upper-year residence competitions. Secondly, the turnover of residents could alter the effectiveness of the competition. As discussed earlier, one possible issue is that an energy competition may inadvertently “punish” houses or residents

that are already quite conservative in their consumption. Some upper-year residences have residents that will live at the same location for multiple years and, therefore, if they participated in their first year it may be impossible to reduce any more consumption after their second or third years. That being said, there is certainly potential to simply alter the evaluation mechanisms for such a residence. Reductions could be measured below the original baseline from the first year, students could simply be pushed each year to reduce even more, one may assume that after a year students may not still be upholding their competition habits, or the competition itself could take place every other year. Thirdly, the actual control of energy consumption in upper-year residences is significantly increased due to full control over all living spaces, not just one's room. This allows for much greater potential energy reductions. Fourthly, actual engagement in residence-related activities decreases quite significantly in upper-year residences and, therefore, organizers may find lesser turn-out at events. This would mean that a much greater degree of planning may be necessary to engage the student body in the same way that was achieved in Totem Park. Lastly, the entrenchment of a person's energy consumption habits deepens over time and so, in terms of ability to instigate change, a first-year resident is likely much simpler because they have been in control of their personal energy consumption for a lesser amount of time than upper-years. It is important to consider each of these variations prior to beginning an upper-year energy competition while one must also take note that the greater the level of campus engagement the better.

Even if the energy competitions of the future also take place in Totem Park other considerations must still be taken. The *Do It in the Dark* competition experienced incredible successes largely as a result of a few key components which have great potential for expansion. The first of these key components was involvement of the Residence Advisors. This presents the

fact that it would be advantageous to the competition to have higher levels of engagement with the residence advisors. As seen in the evaluation section, the house with more sustainability-minded residence advisors (those on the Sustainability Committee) finished in first place whereas the house without any advisor representation on the Committee finished in last place. This must be taken into account in the future and more effort must be made to have all residence advisors participating to their fullest capabilities. This may come in the form of a full team meeting prior to the competition to create excitement among the residence advisors, or another route to making sure that all of the advisors are on board. Other forms of engagement that were of great use were both the Commons Block booth and the *Dine in the Dark* events. Both of these brought in a large number of people because students were already in the spaces when they took place. This meant that bringing together an “audience” was not an issue nor was the concern of only engaging those who were already interested. By increasing the frequency of these events so that they are “staples” throughout the competition period would greatly contribute to the community of sustainability being established. By incorporating more involved residence advisors with increased number of simple events the successful components of *Do It in the Dark* can be replicated with ease and the results can be improved.

The competition in November 2010 was planned with some haste and so with greater time and increased people power there would be great opportunity for more programming. A number of ideas were discussed in the competition planning but were not implemented due to time and energy constraints. These ideas were focussed around the actions that students can take. In future competitions it would be ideal to have more point-of-decision reminders such as the posters on elevator doors. These would include stickers to place beside light switches and wall outlets, reminder hangers to go in the shower stalls, and even stickers about energy settings for

computers. Featured actions would also be listed on door hangers distributed to every room prior to the beginning of the competition. Additionally, increased education about the energy competition would be beneficial in sharing the key actions as well as giving students guidelines such as explaining that it is permissible for students to shut off common light switches. Lastly, the potential to have more happening on the Facebook page is incredible. Suggestions were made previously to run competitions such as photo or video submission contests through the Facebook page to increase interactivity and further increase the number of visitors. These small additions and alterations to the programming have great potential to increase reductions and ignite even more passion within the student body.

There is extraordinary potential for further research around an energy competition. There is a great capacity to educate others about the energy reductions that were achieved at UBC. As discussed earlier, new monitoring tools can be implemented for both measuring the longevity of the changes and the advances in sustainability education as a result of the competition. Additionally, the concept of UBC as a living laboratory can be incorporated by allowing upper-year students to undertake course-related involvement in the energy competitions so that even those that do not live in residence find a way to play a part. This involvement could involve business students designing the marketing strategy, for example. There is certainly a great deal of research and academic potential waiting to be harnessed.

Long-term potential for the energy competition is exciting and inspiring. It presents even more opportunity for student involvement and greater energy reductions. Continued support from the University will be a crucial component in going forward. The relationship between Common Energy and the Campus Sustainability Office has been, and will continue to be, an important part of energy competition planning, implementation, and success.

The Campus Sustainability Office's leadership in the planning of the competition was both helpful and inspiring for the students working on the planning team. Its ability to work across departments at UBC and easily gain support from both residence life and buildings management staff was of significant importance to the competition. This is because, rather than a student having to work through office bureaucracy, the Campus Sustainability Office was able to implement much of the necessary cross-department collaboration. In addition, the Campus Sustainability Office had the resources to engage the most valuable people at UBC and was the initial reason behind the competition's existence. In the future, the Campus Sustainability Office would likely oversee energy monitoring hardware in buildings and the corresponding online building dashboard. While the number of structural components required to run a competition would lessen year by year, the Campus Sustainability Office would play a critical role in the structure of the annual competition.

During the *Do It in the Dark* competition the Campus Sustainability Office kept a presence and a role. Throughout the three-week competition period and in the pre-competition hands-on planning, the support that Common Energy received from the Campus Sustainability Office staff was of great importance. The design of the posters, logo, and messaging was all completed by Amanda Fetterly, who was working with the Campus Sustainability Office at the time, while each meeting and all of the planning was facilitated by Liz Ferris, a Masters student intern at the Office. This staff support allowed the student organizers of the competition to feel as though their University was truly behind them and certainly, through this, increased morale and motivation.

In looking ahead, not only can the Campus Sustainability Office maintain these relationships but Common Energy can also play its part in helping it to fulfill its goals.

Operational sustainability increasingly needs to incorporate behaviour change and education in order to truly make change. The programming put together by Common Energy certainly does make operational sustainability into a concept in which students can become involved and excited.

The potential for the Campus Sustainability Office to also work with Common Energy to expand the competition to reach more students is also a great opportunity for the future. This may entail expansion of the competition hardware and online dashboard to other residences including Place Vanier (the other first-year residence) and upper-year residences. As well, this could involve the eventual installation of actual physical touch-screen dashboards being installed in the Commons Block of Totem Park (and eventually Place Vanier). The feasibility of these projects as well as other future research can also be taken up in SEEDS research projects completed by students to investigate such options.

In conclusion, future competitions should, ideally, incorporate these recommendations. Without further research it cannot be expected that the *Do It in the Dark* format would correctly apply to upper-year student residences yet there is certainly potential for slight alterations to be made to accommodate those differences. As well, competition success can be built upon successes of the past such as working closely with Residence Advisors and the *Dine in the Dark* event as well as the Commons Block booth. There are a number of additional programming options that are also available for consideration such as more reminders to combat forgetfulness. The research opportunities for all members of the UBC community are exceptional and must be fully examined. Lastly, as competitions grow on campus, the relationship between the Campus Sustainability Office and Common Energy will become ever more important.

Conclusion

The success of the *Do It in the Dark* competition in achieving significant energy reductions in a competition format is indicative of the potential that such behaviour change strategies hold. The best practices in this competition have certainly shone through in a number of realms. The cooperation and collaboration between the key players, the strategic messaging and branding, the connection with residence advisors, and the fun programming together facilitated the success of *Do It in the Dark*.

The three key players - the Campus Sustainability Office, the Totem Sustainability Committee, and UBC Common Energy - worked together extremely well. By having a variety of perspectives, the team was able to address numerous issues. The Campus Sustainability Office works with the University as an institution regarding its operational sustainability while Totem Sustainability works with Totem Park residents about a variety of sustainability and environmental topics. UBC Common Energy falls somewhere in between in the sense that it works with the entire UBC student population in pursuing the goal of a climate-neutral campus. These three seemingly distinct teams came together to plan and envision the competition as a whole and then broke up into smaller teams to complete specific tasks. This team effort led to a true sense of mutual support which allowed for incredible cooperation and collaboration amongst all of the members of all of the teams.

Given that the target audience was first-year students primarily aged 18 or 19 the messaging and branding of the *Do It in the Dark* competition was extremely strategic. The use of condoms in conjunction with the slogan made the competition a fun and engaging event from the very beginning rather than, as some sustainability initiatives can be, preachy and boring. This

also allowed the competition to immediately attract a larger cohort of youth than those simply already interested in sustainability.

The connection with Residence Advisors also facilitated a very positive sense of involvement in the competition from the Totem Park residents. Working with Residence Advisors was extremely advantageous for the entire team because they already know their residents and have the ability to engage with them on a personal level. This is because they are a more constant presence in their lives than were the other competition organizers. It is clear that the involvement of the Residence Advisors is of great importance because, as mentioned earlier, the house with the most Advisors on the Sustainability Committee reduced the most energy whereas the house with none reduced much less (24.1% versus 9.6%). The involvement of the Residence Life staff acted as a huge advantage.

Lastly, the fun programming was an integral part of the competition's success. In addition to the entertaining branding of the competition, many of the events also looked to engage a wider audience. By planning events like *Capture the Flag in the Dark* and *Camp Out in the Dark* groups of students came out who likely would not have attended if the event was blatantly about sustainability. Additionally the Commons Block outreach such as *Dine in the Dark* and the competition involvement booth allowed competition organizers to talk to a huge number of students since so many students go to the cafeteria in the evening when these events took place. Overall, these fun events allowed students to become engaged without pushing the theme of sustainability so much that students did not want to be involved.

By indicating these best practices while also describing all events, messaging, and actions the future competition organizers can use this report as a guide. Equal, if not greater, success can be achieved at other campuses if the same practices which led to such success in Totem Park

were adopted elsewhere. The *Do It in the Dark* competition brought together all stakeholders and key players and strategically planned branding for the target audience. It also forged connections with residence advisors and, with the Totem Sustainability Committee, implemented fun programming that engaged all individuals (not just those who are sustainability-minded). There is still obvious potential for a great deal more investigative research. Nonetheless, *Do It in the Dark* has certainly contributed to the collective academic knowledge of energy competitions. *Do It in the Dark* facilitates the development of positive energy reduction habits in young people. It is a first step in developing both a responsible citizenry and a new generation of leaders taking action against the consequences of climate change.

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