STRATEGIC ENERGY MANAGEMENT PLAN REPORT

2016/2017

Abbotsford, Canada Education Park, Aerospace &
Chilliwack North Campuses.

University of the Fraser Valley
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July 2017

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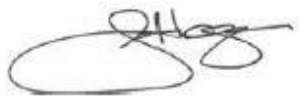
Letter of Commitment to Energy Management
April 18, 2017

The University of the Fraser Valley's Strategic Plan outlines key strategic directions, including: to be a "leader of social, cultural, economic, and environmentally-responsible development in the Fraser Valley" and to be "innovative, entrepreneurial, and accountable in achieving our goals". A major component of our environmental responsibility as an organization is to effectively manage the energy we consume. Natural gas provides us with heat and hot water in our buildings. Electricity provides us with lighting and cooling and runs our computers and other equipment. While the use of energy is intrinsic to our operation as a university, as leaders in our communities we must also be innovative and accountable for minimizing the environmental impact and greenhouse gas emissions that result.

At the University of the Fraser Valley we are committed to energy efficiency and conservation. This commitment is deeply engrained. In 1999 we joined Natural Resources Canada's Energy Innovator Program. In 2002 an energy study was conducted to find ways in which energy consumption could be reduced at that time. In 2005, after the measures identified in the study were implemented, we succeeded in reducing our annual greenhouse gas emission intensity by 11%. In the summer of 2010, with the support of BC hydro, we hired a dedicated Energy Manager for the Abbotsford Campus and Aerospace Centre resulting in a further 10% energy reduction during the first 3 years. In 2016 we re-affirmed our dedication to environmental stewardship in the Fraser Valley by hiring a new Energy Manager tasked with addressing energy efficiency, rapidly escalating utility costs, and reducing the environmental impact of university operations. To reinforce our commitment to energy efficiency and conservation and to link our commitment to outcomes, we are developing a new version of the Strategic Energy Management Plan (SEMP). The SEMP will provide us with the framework and direction required to further reduce our energy consumption and meet reduction targets.

I am proud of our commitment to energy efficiency and conservation, knowing we are not only providing a benefit to the environment, but also to our community. Further, by providing a means of generating a more sustainable university we are also improving our economic bottom-line – a win-win situation. I encourage all members of the campus community to provide support for our commitment, as the benefits extend to each and every one of us.



Jackie Hogan, Chief Financial Officer and Vice President Administration
University of the Fraser Valley

Introduction

This Strategic Energy Management Plan (SEMP) Report supports the University of the Fraser Valley's (UFV) commitment to energy efficiency and conservation by providing a framework for reducing energy consumption and its associated environmental impact. This SEMP includes a specific energy reduction target and an action plan of how the target will be achieved.

Energy management allows UFV to strive towards the key strategic directions outlined in the organization's Strategic Plan, namely: To be a "leader of social, cultural, economic, and environmentally-responsible development in the Fraser Valley" and to be "innovative, entrepreneurial, and accountable in achieving our goals".

By implementing the actions detailed in this Strategic Energy Management Plan, UFV is demonstrating leadership through innovation and accountability for the resources it uses as an organization. Further, UFV, by hiring a dedicated Energy Manager in the spring of 2016, puts emphasis on achieving the following:

- Reduce operating costs through energy conservation and efficiency;
- Minimize the environmental impact of our organization;
- Reduce greenhouse gas emissions – of global importance;
- Reduce exposure to energy cost escalations;
- Reduce reliance on the province's energy infrastructure;
- Demonstrate effective management of resources;
- Promote our successes to the general public and other universities;
- Strive towards educating those who will shape the future of our community, province, and country on the importance of managing the resources we use.

Overview

The University of the Fraser Valley (UFV) as a post-secondary institute has been an important centre for the development of the Fraser Valley over the last 40+ years and now serves 15,000 students annually. UFV started out as Fraser Valley College (FVC) in 1974, became the University College of the Fraser Valley (UCFV) in 1991, and gained University status in 2008. UFV has campuses in Abbotsford, Chilliwack, and Mission, with regional centres in Hope and Agassiz. The scope of this report will focus on the following:

- 24 core buildings
- 92,835m^2 of facility space
- 2 LEED Gold buildings (18,358m^2)
- 17,778 students (2016/2017)
- 1,456 faculty and staff(2016/2017)

Table 1: Building descriptions.

Campus	Building	Originally Built	Area (m2)	Description / Use
Aerospace	H4	1974	2,620	Aerospace Training Centre
Abbotsford	FH	1975	251	Friesen House (President's Residence)
	ABB - A	1983	9,000	Classrooms, laboratories, administration
	ABB - B	1983	8,543	Classrooms, administration, cafeteria
	ABB - C	1983	4,892	Classrooms, administration
	ABB - D	1997	5,740	Classrooms, print services, logistics department
	ABB - E	2002	3,797	Gymnasium
	ABB - F	1994	516	University House; Conference Services, Centre for Indo-Canadian studies
	ABB - G	1995	5,687	Library, administration
	ABB - H	2006	8,104	Baker House (student residences), campus bookstore
	ABB - T	2006	353	Athletics administration
	ABB - S	2014	4,358	Students Union Building, administration, banquet hall, restaurant
Chilliwack Campuses	CHWK N - D	1993	5,380	Leased to tenants
	CHWK N - E	1993	534	Leased to tenants
	CHWK N - G	1993	516	Leased to tenants
	CHWK N - P (5 Corners)	1975	650	Classrooms
Canada Education Park (CEP)	CEP - A	1971	14,000	Classrooms, administration
	CEP - H (ACE)	2012	1,944	Agriculture Centre of Excellence, green houses, livestock pens
	CEP - TTC	2007	9,904	Trades and Technology Centre, shops, classrooms, administration, cafeteria
	CEP - V	1971	892	Classrooms, administration
	CEP - W	1971	1,438	Print services
	CEP - Q		338	TBD
	CEP - N	1960	1,720	Leased to tenants
	CEP - R		1,658	Athletics, health sciences

Table 2: Energy use and estimated costs.

		2016/2017 Energy Consumption & Estimated Costs*						
		Electricity		Natural Gas			Energy Total	
Campus	**m^2**	**kWh**	**$**	**GJ**	**ekWh****	**$**	**ekWh**	**$**
ABB & AERO	53,861	6,361,123	$ 628,512	24,160	6,711,100	$ 181,116	13,072,223	$ 809,629
CEP	31,894	3,761,355	$ 368,357	15,941	4,427,918	$ 136,642	8,189,273	$ 504,999
CHWK N & 5 Corners	7,080	918,189	$ 98,234	4,291	1,191,921	$ 38,268	2,110,110	$ 136,503
Total	**92,835**	**11,040,667**	**$ 1,095,103**	**44,391**	**12,330,940**	**$ 356,027**	**23,371,607**	**$ 1,451,131**

*Cost estimate accuracy is limited by fluctuating rates and administrative fees unrelated to energy consumption.
**ekWh (equivalent kilowatt hours)

UFVs building portfolio continues to shuffle and follow a growth trend. In 2016/2017 the sale of Chilliwack North Campus Building C, coupled with the RCMP moving out of Canada Education Park Buildings Q & R, establishing the buildings as UFVs, yielded a slight decline of floor space operated by UFV, but the trend continues towards more facility spaces, and spaces that need to be heated, cooled, and provided with electricity. An increase in facility space can have a dramatic effect on energy consumption. It is known that an increase of space will cause an increase in energy consumption. How much energy is affected by a number of factors including weather, operating schedules, system efficiencies, and how occupants interact with the building/space.

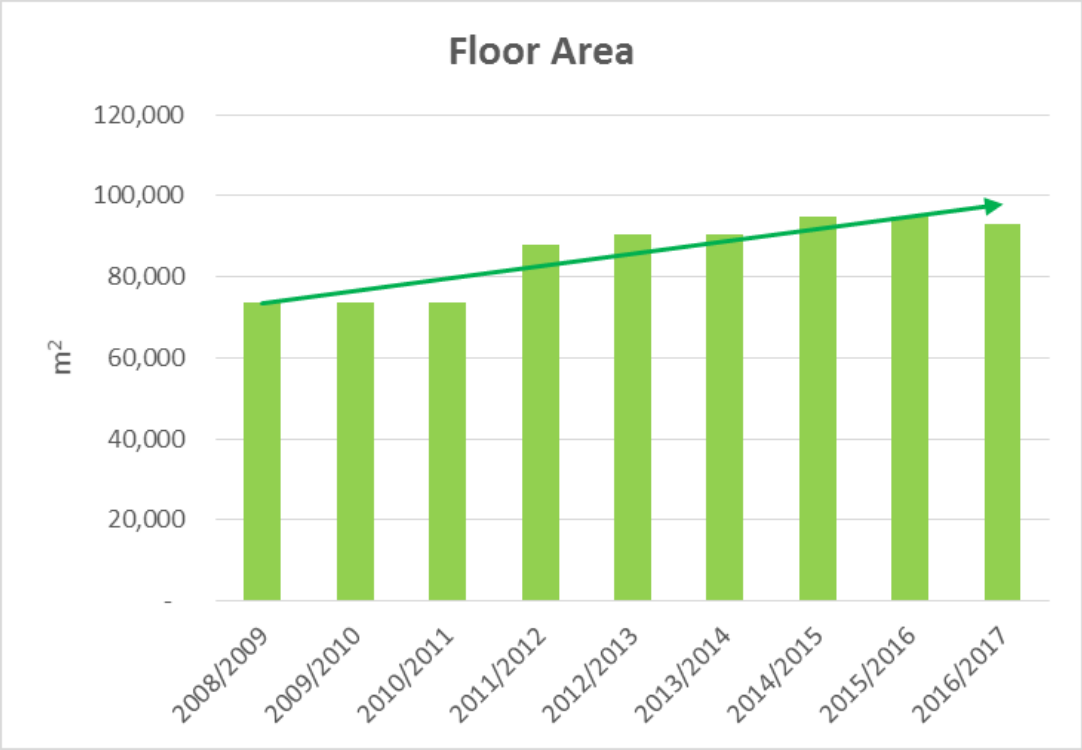


Figure 2: Floor area changes and trends over 9 year period.

Annual Goals and Objectives

1. Develop and maintain a SEMP annually, reporting initially on the 2016/2017 fiscal year.
2. Reduce energy (ekWh) per degree day (DD)* per area (m^2): ekWh/DD/m^2 by 10% by 2021/22 from 2015/2016 levels.

* A Degree Day (DD) is a measure of heating and cooling, when separated they are identified as: Heating Degree Days (HDD), or Cooling Degree Days (CDD). Degree-days for a given day represent the number of Celsius degrees that the mean temperature is above or below a given base temperature. For example, heating degree-days are the number of degrees below 18 °C. If the temperature is equal to or greater than 18 °C, then the number will be zero. Source: Environment Canada www.climate.weather.gc.ca. Climate ID 1100031.

Table 3: Energy efficiency target timeline.

ekWh/DD/m^2	Reduction Target	Target	Actual	Year-to-Year Change	Cumulative Change From Base
2015/2016*	-	-	**0.0889**	-	-
2016/2017	-2%	0.0871	0.0867	-2.5%	-2.5%
2017/2018	-2%	0.0854			
2018/2019	-2%	0.0837			
2019/2020	-2%	0.0820			
2020/2021**	-2%	**0.0804**			

* Base Year Period
** Target Year Period

Climate Change Commitment

Climate is the average weather over a long period of time. Climate change is understood to be the relatively rapid increase in global temperature, with localized increases in extreme weather and shifts in climate. These rapid temperature increases have been observed and measured most significantly through the 20th century. The greenhouse gas emissions from human activities are driving climate change and continue to rise. They are now at their highest levels in history. Climate change is now affecting every country on every continent. It is disrupting national economies and affecting lives, costing people, communities and countries dearly today and even more tomorrow. People are experiencing significant impacts of climate change, which include changing weather patterns, rising sea level, and more extreme weather events.

UFV recognizes that institutional impacts stretch far beyond the classroom, and into the local and international communities where students and graduates reside, work, or do business in. UFV shapes students as they enter into society with new skillsets, ideas, and expectations. In an effort to better serve our students and the global community, in 2016/2017 UFV refreshed its approach to the development, promotion, and support of sustainability initiatives, including immediate and long term efforts to mitigate negative operational impacts on climate change.

Carbon Emissions

Under the legislated Bill 17, UFV reports on emissions to LiveSmart BC using the SMARTTool reporting system, and purchases credits to offset these emissions. As part of this, a Carbon Neutral Action Report (CNAR) is prepared by UFV each year outlining efforts undertaken and planned to reduce carbon emissions. Through the purchase of offsets UFV is carbon neutral by definition. The Carbon Neutral Action Report can be viewed at: www.ufv.ca/energy/

The carbon footprint for the University of the Fraser Valley registered at 2,330 tCO_2e in 2016 (not including 2015 adjustments); that value was marginally higher than the last year's value of 2,234 tCO_2e. The most significant emissions source being used in our buildings was for heating space and water and the use of electricity which comprised 95.6% of emissions sources, with paper consumption at 2.9% and mobile (fleet) combustion rounding out a minor 1.46%.

Through a variety of efforts, from increasing energy efficiency, to reducing paper usage, the carbon emissions intensity (tCO_2e/m^2) at UFV has declined 72% during the 2009 – 2016 period. In relation to the University's activity as measured by full time equivalent (FTE) student enrolment (8,276.5), the 2016 carbon footprint was slightly increased over the previous year. Last year's value of 0.27 tCO2e/FTE was increased to 0.276 tCO_2e/FTE, an increase of 2.23% in GHG emissions when factoring a 1.9% increase in student enrolment.

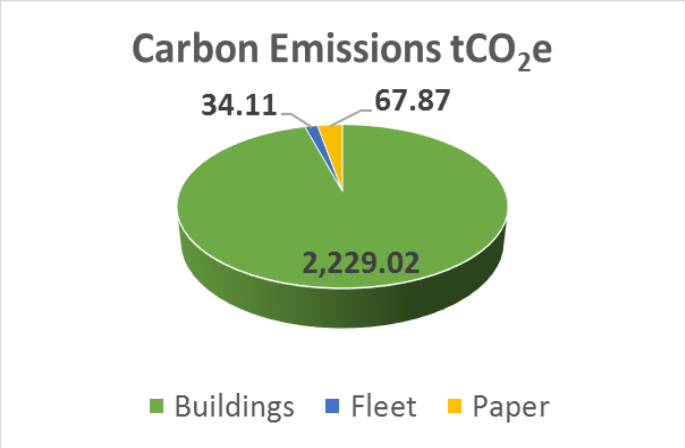


Figure 3: 2016 Calendar year carbon emissions by source.

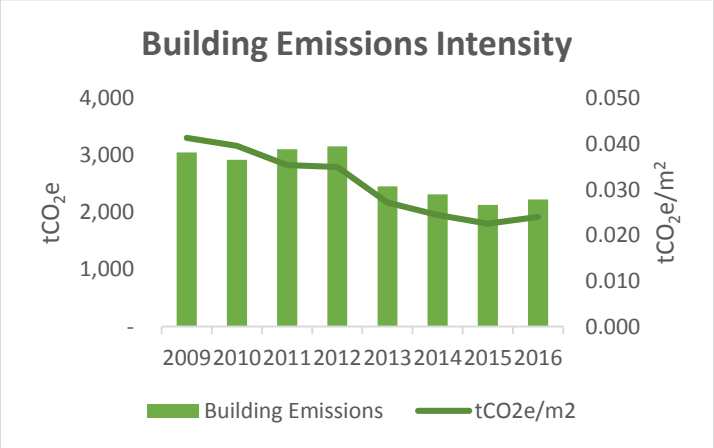


Figure 4: Building emissions per year, and emissions intensity.

2016/2017 Projects

There is an increased reliance on technology (computers, scanners/printers, laptops, tablets, projectors, etc.) in classrooms and offices, which in turn increases the demand for electricity, and can require further cooling some spaces. With increasing utilization of energy-requiring technology, and through an abnormally cold winter, there was an increased onus on the facilities department to optimize major energy consuming systems, such as boilers, chillers, and the HVAC system that brings conditioned air to learning and working spaces.

In an effort to reach the annual ekWh/DD/m^2 reduction targets, there were numerous mechanical and systematic upgrades in 2016/2017 aimed at increasing the energy efficiency and comfort for UFV students, staff and faculty, as follows:

- Abbotsford A Building chiller upgrade
- Abbotsford B Building cooling tower upgrade
- Abbotsford D Building CIS Lab LED upgrade
- Abbotsford D Building skylight de-lamping project
- Abbotsford E Building lighting audit
- Abbotsford F Building LED upgrade
- Abbotsford G Building entrance LED upgrade
- Abbotsford G Building solar PV feasibility study
- Abbotsford parking lot & exterior LED upgrade
- DDC holiday re-scheduling to optimize HVAC
- Aerospace Hangar 4 LED upgrade
- CEP T Building thermal curtain installed

Utility Consumption and Costs

Table 4 depicts the historical changes in floor space, electricity and natural gas usage, as well as the estimated costs associated with the energy source. As the campus grows, we continue to be challenged to reduce overall energy consumption. Mechanical maintenance workers, the Associate Director of Building Systems, the Energy Manager, as well as the Campus Planning and the Project Management office all have significant influence on how energy on campus is consumed. One important aspect of energy management that cannot be influenced is the cost rate. As customers of BC Hydro for electricity, and FortisBC and Shell Energy North America for natural gas, our influence does not extend into their rate structure process. Therefore, the success or failure of any energy management program must not be solely based upon costs.

Table 4: Historical Energy Consumption and Costs.

		UFV Historical Energy Consumption and Estimated Costs						
		Electricity		Natural Gas			Energy Total	
Fiscal	m2	Elec kWh	$	GJ	NG ekWh	$	Total ekWh	$
2011/2012	87,782	10,481,103	$ 723,451	55,892	15,525,474	$384,675	25,964,602	$1,095,266
2012/2013	90,376	10,809,236	$ 791,552	51,578	14,327,352	$381,249	25,136,588	$1,167,498
2013/2014	90,376	10,448,205	$ 827,097	44,508	12,363,212	$425,251	22,811,417	$1,241,877
2014/2015	94,734	10,266,500	$ 911,313	35,677	9,910,230	$342,119	20,176,730	$1,253,432
2015/2016	94,734	11,297,690	$1,083,077	40,425	11,229,255	$327,502	22,526,945	$1,410,579
2016/2017	92,835	11,040,667	$1,095,103	44,391	12,330,940	$356,027	23,371,607	$1,451,131

Energy Use and Degree Days

Energy use has significant correlations to outdoor air temperature/weather conditions. Regionally, we have significantly more days that require heating (translated to heating degree days) than cooling (cooling degree days) in buildings to keep occupants comfortable for teaching, learning, and working. Figure 5 outlines the consumption of electricity, natural gas, the total energy use, as well as the number of degree days within the time period. The degree days line generally follows the energy total pattern, which on a macro level, aides in determining if there are any significant problems within the buildings, or whether we are operating appropriately. In addition to degree days, there are many other determining factors affecting the efficient operations of buildings, and as such will be outlined further into the report.

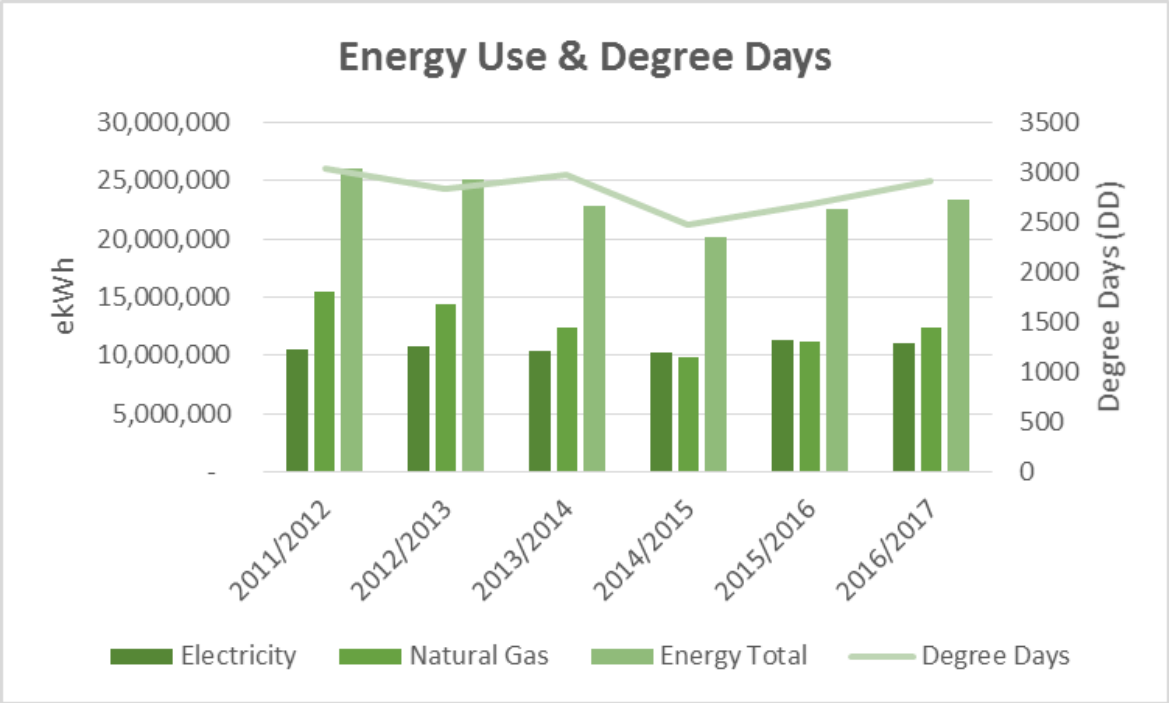


Figure 5: Energy use and degree day correlation.

Energy Costs

The energy cost breakdown by campus is shown in the pie chart below. The Abbotsford campus accounts for the majority of energy cost for UFV. CEP has two of the highest energy intense buildings, Building T, the Trades and Technology Centre, and Building H, the Agriculture Centre of Excellence.

Electricity costs have risen 30% in a 6 year period from 2011/2012 to 2016/2017. In 2014 BC Hydro announced a 28% electricity rate hike over 5 years beginning that year with a 9% rise, followed by annual 6%, 4%, 3.5% and 3% rises in the final year of the plan, 2019/2020. While having rate increases published in advance allows for better preparation and planning, the challenge of significantly escalating costs still remains.

Natural gas rates have been fluctuating since 2011/2012 between $6.88 and $9.59 with rates sitting near the 6 year average in 2016/2017.

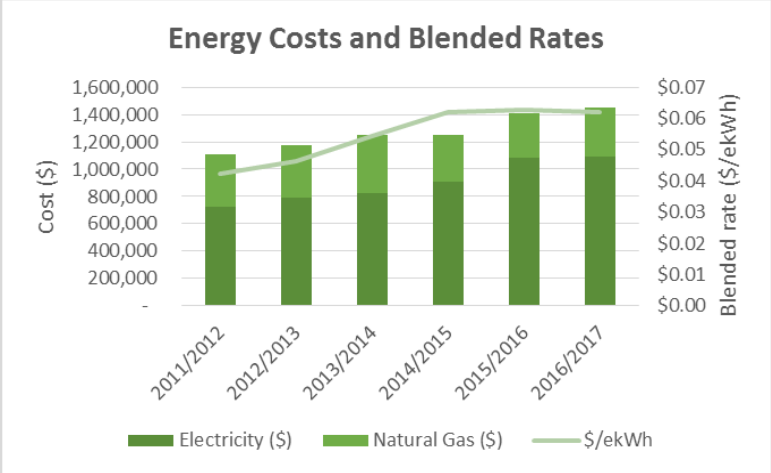


Figure 6: Energy costs and blended rates have risen drastically.

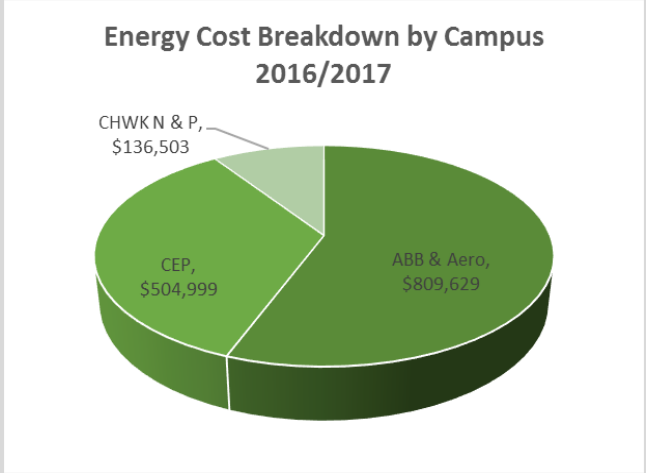


Figure 7: Energy costs per campus.

Building Energy Performance Index

UFV is acquiring and selling buildings. Each of these buildings have their own unique Building Energy Performance Index (BEPI), a measure of energy intensity (ekWh/m^2). Depending on the type of building, and the building users (See Figure 2), some can have a comparatively much higher BEPI. Therefore, the sale and acquisition of buildings can have a significant impact on BEPIs at the campus level. BEPIs are useful for measuring the energy intensity between two similar facilities that operate in similar conditions (occupant type, operating hours, etc.). This measure, however, has significant limitations. BEPIs do not consider weather, schedules, occupants, or end uses. In light of these limitations, BEPIs provide a starting point for looking at energy efficiency and building performance. The following charts and graphs will provide increasingly specific details. The cumulative BEPIs at each campus are outlined below in the Campus Energy Performance Index graph.

Table 5: Annual campus Building Energy Performance Index (BEPI).

BEPI (ekWh/m^2)	ABB & AERO	CEP	CHWK - N & 5 Corners	Overall	Overall Cumulative Difference	Difference From Previous Year
2011/2012	311.9	198.2	482.6	**295.8**	0	0
2012/2013	277.0	288.4	255.3	**278.1**	-17.7	-6.3%
2013/2014	276.9	240.5	174.4	**252.4**	-43.4	-10.2%
2014/2015	214.8	224.9	171.6	**213.0**	-82.8	-18.5%
2015/2016	238.1	266.7	157.5	**237.8**	-58.0	10.4%
2016/2017	242.7	256.8	298.0	**251.8**	-44.0	5.5%

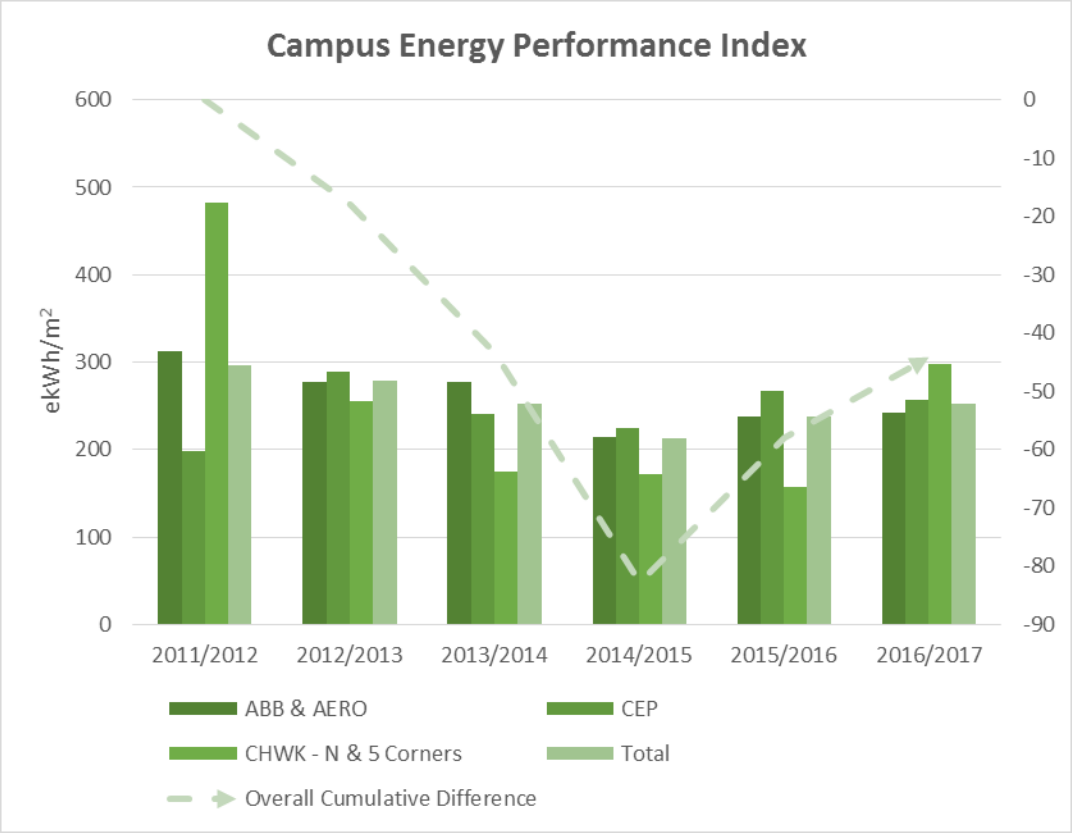


Figure 8: Annual campus Building Energy Performance Index (BEPI).

Energy and Weather Correlation

Weather, as discussed, plays a significant role in energy consumption. Heating and cooling systems are influenced by weather, i.e. colder winters demand a higher heating loads, and therefore higher energy consumption. Similarly, hotter summers have higher cooling loads, and increased energy consumption.

Degree days will assist in determining to what effect weather had on energy consumption, and therefore, conclusions can be made on the performance of buildings, or individual systems.

2016/2017 had a cool and short summer which was followed by a very cold and long lasting winter. While the utility bills suggest that we increased our gas consumption (primarily for space and water heating) significantly compared to previous years, the graph and chart below show that the energy consumed (ekWh) as it correlates to weather conditions (DD) actually decreased by 4.6%, pointing to an increase in overall energy efficiency organization wide.

Table 6: Annual campus energy and weather correlation.

ekWh/DD	ABB & AERO	CEP	CHWK - N & 5 Corners	Overall	Overall Cumulative Difference	Difference From Previous Year
2011/2012	5,078	1,822	1,639	**8,539**	0	0
2012/2013	4,847	3,047	990	**8,885**	346.0	**3.9%**
2013/2014	4,604	2,415	643	**7,662**	-876.7	**-16.0%**
2014/2015	4,680	2,720	762	**8,161**	-377.6	**6.1%**
2015/2016	4,793	2,979	646	**8,418**	-120.3	**3.1%**
2016/2017	4,501	2,820	727	**8,048**	-490.7	**-4.6%**

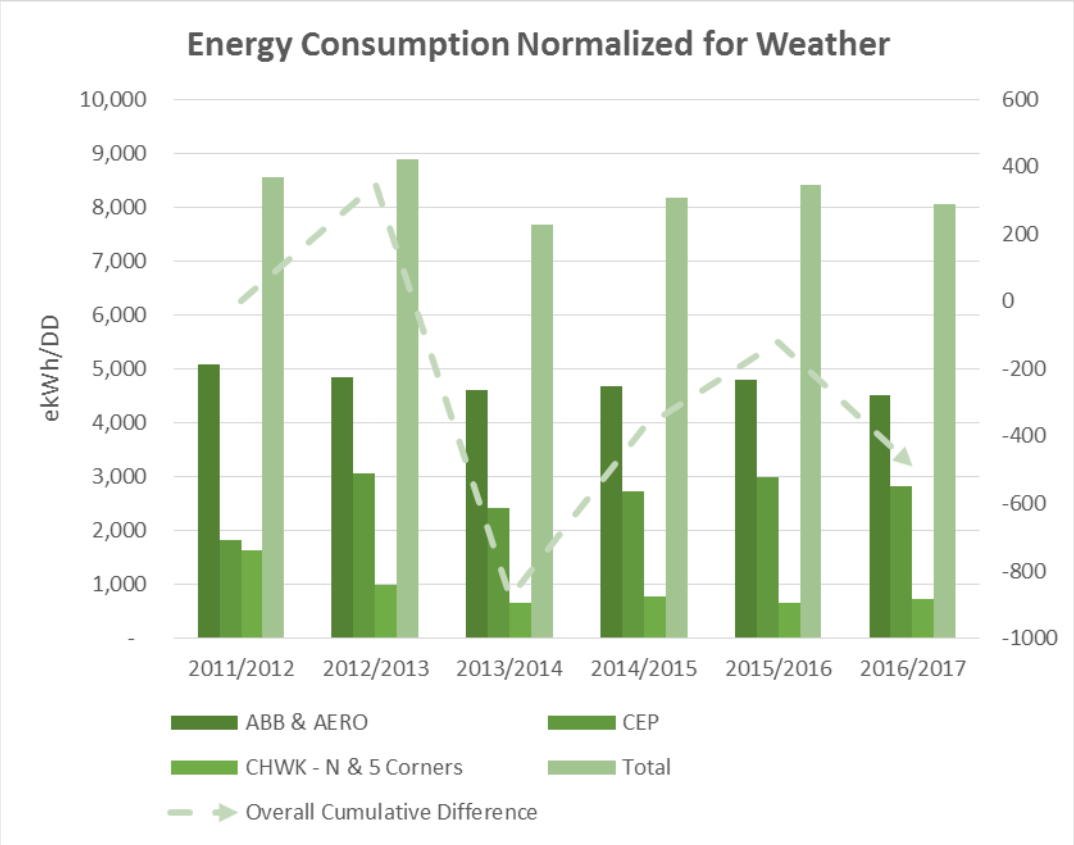


Figure 9: Annual campus energy and weather correlation.

Energy Intensity Normalized for Weather

Previous sections have touched on metrics to monitor energy as it relates to space changes (BEPI), as well as weather (ekWh/DD). The graph and chart below account for both variables as we attempt to reliably monitor how efficiently our buildings are being operated - by using the equation: ekWh/DD/m^2. It is known that energy consumption increased, floor space decreased, and degree days were high. The 2.5% reduction in ekWh/DD/m^2 outlines the efforts of the key stakeholders in increasing energy efficiency throughout our buildings. The result of this metric in 2016/2017 is a part of a key goal outlined by the Energy Manager (reducing ekWh/DD/m^2 by 10% from 2015/2016 levels by 2021/22), a positive step forward for energy efficiency and sustainability at UFV.

Table 7: Annual energy intensity normalized for weather.

ekWh/DD/m^2	ABB & AERO	CEP	CHWK - N & 5 Corners	Overall	Overall Cumulative Difference	Difference From Previous Year
2011/2012	0.1026	0.0652	0.1587	**0.0973**	0	0
2012/2013	0.0979	0.1019	0.0902	**0.0983**	0.0010	**1.1%**
2013/2014	0.0930	0.0808	0.0586	**0.0848**	-0.0125	**-16.0%**
2014/2015	0.0869	0.0910	0.0694	**0.0861**	-0.0111	**1.6%**
2015/2016	0.0890	0.0997	0.0588	**0.0889**	-0.0084	**3.1%**
2016/2017	0.0836	0.0884	0.1026	**0.0867**	-0.0106	**-2.5%**

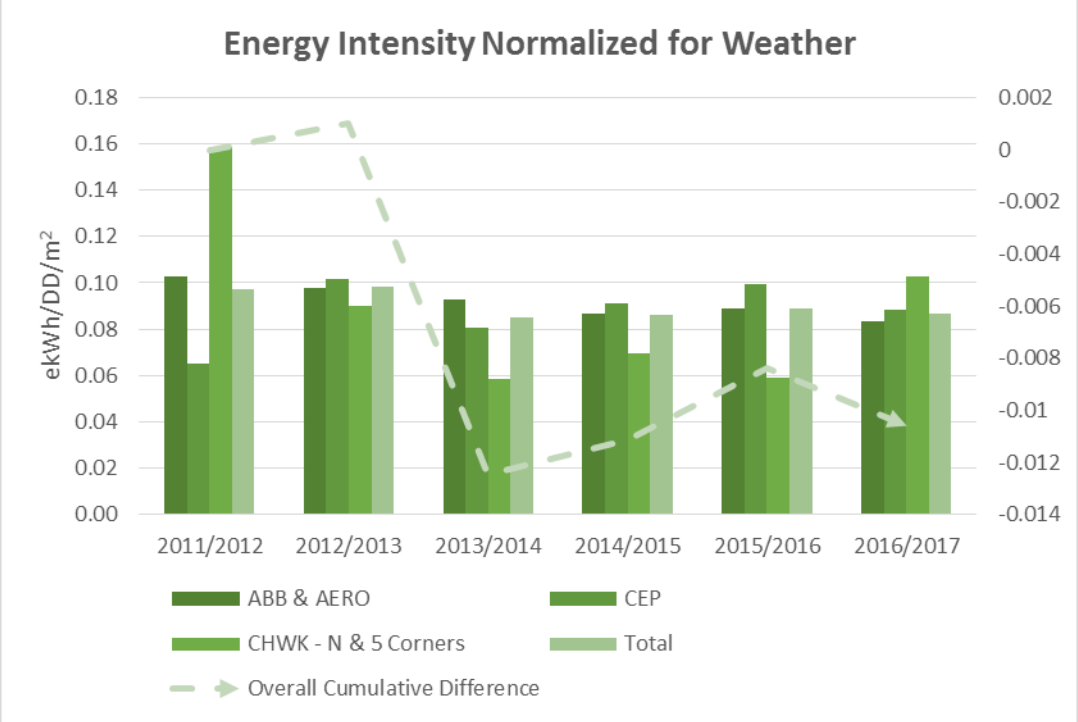


Figure 10: Annual energy intensity normalized for weather.

Energy Wise Network & Change Management

SustainableUFV, campus champions of environmentally responsible initiatives, joined the Energy Wise Network in 2016. The Energy Wise Network is a collaborative network made up of Advanced Education, Government, Schools (K-12), Hospitality, Municipalities, Property Management, and Retail sectors. This network supplanted the Workplace Conservation Awareness program and was initiated by BC Hydro and Fortis BC. The network provides campaign tool kits, professional coaching hours, networking opportunities, training webinars, and two summits per year providing the framework for many of the energy efficiency focused initiatives throughout 16/17.

Summer Shutdown:

This campaign began in June with publications in the SustainableUFV blog, UFV Now, and signage on the SustainableUFV bulletin boards. The premise of the event was to reduce phantom energy consumption in individual offices while occupants were off campus on summer vacation. Outlined were suggestions for how to reduce energy waste including: turning off lights and computers, unplugging chargers, refrigerators, etc., and setting thermostats to reasonable ambient temperatures to reduce cooling load. A social media contest was also included as part of this event, where participants sent in selfies of them unplugging or shutting down for the summer. 10 entries were received, and due to the low number of entries, all received prizes. SustainableUFV and the Facilities Department plan to increase engagement and participation for this campaign in the summer of 2017.

Get Your Fleece On:

Beginning in October, *Get Your Fleece On* was designed to reduce the number of space heaters throughout the Abbotsford and Chilliwack campuses. With the support of BC Hydro, the Facilities Department was able to acquire 125 UFV-branded fleece blankets to distribute. The intended result was to reduce the number of work orders placed as a result of heating deficiencies, and to educate staff and faculty on the benefits of passive personal heat regulation. Additionally, this campaign was intended to address the significant energy consumption used by these small appliances. Blanket priority was given to those who were utilizing space heaters as a means to stay warm(er) during the winter months. In exchange for a blanket, users were requested to sign a pledge to reduce space heater usage or to utilize blankets in place of heaters during the colder months.

The results were a distribution of 87 fleece blankets to the Abbotsford campus, and 38 to the Chilliwack Canada Education Park campus – a full subscription (14% of full time employees) with additional demand exceeding the inventory. Of the 125 blankets distributed, 68 pledges were received with a commitment to reducing the reliance on space heaters or turning up the thermostat. Of the 89 space heaters counted at UFV, 40 blankets were requested by space heater users.

With the resoundingly positive feedback from this campaign, it is expected to be refreshed again for the winter of 2017/18.

Small Appliance Audit:

The Facilities Department conducted a small appliance audit in December 2016. It was found that there were 377 small appliances throughout the Abbotsford and CEP campuses. These small appliances use an estimated 84,600 kWh/yr, costing the University $8,554/yr (based on $0.101/kWh). The prevalence of blown breakers throughout the campuses can be attributed to a number of factors including constantly changing spaces through renovations and space utilization, as well as aging infrastructure and the increase in dependency on electronics in the workplace (plug load). During the April 1, 2016 – March 31, 2017 timeframe there were 60 work orders placed to the Facilities Department to reset blown breakers. This survey provided a map of where education could be best used to reduce energy consumption and increase awareness of wasted energy. The causes of blown breakers were identified, and education to the occupants of that space was provided on how to better manage the plug load and reduce the number of hours building maintenance workers spend on resetting breakers.

Sweater Week:

From November 14-18, Sweater Week was held on the Abbotsford campus. The event was centered around energy reduction on a natural gas level. Building set temperatures were lowered from the winter standard 21.5°C to 20°C, and participants were encouraged to wear sweaters to mitigate any adverse effects of the temperature decrease. "Sustainable Selfie Stations" were set up at 5 locations around campus, and a selfie contest was run throughout the week, with daily prizes of $20 gift cards, and a grand prize of a UFV hoodie and bookstore gift card.

Electric Vehicle Charging Stations:

UFV has 4 stations capable of charging up to 8 vehicles simultaneously that are available to all students, staff, and faculty free of charge. Installed in 2012/2013 at the Aerospace Campus (1), Abbotsford Campus (2), and CEP (1), there was been significant year-over-year increases in unique charging sessions, energy provided for cost-free charging, and emissions reductions from traditional combustion engine vehicles.

Figure 11: EV charging station historical use.

	Sessions	Energy (kWh)	Community GHG Savings (t)
2013/2014	51	227.5	0.096
2014/2015	459	3,150	1.33
2015/2016	971	9,830	4.13
2016/2017	1,357	13,928	5.85

Project Plans for 2017/2018

- Abbotsford A Building Science Labs: LED Upgrade
- Abbotsford A & B Buildings: Continuous Optimization
- Abbotsford B Building: B101 LED Upgrade
- Abbotsford C Building: Continuous Optimization
- Abbotsford C Building: C1050 Insulated Overhead Door Installation
- Abbotsford D Building: Continuous Optimization
- Abbotsford G Building: Continuous Optimization
- Abbotsford G Building: LED Upgrade
- Abbotsford G Building: Chiller Upgrade
- Abbotsford G Building: Solar PV Study & Proposal
- Canada Education Park Building A: Continuous Optimization
- Canada Education Park Building T: Parking Lot Lighting LED Upgrade
- Canada Education Park Building T: Overhead Door Replacements
- Canada Education Park Building T: Carpentry Shop Air Curtain Installation
- Abbotsford Campus: Installation of an additional EV station
- All Campuses: FortisBC Natural Gas Energy Audit
- All Campuses: EndoTherm Hot Water Heating System Efficiency Upgrade

Progress Update

As UFV grows in size and influence, the culture of sustainability continues to grow within the organization. The environmentally-responsible approach to facility operations is increasingly extending to new projects, renovations, and facilities maintenance. Furthermore, the prevalence and participation within behaviour change campaigns is improving energy efficiency not only at UFV, but also the communities in which students, faculty and staff reside. Considering the above, as well as the supporting metrics outlined within this report, 2016/2017 was a successful first year in the refresh for sustainable energy management at the University of the Fraser Valley. Impactful projects are planned for 2017/2018, with many more big-picture projects that will have a significant positive contributions to sustainability and energy efficiency at the University in the long term. Energy efficiency, the reduction of greenhouse gas emissions, and an increased dedication to environmentally-responsible operations supports the outlined strategic goals, aimed at changing lives, building community.