Cowichan Valley Regional District

2015 Strategic Energy Management Plan

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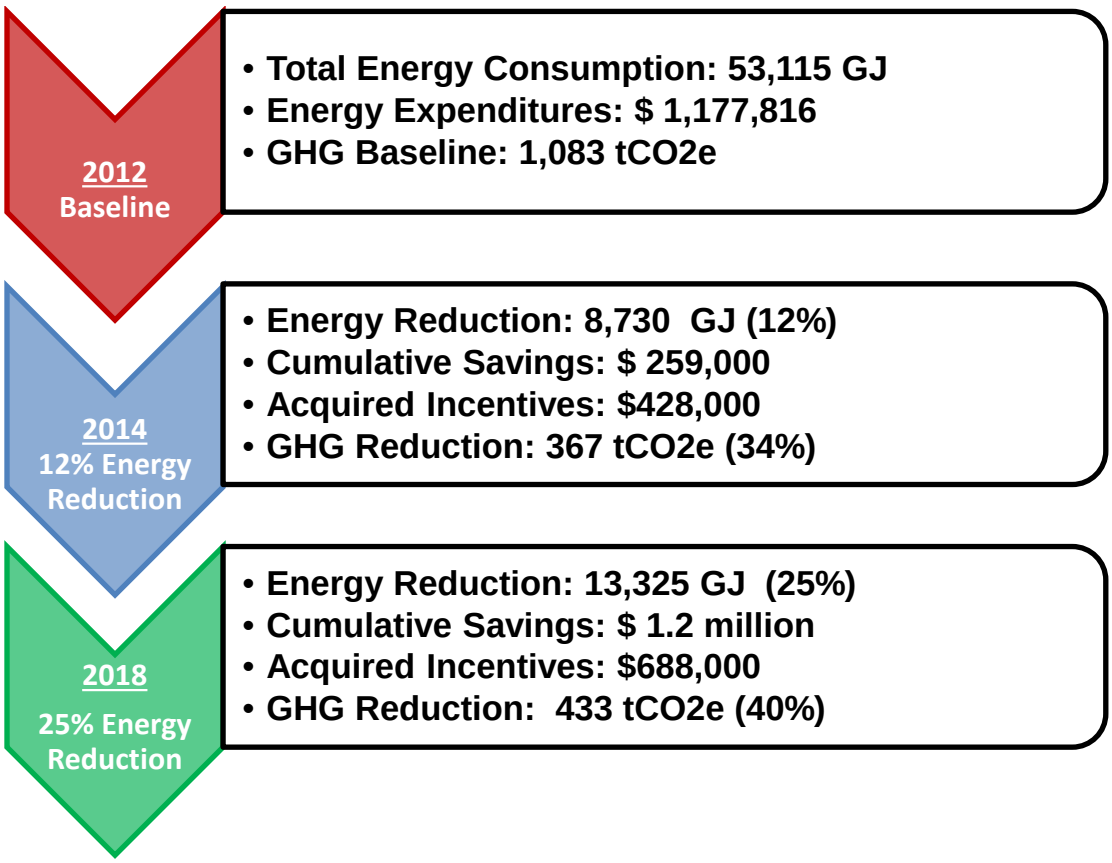
The CVRD's Strategic Energy Management Plan at Glance

The Cowichan Valley Regional District's (CVRD's) Strategic Energy Management Plan (SEMP) was first initiated in 2012, with the support from BC Hydro to hire a full time Energy Manager. The Energy Manager has contributed to the successful implementation of numerous technical, behavioural and organizational projects/programs which have mainly been focused on CVRD buildings. Many energy conservation measures (ECMs) have already been identified and implemented through Engineering Level Energy Studies. Although the CVRD's services and functions have expanded since the 2012 baseline, significant achievements have been accomplished in reducing energy consumption, which have resulted in significant avoided costs and reduction in greenhouse gas emissions (GHG). As of 2014, energy consumption has been reduced by 8,730 gigajoule (GJ) or 12%, of which approximately 5,238 GJ (or 1,455,000 kilo-watt hours (kWh)) was from electricity use reductions and 3,492 GJ from fossil fuel use reductions. By 2018, with the continued implementation of the SEMP, the ongoing support from BC Hydro and CVRD's Senior Management, the targeted energy savings are 13,325 GJ, of which approximately 7,059 GJ (or 1,960,000 kWh) will come from electricity use reductions and 6,266 GJ from fossil fuel reductions. This equates to GHG reductions of 433 tonnes carbon dioxide equivalents (tCO_2e) and results in cumulative cost savings over $1.2 million.

Progress of the CVRD's Strategic Energy Management Plan



Purpose

The SEMP clearly defines the goals and objectives of the CVRD in reducing energy consumption, in a manner that is consistent with:

- The CVRD Corporate Strategic Plan;
- The 2012 CVRD Corporate GHG Inventory and Emission Reduction Plan; and
- The BC Hydro Powersmart Partner Program Agreement.

The SEMP is designed as a living document to be updated annually with relevant projects and energy information. This document is complementary to the 2013 SEMP and provides an updated analysis of the CVRD's building energy consumption, corporate GHG emissions inventory, and the business case for advancement of energy reduction projects.

Goals

The goals of the SEMP are to help the CVRD:

- Reduce operating costs;
- Become more efficient with energy use;
- Reduce GHG emissions;
- Identify low-impact sources of heating, cooling, and electrical energy;
- Elevate the skills and education of staff; and
- Lead by example in energy conservation and environmental practices.

Targets

Setting reduction targets with specific deadlines are an essential component of a successful energy management programs because they bring relevance to projects, planning and immediacy to the program. These objectives allow the organizations to establish a work plan towards achieving specific measurable energy reductions.

In the 2013 SEMP, the CVRD set an energy reduction goal of 15% energy reduction below 2012 baseline by 2018. It is expected that a 15% reduction will be achieved in 2015 as a result of a number of completed ECMs. As such, a revised energy reduction target of 25% below 2012 levels by 2018 was established (Table 1).

Table 1 – CVRD Annual Energy Reduction Targets

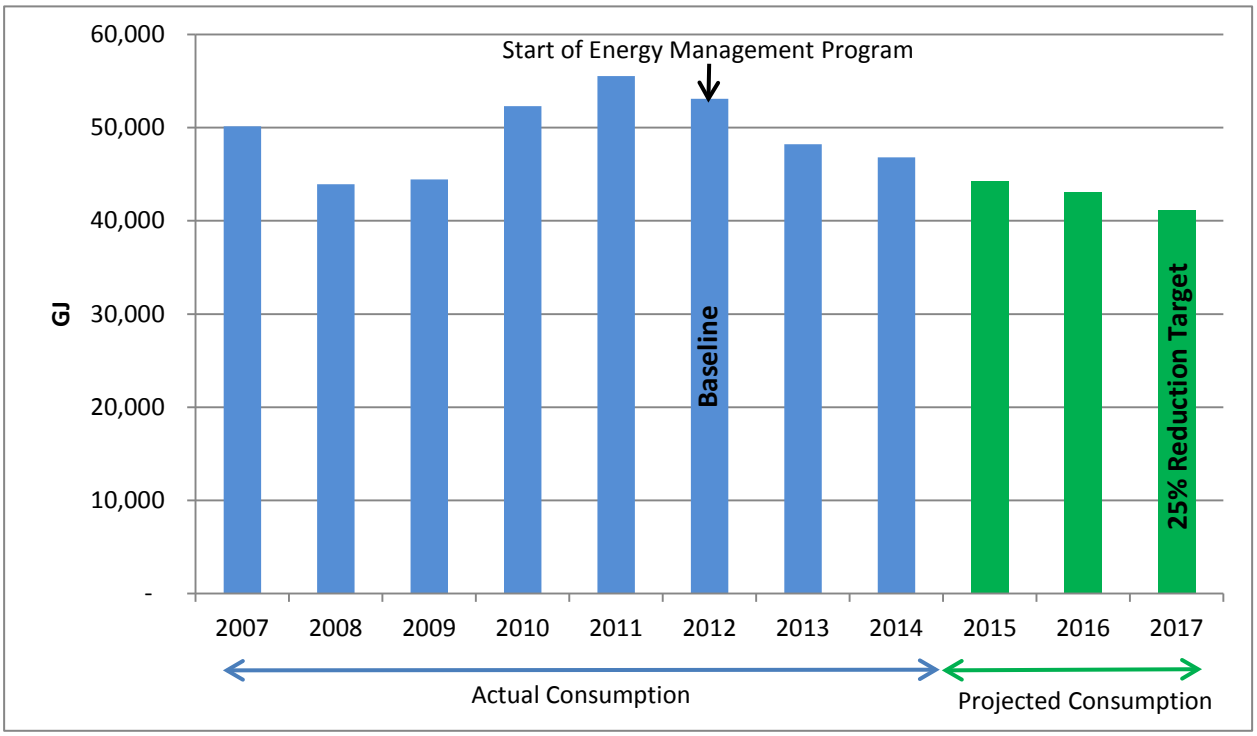
Year	% Reduction	GJ Reduction	Status
Baseline - 2012	-	-	-
2013	9%	4,884	Achieved
2014	3%	1,432	Achieved
2015	7%	3,950	In Progress
2016	2%	1,089	Identified
2017	4%	1,969	Identified
Total	**25%**	**13,325**	

Annual reduction targets are based on identified ECMs from the Energy Study Reports completed in 2013 (see Appendix A). Projects for 2016 have been identified and budgets have been allocated. Since the initiation of the CVRD's energy management plan in 2012, energy consumption has decreased 12% and is on track to meeting the proposed 25% energy reduction target by 2018. A 25% energy reduction is equivalent to a 13,325 GJ reduction in overall energy use. Moving forward to achieve the target, energy consumption must be reduced an additional 4,595 GJ, which equals 1,821 GJ (505,000 kWh) of electricity and 2,774 GJ of fossil fuels.

Energy Use

In 2014, the CVRD consumed 46,799 GJ of energy (excluding fleet) in the form of electricity, natural gas, propane, and heating oil (Figure 1), which is a 12% decrease from the 2012 baseline. This is enough energy to heat and power 460 single-family homes in the Cowichan Valley. Energy is consumed in the three major recreation centres, an office building, solid waste complexes, community halls, fire halls, water and waste water systems, parks and street lights. There are many factors that affect annual energy consumption from weather, programming, functions and the age, condition and maintenance of buildings and their systems.

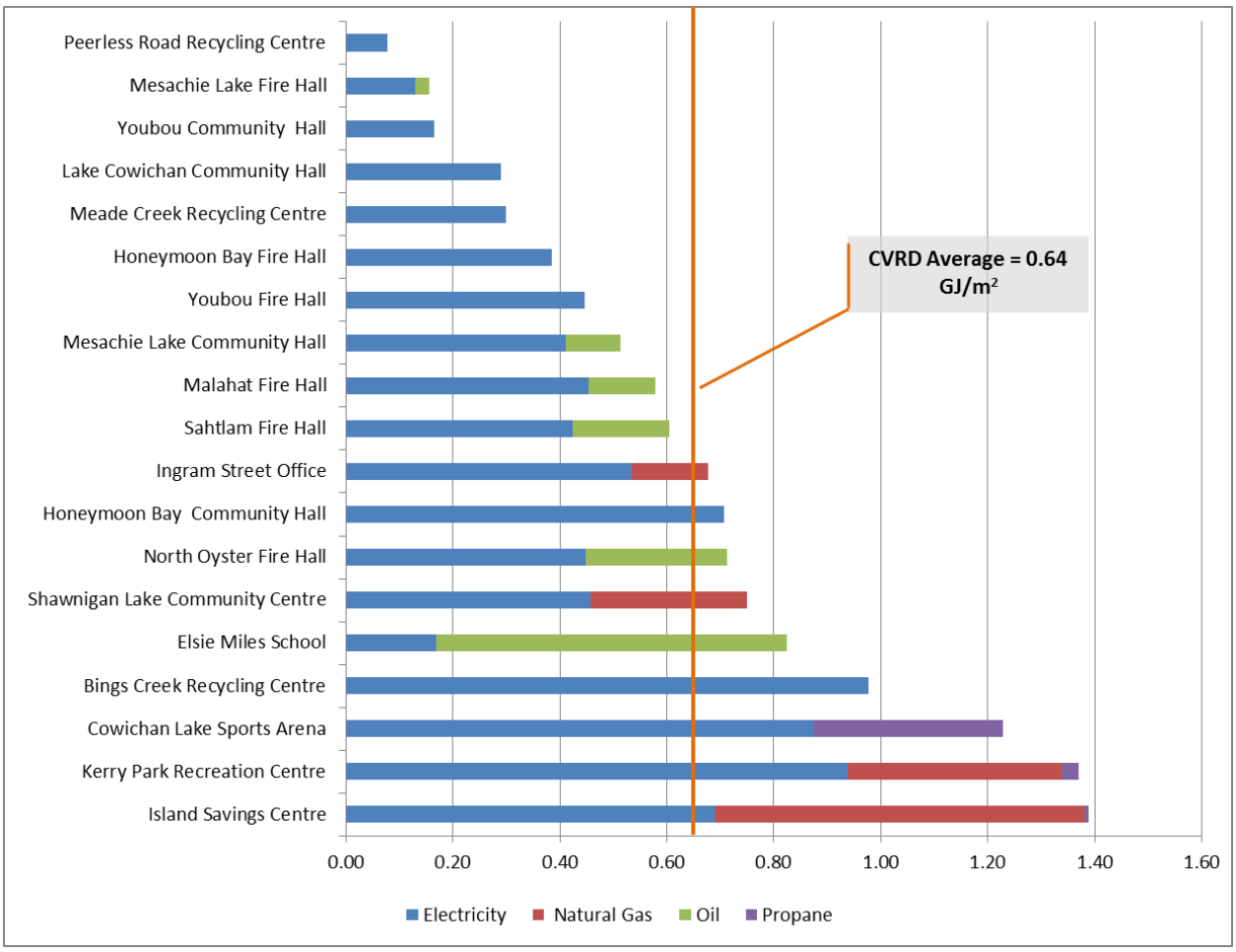
Figure 1 – CVRD Historical Energy Consumption and Projections (2007-2017)



Building Energy Performance

The CVRD operates a range of buildings from recreation centres to fire halls, waste management complexes to office buildings. These buildings use a mix of energy sources including electricity, natural gas, propane, and heating oil. Energy intensity is the key performance indicator used to compare energy consumption across the building portfolio, which is energy use (GJ) per area (m^2) of building (Figure 2). The three recreation centres have the greatest intensities, as would be expected given their operation of ice plants for nine months of the year.

Figure 2 – CVRD Building Energy Performance Analysis 2014



The CVRD average energy intensity decreased from 0.75 GJ/m^2 in 2013 to 0.63 GJ/m^2 in 2014. This is now 27% is lower than the provincial average of 0.90 GJ/m^2 for building energy use. It should be noted the provincial average is for full time use buildings, and many of the CVRD facilities are not used full time.

Performance on Targets

The 2013 SEMP established individual reduction targets for each main facility that would contribute to the overall CVRD reduction target (Table 2). In 2014, progress towards targets was achieved at all but three facilities. Elsie Miles and Shawnigan Lake Community Centre (SLCC), are both undergoing heat pump upgrades in 2015 and should be back on target by 2016. The Youbou Fire hall showed a 16% increase in energy consumption due to increased annual electricity consumption. An energy analysis and identification of ECMS at all fire halls will be completed in 2016. All three recreation centres have decreased their energy intensities from the baseline. Kerry Park Recreation Centre has seen the greatest reduction in energy intensity, compared to the other recreation facilities. Savings from ECMs at both Kerry Park Recreation

Centre and Island Savings Centre that were completed in the 2014/15 winter will likely not be realized until 2015/16 heating season.

Table 2 – CVRD Building Energy Performance Target Analysis 2012-2014

Location	2014 (GJ/m^2)	2012 (GJ/m^2)	Target (GJ/m^2)	% reduction from 2012	Achieved Target
Kerry Park Recreation Centre	1.37	2.00	1.17	31%	No
Cowichan Lake Sports Arena	1.23	1.24	1.17	1%	No
Island Savings Centre	1.23	1.34	1.17	8%	No
Bings Creek Recycling Centre	0.98	1.05	0.85	7%	No
Elsie Miles School	0.82	n/a	0.38	-39%	No
Shawnigan Lake Community Centre	0.75	0.53	0.38	-42%	No
North Oyster Fire Hall	0.71	0.77	0.43	8%	No
Honeymoon Bay Community Hall	0.71	1.29	0.49	45%	No
Ingram Street Office	0.68	0.75	0.62	9%	No
Sahtlam Fire Hall	0.60	0.70	0.43	14%	No
Malahat Fire Hall	0.58	0.69	0.43	17%	No
Mesachie Lake Comm. Hall	0.51	0.93	0.50	45%	No
Youbou Fire Hall	0.45	0.38	0.43	-16%	No
Honeymoon Bay Fire Hall	0.39	0.53	0.43	27%	Yes
Meade Creek Recycling Centre	0.30	n/a	0.85	30%	Yes
Lake Cowichan Community Hall	0.29	0.64	0.36	55%	Yes
Youbou Community Hall	0.17	0.51	0.39	68%	Yes
Mesachie Lake Fire Hall	0.16	0.47	0.43	67%	Yes
Peerless Road Recycling Centre	0.08	n/a	0.85	91%	Yes

Grouping the CVRD buildings together by building type (Table 3) also shows the progress towards energy reduction targets and further identifies the recreation facilities as the highest energy users.

Table 3 – Average CVRD Annual Building Energy Performance by Building Type 2012-2014

Type of Building	2014 (GJ/m^2)	2013 (GJ/m^3)	2012 (GJ/m^2)
Community Hall	0.54	0.55	0.78
Fire Hall	0.48	0.56	0.59
Office Building	0.68	0.67	0.75
Recreation Centre	1.10	1.41	1.53
Recycling Centre	0.45	1.06	1.05
CVRD TOTAL	0.63	0.74	0.86

CVRD managed water and sewer sites compared annual energy use (GJ) per volume (m^3) of fluid pumped (Table 4). Further evaluation is required to determine the cause of the increased energy intensities from the 2012 baseline. The benchmarking for these systems is still under refinement as more accurate data for annual flows are being collected. In addition, Water and Sewer Services is an amalgamation of all CVRD operated sites and is not a single source. The increase in usage of the water services requires detailed monitoring to further be useful.

Table 4 – CVRD Water and Sewer Energy Intensity Performance 2012-2014

System	2014					2013	2012	Target
	Total Volume (m^3)	Energy Consumption (GJ)	Cost ($)	$/$m^3$	GJ/m^3	GJ/m^3	GJ/m^3	GJ/m^3
Water	1,340,199	4,294	$ 138,498	0.10	3.20	3.17	2.93	2.70
Sewer	978,735	3,381	$ 107,216	0.11	3.45	1.65	1.81	1.67

Cost of Energy

Excluding fleet energy consumption, in 2014 the CVRD spent $1,096,059 on energy. This represents a 7% reduction from the 2012 baseline (Figure 3). Although there has been a 15% reduction in energy consumption, a 7% reduction in energy related costs is still a commendable achievement as electricity rates have increased by 18% since 2012, and electricity accounts for 74% of the total energy consumed by CVRD (Figure 4). The breakdown of energy costs by fuel source for 2014 shows the largest energy cost as electricity (80%), followed by natural gas (14%), propane (5%), then heating oil (1%).

Figure 3 – CVRD Historic Energy Expenditures 2007-2014

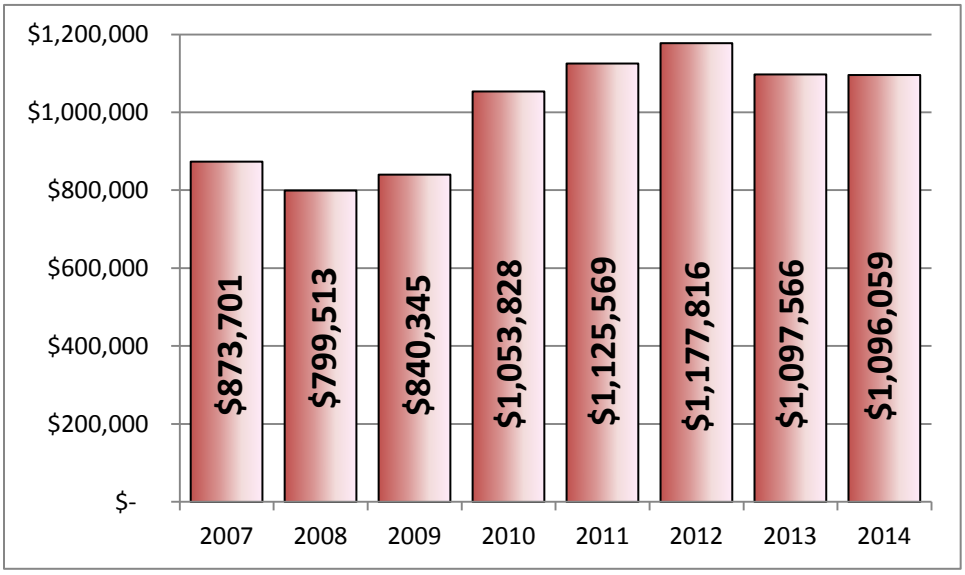
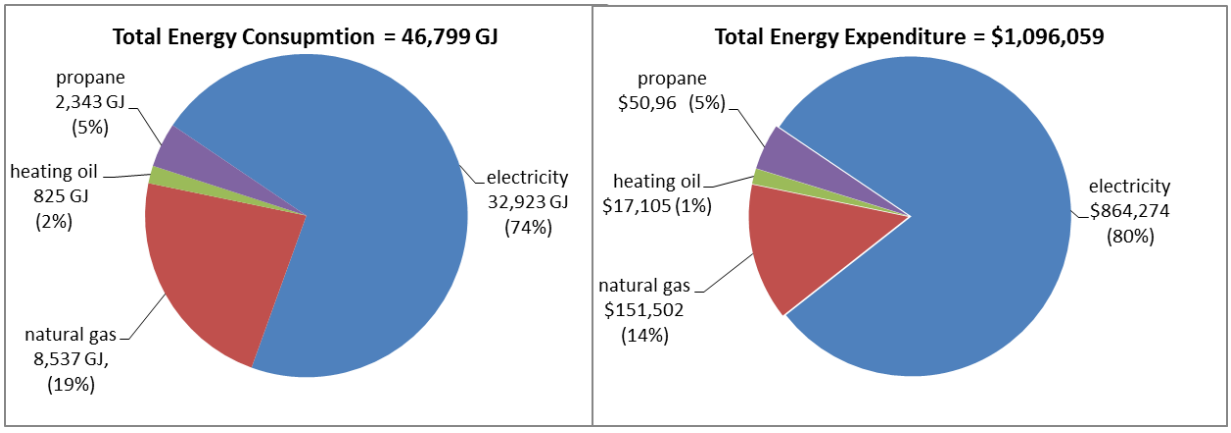
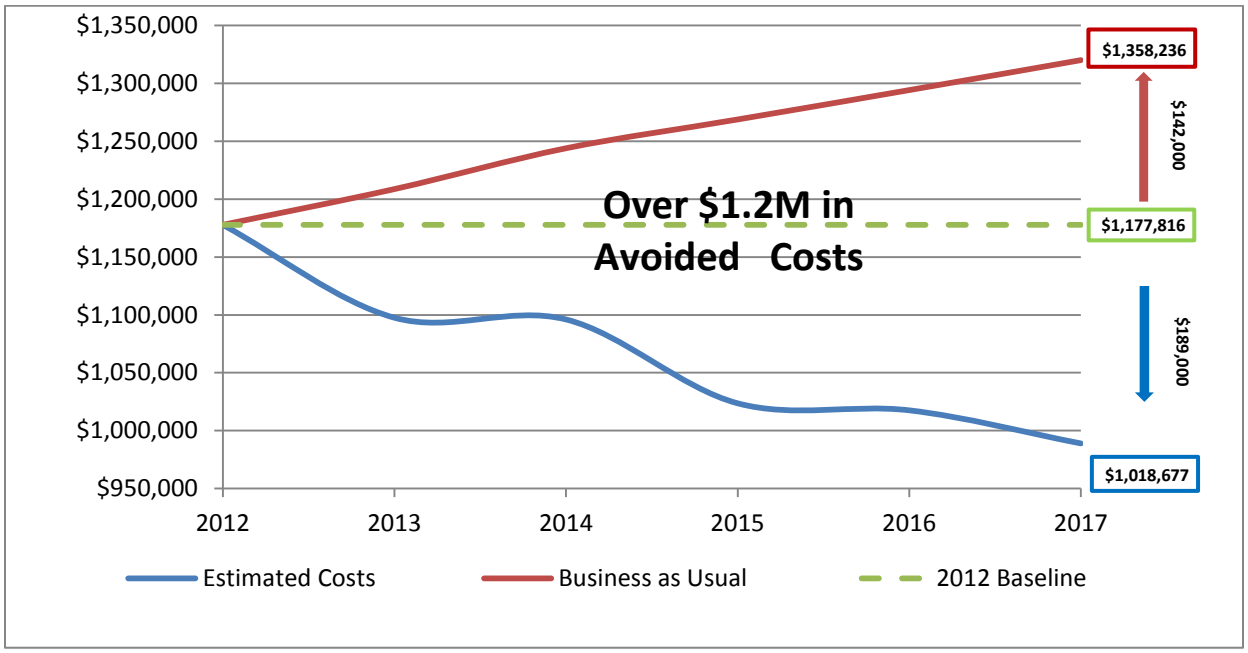


Figure 4 – CVRD 2014 Energy Consumption and Expenditures by Fuel Type



Through the continued implementation of the SEMP and support of Senior Management, it is expected the cumulative avoided costs by 2018 will be over $1.2 million (Figure 5). Avoided costs are defined difference between the baseline and the business as usual scenario (increasing energy rates), and actual energy savings from reducing energy consumption. In 2014 the annual avoided costs were $148,000. Given that electricity accounts for 80% of the energy cost for the CVRD and electricity rates are projected to increase a further 10% over the next three years, continued progress towards energy conservation and efficiency are imperative to hedge against increasing energy costs.

Figure 5 – Avoided Costs of the CVRD's Energy Management Program Compared to Business as Usual



Energy Reduction Opportunities

There are numerous opportunities to reduce energy consumption and improve energy efficiency in buildings at the CVRD. These opportunities are best identified through engineering level energy audits, which have been completed at the following facilities:

- 2013 - Island Savings Centre;
- 2014 - CVRD Head Office;
- 2014 - Kerry Park Recreation Centre;
- 2014 - Shawnigan Lake Community Centre;
- 2014 - Cowichan Lake Sports Arena; and
- 2014 - Bings Creek Recycling Centre.

To date opportunities have consisted of tighter scheduling, operator training, building commissioning, building envelope upgrades, equipment renewal/replacement, and energy recovery. There are also organizational initiatives that can be implemented which lead to behavioural change and changes in the corporate culture which can also result in energy reductions. However the associated energy savings can be difficult to quantify.

The water and sewer systems, fire halls, and facilities owned and operated by the Parks Division have not been the focus of energy management activities to date (Table 5). In 2016, energy analysis and identification of energy reduction opportunities will be undertaken at these sites. It is expected that significant energy reduction opportunities will be identified, through equipment upgrades, operational modifications, and facility upgrades. It is also a priority at the CVRD to eliminate heating oil as a fuel source, due to its high costs and GHG emissions.

Table 5 – 2016 Energy Analysis and Identification of Energy Reduction Opportunities

Site	2014 Electrical Consumption (kWh)	2014 Heating Oil Consumption (GJ)	2014 Energy Cost ($)
Water and Sewer Utility Systems operated by the Water Management Division	2,131,931	n/a	$245,714
Fire Halls operated by the Public Safety Division	228,273	201	$37,974
Facilities owned and operated by the Parks Division	102,809	n/a	$12,214
SUB-TOTAL	**2,463,013**	**201**	**$295,902**

There are a number of technical projects identified for completion in 2016 and 2017. These projects are mostly lighting upgrades and re-commissioning of mechanical systems (Table 6). The CVRD has also started exploring options for renewable energy generation, as the Bings Creek Solar Demonstration Project is slated for 2016 budget deliberations.

Table 6 – Future CVRD Energy Conservation Projects

2016 Projects	Electrical Savings (kWh)	Fuel Savings (GJ)	Total Annual Cost Savings	Budget Retrofit
CLSA Curling Lights	26,496	-	$ 3,277	$ 25,000
SLCC Energy Study Projects	58,870	-	$ 9,897	$ 99,740
Elsie Miles Heating/Window Upgrade	-	184	$ 6,237	$ 74,928
CLSA Energy Study Projects	59,665	-	$ 9,722	$ 34,951
Bings Creek Energy Study Projects	59,655	-	$ 18,432	$ 65,620
Bings Creek Solar PV Demonstration	22,788	-	$ 2,600	$ 74,000
Ornamental Street Light LED Upgrade	65,720	-	$ 8,544	$ 35,650
Behavioural	Difficult to Quantify			
SUB-TOTAL	**293,194**	**184**	**$ 58,709**	**$ 409,889**
2017 Projects	**Electrical Savings (kWh)**	**Fuel Savings (GJ)**	**Total Annual Cost Savings**	**Budget Retrofit**
Kerry Park Rec Centre Phase 2	61,986	769	$ 16,478	$ 183,857
CVRD Head Office Projects	58,088	92	$ 10,399	$ 89,514
Fire Halls	TBD	TBD	TBD	TBD
Parks Facilities	TBD	TBD	TBD	TBD
Water and Sewer Systems	TBD	TBD	TBD	TBD
Behavioural Projects	Difficult to Quantify			
SUB-TOTAL	**120,074**	**861**	**$ 26,877**	**$ 273,371**
GRAND TOTAL	**413,268 kWh***	**1,045 GJ**	**$ 85,586**	**$ 683,260**

*413,268 kWh is equal to 1487 GJ

For the upcoming 2016 year, proposed projects have been brought forward to their respective commissions for approval through the regular budget process. There a numerous lighting and mechanical upgrade projects proposed at Bings Creek Recycling Centre, Cowichan Lake Sports Arena, Shawnigan Lake Community Centre, Elsie Miles School and also ornamental street lights that will reduce operating costs by a further $58,709 and reduce electricity consumption by 293,194 kWh and natural gas by 184 GJ GJ.

Projects for 2017 have been identified for KPRC and for the CVRD Head Office. An energy analysis of the water and sewer systems, fire halls, and facilities owned and operated by the Parks Division will be conducted in 2016 with the intent of identifying additional ECMs and potential projects for 2017.

These future projects, including the energy analysis projects, provide the roadmap to achieving the CVRD's targeted 25% energy reduction for 2018. A complete breakdown of the completed/in-progress/future projects and how they contribute to meeting the 2018 energy reduction target can be found in Appendix A.

Organizational Initiatives

Organizations initiatives (Table 7) have been ongoing from the start of the CVRD's SEMP. They are intended to shift the culture of the organization to include energy awareness in the daily decision making process. Quantifying the savings of these initiatives is challenging, but their importance cannot be overlooked, as organizational change is crucial to the long-term success of the SEMP.

Table 7 – CVRD Energy Awareness Organizational Initiatives

Initiative	Description	Status
Green Team	The CVRD Green Team (Appendix B - Energy Volunteers) spreads conservation tips and awareness to CVRD staff. Staff have been engaged in household Powersmart programs and have reduced personal energy use at home. The Green Team quarterly newsletter has highlighted these initiatives, and lunch and learn information sessions provide a platform to engage staff members. Lunch and learn topics have included solar photovoltaics, water conservations, and home energy ratings. The Green Team is an important forum for energy topics as it has representation from all divisions of CVRD including the operating coordinators for the three main recreation centres. This allows for consistent messaging and communication on energy and environmental issues across the organization.	Ongoing
Policy Development	The CVRD is developing a suite of policies to address environmental and energy issues within its built environment and to embed energy conservation into the operation and management culture of its facilities. These policies include: • *Green-Building Policy* to consider energy cost in the renovation and construction of CVRD facilities; • *Anti-Idling Policy* to reduce fuel consumption, improve air quality, lower greenhouse gas emissions, and reduce CVRD operation expenses; • *Purchasing Policy* to encourage sustainable purchasing practises which include the lifecycle analysis of potential purchases; and • *Operations and Maintenance Best Practices Guide* to ensure facilities staff operate and maintain equipment in a manner that is most efficient and maximizes useful life.	Ongoing
Social Media	Weekly energy conservation tips and educational links are posted to CVRD's Facebook page. Information has included updates to BC Hydro's Home Energy Rebate Offer Program and other programs, as well as the Province's Oil to Heat Pump Incentive Program.	Ongoing
CVRD Energy Management Website	A CVRD Energy Management website has been developed as a repository for the SEMP, Carbon Action Revenue Incentive Program Reports, and other related documents. This provides a consistent, transparent and easily accessible records management system for staff and public.	Ongoing
New Employee Sustainability Guide & Pledge	The guide will inform new employees as to the sustainability actions and commitments of the CVRD. This will include energy reduction targets of the SEMP and GHG reduction initiatives. Employees will be encouraged to sign a pledge to uphold the CVRD's sustainability values.	Planned for 2016
Energy Management Database	The CVRD will be establishing an energy management data base using the SoFi sustainability tracking software. This will ensure consistent data tracking of energy consumption and expenses which will enable easy and convenient quarterly energy reporting on all CVRD facilities.	Planned for 2016

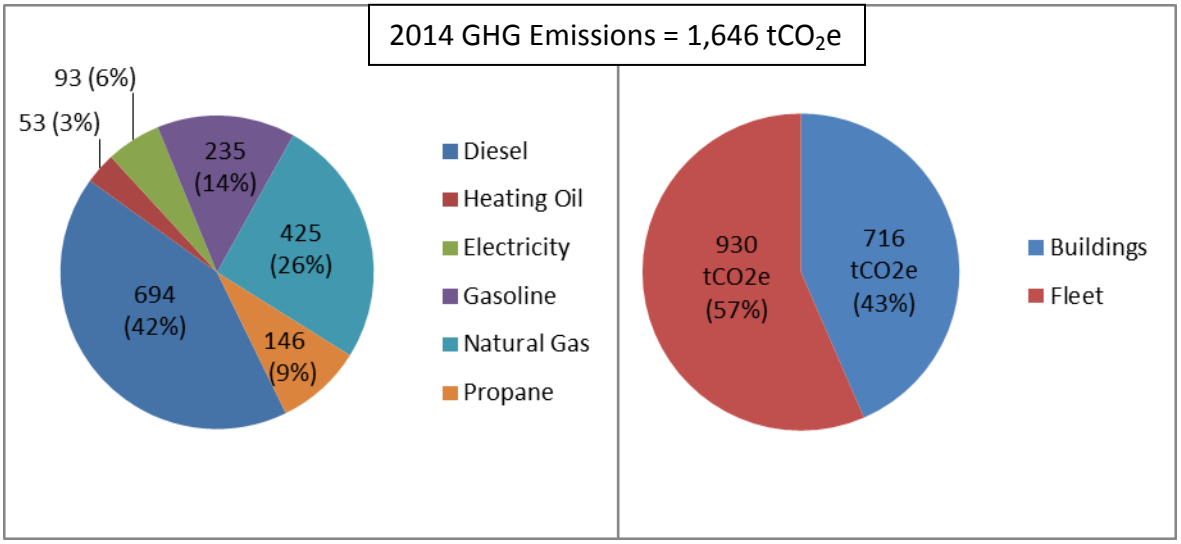
Greenhouse Gas Emissions

The CVRD is signatory to the BC Climate Action Charter which voluntarily commits the organization to the following goals:

- Being carbon neutral in respect to operations by 2012;
- Measuring and reporting on the community's GHG emissions profile; and
- Creating complete, compact, more energy efficient rural and urban communities.

A GHG emissions baseline of 1,470 tonnes of CO2e (tCO_2e) was established in 2012. The 2014 CVRD GHG inventory includes emissions from fleet and buildings (Figure 5). Total emissions for the 2014 calendar year were 1,646 tCO_2e. The increase in emissions from the baseline is primarily due to an increase in emissions associated with the CVRD's fleet. In 2014, 930 tCO_2e (57%) of these emissions came from fuel use associated with the CVRD fleet and the other 716 tCO_2e (43%) came from energy consumption at CVRD buildings. Whereas in 2012, associated fleet emissions were 387 tCO_2e (26%) and building emissions were 1,087 tCO_2e (74%). The increase in fleet emissions is likely a result of increased services and functions managed by the CVRD, and also the refinement of data collection related to fleet fuel consumption.

Figure 6 – 2014 CVRD GHG Emisions by Fuel Type and Source



In 2014, the CVRD was able to claim 1,646 tCO2e in offset credits from yard and garden organic waste diversion from the landfill and the energy efficiency upgrades at the Cowichan Valley Station Hub. These offsets enable the CVRD to claim Carbon Neutral Status and carry forward an additional 1,848 tCO2e of carbon offsets to use in future years. It is expected that carbon offset credits will not be able to offset 100% of GHG emissions by 2018 and the CVRD will have to consider purchasing offsets to maintain its carbon neutral status. The current rate for carbon offsets is $30/tonne. Offsetting all the 2014 corporate GHG emissions would have

cost approximately $49,380. Eliminating fossil fuel consumption or switching to low-carbon fuels is the surest way for the CVRD to reduce it GHG emissions, although other offset projects could be considered. Fleet management initiatives should also be considered as the associated fleet GHG emission are now greater than emissions from buildings. A 25% reduction in CVRD energy consumption is estimated to reduce baseline GHG emissions from buildings by an estimated 40% by 2018.

Conclusion

The CVRD has a target and a strategic plan to reduce its energy consumption by 25% below 2012 levels by 2018. In 2012, the CVRD consumed 53,115 GJ of energy (excluding fleet), which resulted in energy costs of $1,177,816 and 1,083 tCO2e. Since the 2012 implementation of the SEMP there has been:

- A 12% energy reduction equivalent to 8,730 GJ, which equals 5,238 GJ (or 1,455,000 kWh) was from electricity and 3,492 GJ from fossil fuels;
- Cumulative avoided costs of $ 259,000;
- Acquired incentives of $428,000; and
- GHG reduction (excluding fleet) of 367 tCO2e.

It is estimated that by 2018 continued implementation and support of the SEMP will result in:

- A 25% energy reduction equivalent to 13,325 GJ, which equals 7,059 GJ (or 1,960,000 kWh) from electricity and 6,266 GJ from fossil fuels;
- Cumulative dollars saved of $ 1.2 million;
- Acquired incentives of $688,000; and
- GHG emissions reduction of 433 tCO_2e.

Due to the distributed decision making process of the CVRD, it is necessary that staff, management, commissions and CVRD Board are engaged and embrace the overall long-term strategy of this plan (Appendix C – List of Stakeholders). This includes support for both technical projects and organizational initiatives. Continued investment in the SEMP sets the CVRD as a leader in creating energy smart solutions and ensuring long term sustainability of its services to the community.

Appendix A - Complete, In Progress, and Future Projects

Summary Table

Project Status	Electrical Savings (GJ)	Fuel Savings (GJ)	Total Annual Cost Savings	Budget Retrofit	Incentive	Simple payback
Completed Projects	5,264	8,093	$ 277,749	$ 1,740,833	$ 428,151	4.7
Projects in Progress	307	184	$ 19,411	$ 199,668	$ 20,000	9.3
2016 Projects	1,055	1,276	$ 66,175	$ 483,592	$ -	7.3
2017 Projects	432.27	TBD	$ 26,877	$ 273,371	$ -	10.2
Total	**7,059**	**9,553**	**$ 390,213**	**$ 2,697,464**	**$ 448,151**	**5.8**

Completed Projects - Estimated Savings

Project	Electrical Savings (GJ)	Fuel Savings (GJ)	Total Annual Cost Savings	Budget Retrofit	Incentive	Simple payback
Arbutus Mountain STP	362	0	$ 9,364	$ -	$ -	0.0
Cowichan Lake Community Hall Heating	463	966	$ 41,981	$ 250,000	$ 160,000	2.1
Malahat & HMB Fire Hall Heating	71	37	$ 4,919	$ 22,156	$ 14,771	1.5
Realice Project	413	703	$ 8,000	$ 56,000	$ 56,000	0.0
ISC Energy Project	1,551	4,701	$ 119,530	$ 480,000	$ 129,000	2.9
Kerry Park Refrigeration/slab	1,668	1,686	$ 74,202	$ 810,500	$ 30,000	10.5
Misc. Lighting at Facilities	316	-	$ 8,754	$ 35,000	$ 10,147	2.8
ISC Compressors	421	-	$ 11,000	$ 87,177	$ 28,233	5.4
Total	**5,264**	**8,093**	**$ 277,749**	**$ 1,740,833**	**$ 428,151**	**4.7**
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Projects in Progress

Project	Electrical Savings (GJ)	Fuel Savings (GJ)	Total Annual Cost Savings	Budget Retrofit	Incentive	Simple payback
CLSA Curling Lights	95	-	$ 3,277	$ 25,000	$ 5,000	6.1
SLCC Energy Study Projects	212	-	$ 9,897	$ 99,740	$ 15,000	8.6
Elsie Miles Heating/Window Upgrade	-	184	$ 6,237	$ 74,928	$ -	12.0
Total	**307**	**184**	**$ 19,411**	**$ 199,668**	**$ 20,000**	**9.3**

Future Projects

Project	Electrical Savings (GJ)	Fuel Savings (GJ)	Total Annual Cost Savings	Budget Retrofit	Incentive**	Simple payback	Status
Kerry Park Energy Study Projects	223	769	$ 16,478	$ 183,857	$ -	11.2	Planned for 2017
CLSA Energy Study Projects	215	215	$ 9,722	$ 34,951	$ -	3.6	Budgeted for 2016
Ingram Energy Study Projects	209	92	$ 10,399	$ 89,514	$ -	8.6	Planned for 2017
Bings Creek Energy Study Projects	215	-	$ 18,432	$ 65,620	$ -	3.6	Budgeted for 2016
Bings Creek Solar PV Demonstration	82	-	$ 2,600	$ 74,000	$ -	28.5	Budgeted for 2016
Ornamental Street Light LED Upgrade	237	-	$ 8,544	$ 35,650	$ -	4.2	Planned for 2016&17
Firehalls	TBD	201	TBD	TBD	$ -	TBD	Idenitfy ECM in 2016
Parks Facilities	TBD	TBD	TBD	TBD	$ -	TBD	Idenitfy ECM in 2016
Water & Sewer Systems	TBD	TBD	TBD	TBD	$ -	TBD	Idenitfy ECM in 2016
Behavioural Projects	-	-	$ -	$ -	$ -	-	Ongoing
Total	**1,180**	**1,276**	**$ 66,175**	**$ 483,592**	**$ -**	**7.3**	**Not started**

** Incentives not identified at this point as this changes depending on when these projects are completed

Appendix B - List of Energy Volunteers (Green Team)

Name	Title	Division	Contact Info
Keith Lawrence	Sr. Environmental Analyst	Environmental Initiatives	klawrence@cvrd.bc.ca
Brad Coleman	Facility Operations Coordinator	Island Savings Centre	bcoleman@cvrd.bc.ca
Tony Liddle	Facility Operations Coordinator	South Cowichan	tliddle@cvrd.bc.ca
Rob Frost	Facility Operations Coordinator	Cowichan Lake Recreation	rfrost@cvrd.bc.ca
Tod Lesergent	Island Savings Centre Lead-Hand	Island Savings Centre	tlesergent@cvrd.bc.ca
David Parker	Utilities Operator	Water Management	dparker@cvrd.bc.ca
Lisa Daugenet	Engineering Technologist II	Water Management	ldaugenet@cvrd.bc.ca
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Ilse Sarady	Environmental Technologist II	Recycling and Waste Management	isarady@cvrd.bc.ca
Allison Garnett	Planner II	Development Services	agarnett@cvrd.bc.ca
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Graham Gidden	Parks and Trails Planner	Parks and Trails	ggidden@cvrd.bc.ca
Andrea Kross	GIS Technician	Information Technology	across@cvrd.bc.ca

Appendix C - List of Stakeholders

Name	Title	Organization	Contact Info
Cowichan Valley Regional District Communities	Electoral and Municipal Area Community Members	None	none
Kerry Davis	Board of Directors	Area A - Mill Bay/ Malahat	kdavis@cvrd.bc.ca
Sonia Furstenau	Board of Directors	Area B - Shawnigan Lake	sfurstenau@cvrd.bc.ca
Matteus Clement	Board of Directors	Area C - Cobble Hill	mclement@cvrd.bc.ca
Lori Iannidinardo	Board of Directors	Area D - Cowichan Bay	liannidinardo@cvrd.bc.ca
Alison Nicholson	Board of Directors	Area E - Cowichan Station/Sahtlam/Glenora	anicholson@cvrd.bc.ca
Ian Morrison	Board of Directors	Area F - Cowichan Lake South/Skutz Falls	imorrison@cvrd.bc.ca
Mel Dorey	Board of Directors	Area G - Saltair/Gulf Islands	mdorey@cvrd.bc.ca
Mary Marcotte	Board of Directors	Area H - North Oyster/Diamond:	mmarcotte@cvrd.bc.ca
Klaus Kuhn	Board of Directors	Area I - Youbou/Meade Creek	kkuhn@cvrd.bc.ca
Bob Day	Board of Directors, Vice-Chair	Town of Lake Cowichan:	directorbobkday@gmail.com
Aaron Stone	Board of Directors	Town of Ladysmith	astone@ladysmith.ca
Phil Kent	Board of Directors	City of Duncan	mayor@duncan.ca
Jon Lefebure	Board of Directors, Chair	Municipality of North Cowichan	chairperson@cvrd.bc.ca
Tom Walker	Board of Directors	Municipality of North Cowichan	tom.walker@northcowichan.ca
Kate Marsh	Board of Directors	Municipality of North Cowichan	kate.marsh@northcowichan.ca
Brian Carruthers	CAO	CVRD	bcarruthers@cvrd.bc.ca
Hamid Hatami	General Manager – Engineering Services	CVRD	hhatami@cvrd.bc.ca
Ross Blackwell	General Manager – Planning & Development	CVRD	rblackwell@cvrd.bc.ca
Mark Kueber	General Manager – Corporate Services	CVRD	mkueber@cvrd.bc.ca
John Elzinga	General Manager – Community Services	CVRD	jelzinga@cvrd.bc.ca
Victoria Richards	Key Account Manager	BC Hydro	victoria.richards@bchydro.ca

BC Hydro: Energy Manager 4th Quarter Assessment Form - SEMP Self- Evaluation

For BC Hydro to complete

File Number		
Quarter	④	
PSE Signature: SEMP Completed		Date:
Projects that used PS incentives:		

PS Program Incentive	kWh
PSP	
PSP Express	
New Construction	
Total	
Behavioural Program (2%)	

Turnaround time for 4th Q review: _____days

Tracking:

	2nd Q Draft SEMP Submitted Date	Date PSE Coaching Comments Returned to EM	4th Q SEMP submitted date	Reviewed and Coaching comments returned to EM: Date	*If EM needed to resubmit :date	If PSE reviewed: Date
Energy Manager	Oct 8, 2015					
PSE		Nov 4, 2015				

PSE Coaching Comments For Improvements (Not required for sign-off)

	Date: Duration	Date: Duration	Date: Duration	Date: Duration
Energy Manager contacted PSE for assistance	July 31, 2015 meeting with Simon Vickers (BC Hydro)	Sept 15, 2015 Webinar with Robert Greenwald (Prism Engineering)		

Year 2 +: Strategic Energy Management Plan requirements

6 Critical Elements must be included in the Strategic Energy Management Plan	**Page number where the element is addressed in the SEMP**	**Energy Manager evaluation**	**PSE Agrees**
1) A purpose statement which answers the following questions:		☐	☐
☐ a) What is your kWh reduction target?	2		
☐ b) What is the Key Performance Indicator for your organization?	5		
☐ c) Who do you need to engage to make you plan successful?	17,19,20		
2) A table that compares all your building in your portfolio		☐	☐
☐ a) BEPI- updated to the current year	5,6,7,8		
☐ b) Explanation of Top 10 worst performing buildings	5,6		
3) Explain what the opportunities are to become more efficient.		☐	☐
☐ a) Project List	11,12		
☐ b) Initiative List: Behavioural and Organisational	14		
☐ c) Studies: Outline which buildings have had studies completed.	10		
4) Outline the budget to implement projects		☐	☐
☐ a) If No Budget? Can't forecast your budget? You must explain why not and what you intend to do about getting a budget.	12,18		
5) Conclusion: How is your plan doing?		☐	☐
☐ a) Outlined kWh saved	17		
☐ b) Outlined GHG tons saved	17		
☐ c) Outlined total dollars saved to the organisation	17		
☐ d) Outlined avoided cost	17		
☐ e) Outlined total dollars saved	17		
6) Senior Management Support		☐	☐
☐ a) Approval of the SEMP : Signature on the SEMP	title page		