

Strategic Energy
Management Plan



North Vancouver
School District
the natural place to learn®

January 2016

Partnering with:



Senior Management Support:

Georgia Allison, Secretary - Treasurer

Signature: _____

Table of Contents

EXECUTIVE SUMMARY	3
1. INTRODUCTION	4
2. OUR ORGANIZATION	5
2.1 ORGANIZATIONAL PROFILE.....	5
2.2 FACILITY PROFILES	7
3. OUR COMMITMENT	8
3.1 STRATEGIC AND OPERATIONAL PLANS.....	8
3.2 SUSTAINABILITY AS CONTEXT	8
3.3 ENERGY MANAGEMENT COMMITMENT	9
4. UNDERSTANDING OUR SITUATION	10
4.1 ENERGY CONSUMPTION AND COSTS	10
4.2 KEY PERFORMANCE INDICATORS	11
5. OUR ACTIONS	14
5.1 ENERGY TARGETS	14
5.2 GOALS AND OBJECTIVES	14
6. TECHNICAL, ORGANIZATIONAL AND BEHAVIOURAL INITIATIVES	16
6.1 COMPLETED PROJECTS	17
6.2 PROJECTS IN PROGRESS.....	18
6.3 POTENTIAL PROJECTS (AFG 2016/17).....	19
6.4 POTENTIAL PROJECTS (BEYOND 2016/17)	20
6.6 PROJECTED AVOIDED COSTS.....	21
6.7 PLANNED ACTIONS	22
6.8 SOURCE OF PLANNED SAVINGS	23
6.9 ENERGY STUDIES	23
6.10 ORGANIZATIONAL INITIATIVES	24
6.11 ENERGY MANAGEMENT ENGAGEMENT	25
7. MONITORING AND REPORTING – HOW ARE WE DOING?.....	26
7.1 HISTORICAL PROGRESS	26
7.2 ENERGY SAVINGS PROGRESS	26
8. APPENDIX A - STAKEHOLDERS AND COMMITTEES	29
9. APPENDIX B - SUSTAINABILITY POLICY	30
10. APPENDIX C - ENERGY MANAGEMENT ASSESSMENT (EMA)	32
11. APPENDIX D - ENERGY DATA AND REPORTS	33
12. APPENDIX E: TARGETS BY SITE (2013/14).....	36
13. APPENDIX F - ASSET REGISTRY.....	37

Prepared by:



EXECUTIVE SUMMARY

A key element of NVSD's commitment to providing the "highest standard" of education is to demonstrate leadership in environmental stewardship by providing programs, education and facilities that foster greater sustainability. Energy Management is a key aspect of environmental stewardship for NVSD. Through the sponsorship of BC Hydro's Power Smart program, NVSD has engaged an Energy Manager since 2011.

By focusing on energy management, NVSD is reducing its exposure to energy cost escalations, demonstrating environmentally responsible development on the North Shore, and reducing its reliance on the province's energy infrastructure.

This Strategic Energy Management Plan, or SEMP, outlines the initiatives and processes that NVSD has taken and will continue to take.

In fiscal 2014/15, NVSD spent \$1.5 million on energy; \$970,000 on electrical energy, and \$605,000 on fuel. Based on the projects identified, the avoided costs related to energy management projects have grown and will continue to grow during the implementation of the SEMP.

This SEMP includes a goal to obtain an energy reduction of 20% by June 2019 (2018/19 fiscal year). These savings will be made up of approximately 28% reduction in electrical energy and 16% reduction in fuel. As a result of these efforts, by 2019, the **annual** avoided costs will reach approximately \$410,000, not including savings from carbon offsets.

Compared to our baseline, the energy savings as of December 2015 for all facilities (excluding leased locations) are:

- **1,635,638 kWh** **14.6% for electricity**
- **5,641 GJ** **9.3% for fuels**
- **11,530 eGJ** **11.4% overall energy savings**

As these results demonstrate, we are well on our way to our target. To measure savings for any new sites added or major upgrades after 2009/10, we are using the first year of operation as its baseline. Sites which have been sold or buildings demolished have been removed from the portfolio.

1. INTRODUCTION

This Strategic Energy Management Plan (SEMP) supports the North Vancouver School District's (NVSD) commitment to energy efficiency and conservation by providing a framework for reducing energy consumption and its associated environmental impact. This SEMF includes a specific energy reduction target and an action plan of how the target will be achieved.

By implementing the actions detailed in this SEMF, NVSD is demonstrating leadership through innovation and accountability for the resources it uses as a school district. Further, NVSD is also reducing its exposure to energy cost escalations, demonstrating environmentally responsible development on the North Shore, and reducing its reliance on the province's energy infrastructure.

An Energy Manager was hired in February 2011 through the sponsorship of BC Hydro's Power Smart program. The key focus for the Energy Manager includes five action areas identified in the BC Hydro Energy Management Assessment (EMA): Policy, Targets/Reporting, Plans/Actions, Teams/Committees, and Employee Awareness/Training. See Appendix C for more information on the EMA process.

While five key areas of energy management are identified above, it is also important to recognise the broader picture of energy management for the district, which can be represented by the diagram below.



This SEMF provides the framework required to link together all aspects of energy management at NVSD and gives strategic direction for NVSD to succeed in setting and meeting its reduction target.

2. OUR ORGANIZATION

The North Vancouver School District (NVSD) provides kindergarten, elementary and secondary education to an average of 16,000 students a year and employs over 2,000 educators and non-teaching staff. NVSD district serves students throughout the City and District of North Vancouver. The District's annual operating budget is approximately \$140 million with an additional \$115 million in capital funding for new construction, renovations and improvements.

Please note that this SEMP does not include energy use directly billed to others at NVSD's leased locations (see Appendix for a list of leased locations). The fiscal year used in this report is the July to June fiscal year.

2.1 Organizational Profile

Table 1 Organization Profile

Organizational Profile					
P E O P L E	Sector	Education (School District)			
	Number of Students	04/05	17,237	10/11	15,186
		05/06	16,855	11/12	15,433
		06/07	16,256	12/13	15,356
		07/08	15,684	13/14	15,042
		08/09	15,457	14/15	15,082
		09/10	15,314	15/16	15,980
Number of Staff	2137 employees (full-time and part-time): 118 admin & management, 974 teachers, and 1045 other staff				
O P E R A T I O N S	Total Number of Sites (details in Appendix F)	41 Total: 25 Elementary Schools 7 Secondary Schools 3 Other (ESC, Cheakamus Centre, Leo Marshall Curriculum Centre/Lucas Centre – Partially Closed) 2 closed sites 4 leased sites			
	Energy Management Issues / Obstacles	Limited staff time (Maintenance responding to issues) Energy Management is not allocated as a responsibility State of some buildings and mechanical systems Budget challenges for upgrades			
	Core Business Metrics	Per Square meter Per student Per FTE staff			
	Business Year	July 1 st to June 30 th			
	Budget Cycle	Draft of budget requests are required by March			

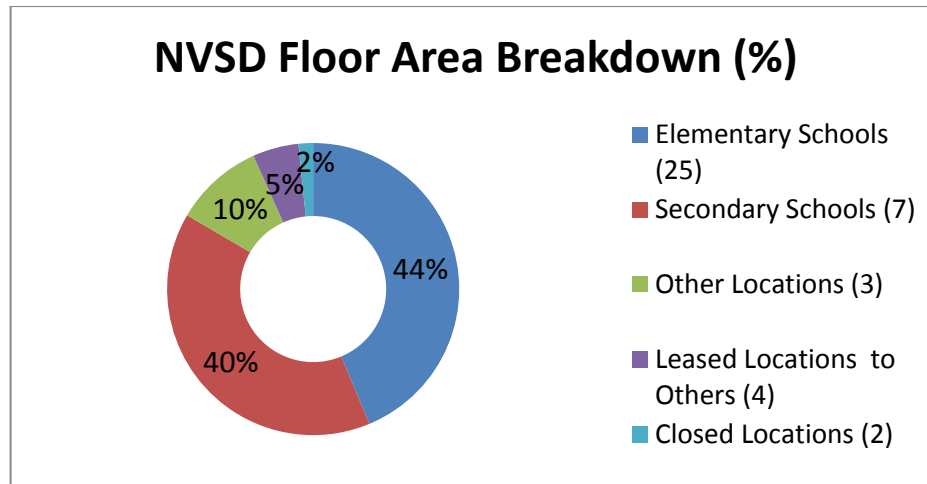
Maintenance Budget Cycle	July 1- June 30 2011/12	July 1- June 30 2012/13	July 1- June 30 2013/14	July 1- June 30 2014/15
Facilities Operations Budget (Labour, Supplies, Contracts, and Utilities)	\$10,840,000 out of \$135,000,000 overall ~ 8.0% of budget	\$11,130,000 out of \$137,000,000 overall ~ 8.1% of budget	\$11,060,000 out of \$139,000,000 overall ~ 7.9% of budget	\$12,274,000 out of \$138,000,000 overall ~ 8.9% of budget
Utilities Budget	Total \$2,058,400 or ~ 19% of facilities <ul style="list-style-type: none"> Electricity: \$841,500 Gas: \$682,000 Propane: \$39,000 Carbon offsets: \$128,600 Water: \$87,800 Sewage: \$132,500 Garbage and Recycling: \$146,500 	Total \$2,076,300 or ~ 19% of facilities <ul style="list-style-type: none"> Electricity: \$888,900 LEC: \$68,900 Gas: \$602,400 Propane: \$8,000 Carbon offsets: \$122,400 Water: \$87,800 Sewage: \$131,500 Garbage and Recycling: \$166,500 	Total \$2,015,100 or ~ 18% of facilities <ul style="list-style-type: none"> Electricity: \$770,700 LEC: \$60,000 Gas: \$700,000 Propane: \$10,000 Carbon offsets: \$110,100 Water: \$62,800 Sewage: \$140,600 Garbage and Recycling: \$160,000 	Total \$2,305,000 or ~ 19% of facilities <ul style="list-style-type: none"> Electricity: \$880,000 LEC: \$70,000 Gas: \$798,000 Propane: \$10,000 Carbon offsets: \$130,000 Water: \$90,000 Sewage: \$140,000 Garbage and Recycling: \$187,000
Maintenance Contract Budget (including categories relating to Energy Management)	Heating: \$151,000 Electrical: \$33,000 Lighting Service: \$60,000	Heating: \$201,000 Electrical: \$33,000	Heating: \$221,000 Electrical: \$33,000 Lighting: \$35,000	Heating: \$221,000 Electrical: \$40,000 Lighting: \$40,000
Capital Budget (including categories relating to Energy Management)	AFG 11/12 <ul style="list-style-type: none"> Mechanical \$800,000 Electrical \$750,000 	AFG 12/13 <ul style="list-style-type: none"> Mechanical \$900,000 Electrical \$250,000 	AFG 13/14 <ul style="list-style-type: none"> Mechanical \$547,000 Electrical \$250,000 	AFG 14/15 <ul style="list-style-type: none"> Mechanical \$545,800 Electrical \$302,000
Energy Efficiency Project Budget			Funds from AFG are used for energy related projects.	Funds from AFG are used for energy related projects.

An additional reference is the percentage of student funding spent on energy: of the approximate \$8,000 in annual funding per student, approximately \$150 or 2% was spent on utilities.

2.2 Facility Profiles

As of January 2016, NVSD operates 41 sites consisting of Elementary Schools (25), Secondary Schools (7), and other sites including the new Education Services Centre/Artist for Kids Gallery, Cheakamus Centre, and Lucas Centre (3). Several sites are now closed (2), there are no sites currently under renovation (0), and multiple sites leased to others (4). The properties that are leased to others have not been included in this SEMP. Appendix D provides details on the annual energy consumption, cost and intensity for each of NVSD's operated facilities.

The following graph shows a breakdown of total floor space by building type.



3. OUR COMMITMENT

The North Vancouver School District's vision is to "provide world-class instruction and a rich diversity of engaging programs to inspire success for every student and bring communities together to learn, share and grow." The School Board's Strategic and Operational Plans, Sustainability Policy and Superintendent's commitment to energy management underlines the importance of providing leadership in environmental education and sustainability practice. These various policies and commitments directly support a strategic energy management plan.

3.1 Strategic and Operational Plans

In September 2011, the North Vancouver School Board released its Ten Year Strategic Plan for which one high level goal is to "Provide leadership in environmental education and sustainability practice." The goal is defined as follows:

"It is our responsibility to be leaders in environmentally sound practices. What we learn and practice now will have an impact on the future; we want that to be a positive impact.

Through our sustainability initiatives and programs, we can engage students proactively in understanding and protecting the environment. We want to ensure we are using less and creating greater efficiencies in all of our operations.

We know that decisions we make now affect the future. Therefore, we need to demonstrate responsibility when managing our financial resources. Revenue generating initiatives will ensure that we continue to offer world-class instruction in modern, safe, efficient, and well-designed facilities."

Three objectives guide NVSD work to "Provide leadership in environmental education and sustainability practice:"

1. Facilitate student participation in environmental leadership and sustainability practices.
2. Embed sustainability in all planning, decision making and daily practices.
3. Utilize our resources to optimize the well-being of learners and benefit the long-term interests of the community.

A Three Year Operating Plan, released in October 2011, provides further details on these objectives. NVSD has several structures in place to support these strategies. In 2008 a Sustainability Leadership Team (SLT) was struck. The SLT includes representatives from almost all stakeholder groups, holds regular meetings and hosts an annual "Green Fair" to celebrate and share green initiatives at participating schools.

In September of 2011, NVSD allocated 25% of the BC Hydro's Energy Manager position to facilitate behavioural change regarding energy conservation.

3.2 Sustainability as Context

A key tenant of NVSD's commitment to providing the "highest standard" of education is to demonstrate leadership in environmental stewardship by providing programs, education and facilities that foster greater sustainability. As such, the board has developed a sustainability policy (See Appendix B) that commits the District to maintaining and operating its facilities and services in a sustainable manner. The Sustainability Education Framework laid out by the Ministry of Education in 2008 (See Appendix B) demonstrates provincial-level government support for this commitment to environmental stewardship.

Commitment Through Curriculum

One of the 4 pillars in the school district's sustainability policy includes "Support environmental education and sustainability initiatives."

3.3 Energy Management Commitment

Energy management is central to creating more environmentally sustainable operational practices. As such, in September 2010 John Lewis, Superintendent of Schools, signed a letter committing NVSD to pursuing energy management activities as a key approach to the District's commitment to environmental sustainability, including the development of this SEMP. The NVSD believes energy management is important for the following reasons:

- Protects the environment for future generations
- Fosters nurturing and healthy spaces for learning and working
- Provides enhanced support of student education through cost savings
- Aligns with provincial sustainability goals



4. UNDERSTANDING OUR SITUATION

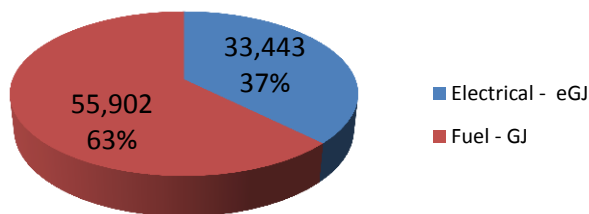
4.1 Energy Consumption and Costs

The total electricity and fuel (natural gas and propane) consumption and costs for July 1, 2014 to June 30, 2015 are summarized below in both table and graphical format. Although energy usage has decreased for both electricity and fuel, the costs have not decreased as much due to rate increases. Equivalent gigajoules (eGJ) have been used to combine both of the electrical (kWh) and natural gas and propane fuel (GJ) energy in a comparable unit¹.

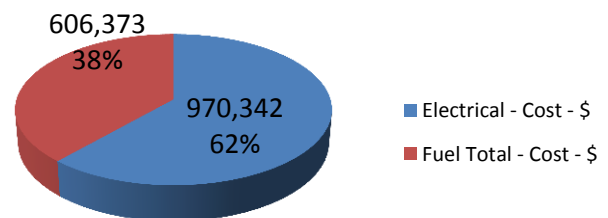
Table 2: Energy Consumption and Cost Summary

Utility	2013/14		2014/15	
	Consumption (eGJ)	Cost (\$)	Consumption (eGJ)	Cost (\$)
Electricity	36,486	\$ 988,598	33,443	\$970,342
Fuel (all fuels)	67,399	\$ 757,287	55,902	\$606,373
Total	103,884	\$ 1,775,627	89,225	\$1,576,715

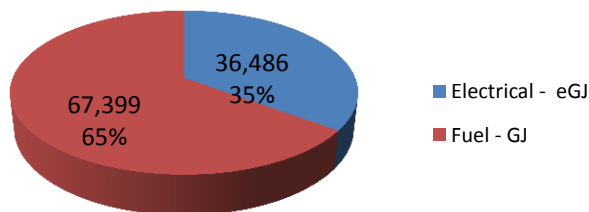
Energy Consumption Breakdown 2014/15



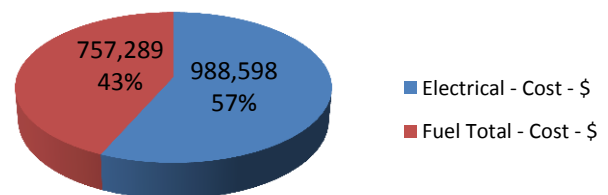
Energy Cost Breakdown 2014/15



Energy Consumption Breakdown 2013/14

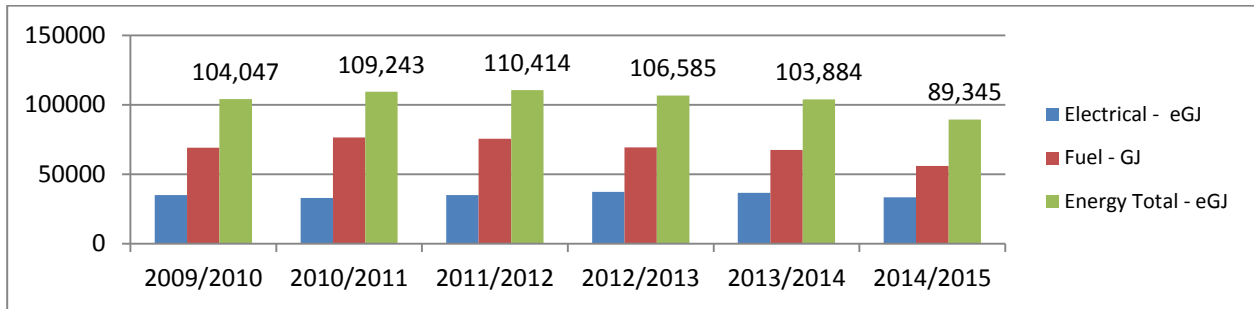


Energy Cost Breakdown 2013/14



¹ Equivalent energy unit of GJ (gigajoule) are used in this SEMP. Equivalent GJ, or eGJ, is used to represent both the electrical and fuel energy use in equivalent units. Electricity is billed in kWh (one unit of electricity measured in kWh is equivalent to 0.0036 GJ). Propane billed in litres as well as district energy sources are converted to GJ.

NVSD Energy Consumption (eGJ)

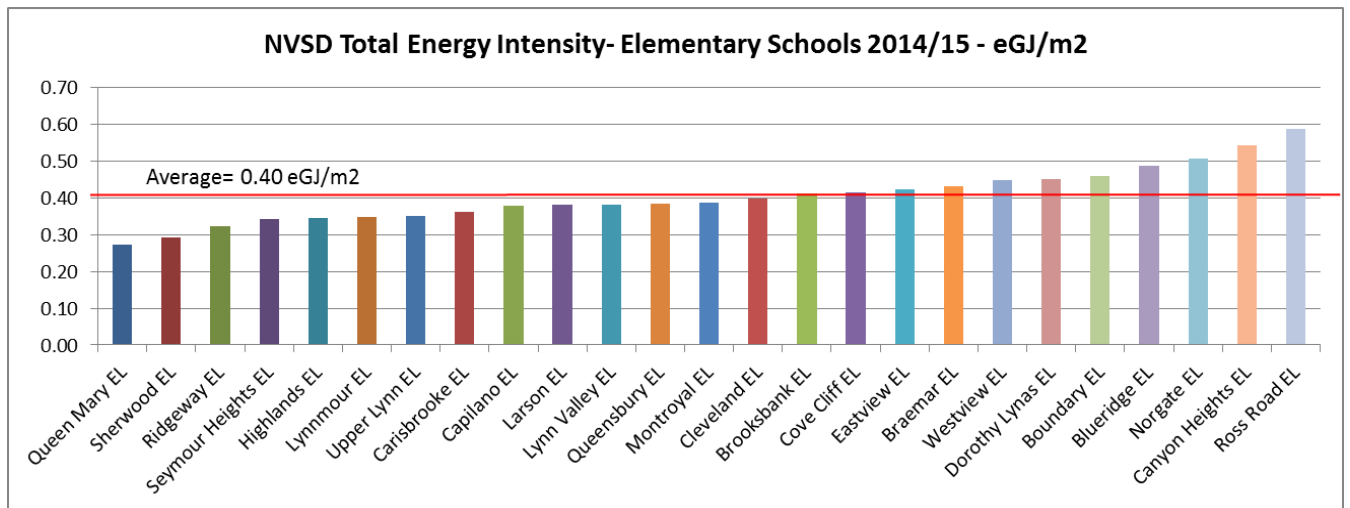


(Raw data, not corrected for weather or area growth)

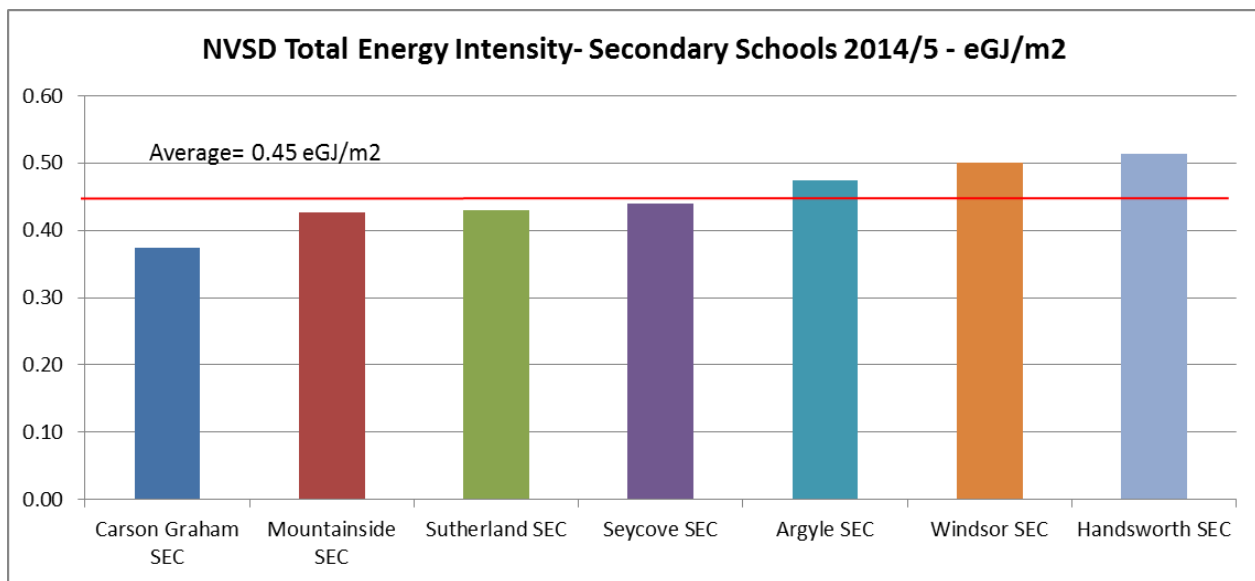
4.2 Key Performance Indicators

Building Energy Performance Index: Comparison by Building Type

The following graphs show BEPIs of several of NVSD's building types in order to compare energy performance between sites and to identify outliers and potential areas for improvement. Graphs present combined energy use (electricity, natural gas and propane). In 2014/15, BEPIs for NVSD's elementary schools range from 0.27 to 0.59 eGJ/m², although most buildings are below the NVSD elementary school average of 0.40 (shown by the red line of the chart).



NVSD's secondary schools have relatively more consistent BEPIs compared to the District's elementary schools, ranging from 0.37 to 0.51 eGJ/m².



The breakdown showing electricity and fuel for each site is included in Appendix D.

Schools with the Highest Energy Intensity

The following table provides a list of schools with the highest total energy BEPIs in 2014/15 and indicates what type of energy utility to investigate. This list, which excludes buildings that are being renovated, is currently being used to help focus energy investigations. Education Services Centre (ESC), Cheakamus Centre and Lucas Centre are excluded from the comparison since the unique nature of these buildings does not provide a useful benchmarking comparison.

	School Building	Elec. BEPI (eGJ/m ²)	Fuel BEPI (eGJ/m ²)	Total BEPI (eGJ/m ²)	Status
1	Ross Road EL	0.16	0.43	0.59	Electrical and Fuel savings to be reviewed in 2015/16
2	Canyon Heights EL	0.15	0.39	0.54	Electrical and Fuel savings to be reviewed in 2015/16
3	Handsworth SEC	0.17	0.34	0.51	Controls upgrade was completed in 2013 and energy use expected to drop
4	Norgate EL	0.13	0.38	0.51	Energy/Mechanical upgrades occurring in 2014/15. Potential envelope upgrades
5	Windsor SEC	0.15	0.36	0.50	Controls improvements completed. Following up on savings in 2015/16
6	Blueridge EL	0.15	0.34	0.49	Low cost and short term payback opportunities will be reviewed
7	Argyle SEC	0.16	0.32	0.47	Short term payback controls upgrades are being reviewed in 2015/16
8	Boundary EL	0.13	0.33	0.46	Major mechanical update in Summer/Fall 2015
9	Dorothy Lynas EL	0.14	0.31	0.45	Electrical and Fuel savings to be reviewed in 2015/16
10	Westview EL	0.16	0.29	0.45	Electrical and Fuel savings to be reviewed in 2015/16

PERFORMANCE INDICATOR BASED ON NUMBER OF STUDENTS

Another key performance indicator (KPI) metric that is sometimes used by BC school districts is to compare energy use to the number of full time student equivalents (FTEs) in a given year. The following table compares this performance indicator from the 2009/10 fiscal year through to 2014/15.

Table 3 Key Performance Indicator

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
FTE Students	15,314	15,186	15,433	15,356	15,042	15,082	15,980
Energy Total (eGJ)	104,047	109,243	110,414	106,585	103,884	89,345	TBD
KPI: eGJ/Student	6.79	7.19	7.15	6.94	6.91	5.96	TBD
Energy Costs (\$)	\$1,422,467	\$1,426,594	\$1,487,680	\$1,592,679	\$1,745,886	\$1,576,715	TBD
KPI: Energy Costs/Student	\$ 92	\$94	\$ 96	\$104	\$ 116	\$ 105	TBD

Energy costs, specifically electricity, has increased significantly over the past few years. Our efforts at conservation has avoided additional expenditures per student. Therefore, it is an even bigger of a 'win' when you see a drop from \$116 to \$105 energy cost per student from 2013/14 to 2014/15 given the increases in the cost of electricity (during this period we saw a 13.7% reduction in energy per student yet only a 9.5% decrease in the energy cost per student).

5. OUR ACTIONS

5.1 Energy Targets

Our organization has a goal to obtain an energy reduction of 20% below 2010 levels by 2019.

The target savings are made up of approximately 28% reduction in electricity and a 16% reduction in fuel. The timeline to achieve this goal is by June 2019 (2018/19 fiscal year). The target is based on planned projects and projected savings.

This target has evolved over the years. The original target was established in conjunction with BC Hydro during the first 6 months of the Energy Manager program based on an Energy Management Assessment (EMA) carried out, comparisons to other similar school districts, and a review of opportunities through energy audits. In March 2014, the target was 13% by June 2016

Base Period Selection

To track energy savings, a 'base period' was selected to provide a platform for comparing energy use. The base period selected was 2009/10, which was the fiscal year before the Energy Manager started.

To account for changing building areas, baselines will be created for new or significantly renovated buildings one year into normal operations. The sites where there is NOT a 2009/10 baseline include the following:

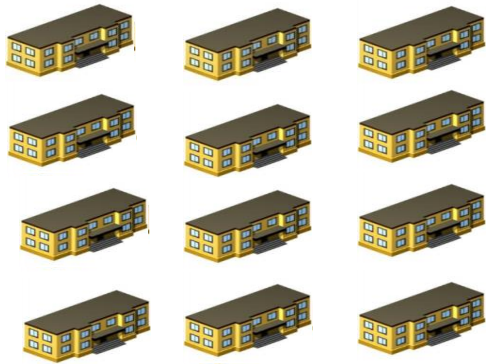
- Carson Graham (baseline is Feb 2013-Jan 2014)
- Cheakamus- Elec account #9 only (baseline is July 2013-June 2014)
- ESC/AFK (baseline is Nov 2012-Oct 2013)
- Lucas Centre (baseline is Nov 2012-Oct 2012)
- Queen Mary (baseline is July 2014-June 2015)
- Ridgeway Elementary (baseline is Apr 2012-Mar 2013)

5.2 Goals and Objectives

The energy savings required to meet the target for each utility are shown in the following table:

	Electrical Consumption (kWh)	Fuel Consumption (GJ)	Total Energy (eGJ)
Baseline Consumption (2009/10 actual data)	9,729,589	69,021	104,048
Reduction Target	28.0%	15.9%	20%
Energy Reduction Goals	2,724,285	11,005	20,810

The target energy saving (including electricity and fuel) is equivalent to providing enough energy for 12 elementary schools in NVSD for a year, and is equivalent to enough energy to power 525 BC homes for a year.



**x 12 Elementary
Schools**



**X 525 BC homes
for a year**

6. TECHNICAL, ORGANIZATIONAL AND BEHAVIOURAL INITIATIVES

The following project list and engagement/communications plan encompass the technical, behavioural and organizational initiatives for NVSD.

To achieve the targets set out in Section 5, NVSD will take on cost-effective energy management initiatives and projects. Full lists of potential energy management projects as well as projects that have been approved, are in progress or have been completed are provided in the sections below.

Technical and Behavioural Projects

	Electrical Svgs (kWh)	Fuel Savings (GJ)	Total Budget Costs (\$)
Past/Completed Projects (DURING ENERGY MANAGER PROGRAM ONLY)	1,651,173	4,375	\$1,709,938
Projects In Progress	194,990	1,448	\$1,447,050
AFG 2016/17	566,722	1,578	\$1,075,194
Potential Projects	323,130	3,604	\$413,000
Totals	2,736,015	11,005	\$4,645,182

6.1 Completed Projects

Project Type	Location/Description	Electrical Savings (kWh)	Fuel Savings (GJ)	Total Budget Costs	Projected Completion Date
Lighting	Relamping upgrade to energy efficient fluorescent lighting at 27 locations	381,322		\$189,800	Sep-11
Lighting upgrade	Canyon Heights, Carisbrook, Westview	29,343		\$18,949	Sep-11
Lighting upgrade	Lynn Valley	14,978		\$50,000	Oct-11
Lighting controls	Add controls to outdoor lighting			\$11,000	Jun-12
Green IT/Copier	Copier consolidation at all locations	27,342			Sep-12
Solar Hot Water	Demo project at Carson		25		Sep-12
Lighting New Construction	Energy efficient lighting for Carson Graham new construction	56,345			Oct-12
Lighting New Construction	Energy efficient lighting for NVOS ELC new construction	40,042			Oct-12
Lighting New Construction	Energy efficient lighting for AFK/ESC new construction (3 floors)	34,591			Oct-12
Controls	DDC Optimization at 3 Locations (Canyon H, Cove C, Ross R)	50,207	140		Jan-13
Boiler Plant Upgrades	Brooksbank, Cove Cliff, Sherwood Park	10,961	1,476	\$497,015	Mar-13
Lighting upgrade	Ross Rd, Carson Graham, Larson	4,656			Mar-13
Lighting upgrade	Lighting retrofits with LED and Induction	17,758		\$ 38,585	Apr-13
HVAC Upgrade	Lynn Valley school	25,672	28	\$100,000	Sep-13
Lighting	Sutherland relamping	34,240		\$ 36,800	Sep-13
Behavior Change Program	10 Locations – Year 1 @ 2% savings	38,547		\$2,500	Oct-13
Controls	DDC Optimization (Blueridge, Old Board Office, Capilano, Carisbrooke, Norgate, Queen Mary at Cloverly, Queensbury)	14,780	282		Oct-13
Controls	DDC Optimization at 4 Locations (Argyle, Braemar, Canyon H, Ross R)	50,681		\$146,500	Dec-13
Lighting New Construction	Energy efficient lighting for Queen Mary new construction	37,805			Jan-14
Controls	DDC Support (group 1) (Argyle, Braemar, Boundary, Canyon H, Carisbrooke, Dorothy L, Ross R)	196,829		\$52,055	Jan-14
Controls	BC Hydro COP at Windsor, Handsworth, Seycove, Sutherland	165,500	1,104	\$110,000	Feb-14
Lighting upgrade	Retrofits at Handsworth, Seycove, Sutherland, Windsor, Larson, Ross Road, Westview, Canyon Heights	73,000		\$172,919	Mar-15
Lighting controls	Common area demo project at Sutherland	18,100		\$27,777	Mar-15
Controls	Mini COP schools completed in 2014 (All schools EXCEPT Keith L, Monterey, Plymouth, Queen M, Ridgeway A)	61,298	780	\$ -	Jan-15

Controls	Continued DDC Optimization Group 2 (12 locations) (Blueridge, Braemar, Brooksbank, Carisbrooke, Cleveland, Dorothy L, Larson, Plymouth, Queen M, Queensbury, Seymour H, Sherwood P, Westview)	61,162		\$64,600	Jan-15
Green IT	Green IT measures All Locations	66,767		\$ -	Mar-15
Boiler Plant	Larson	19,900	540	\$144,500	Apr-15
Controls	Continued DDC Optimization Group 3 (Blueridge, Capilano, Dorothy L, Handsworth, Lynnmour, Norgate, Ross R, Sherwood P, Windsor) AFG 2014/15 H	24,901		\$ 7,238	Sep-15
Boiler Plant Upgrade	Boiler Plant at Norgate AFG 2014/15 G	19,835	-	\$ 37,700	Oct-15
Behavior Change Program	WCA Year 3 @ 2% savings AFG 2015/16 I	74,611		\$ 2,000	Oct-15
TOTAL		1,651,173	4,375	\$1,709,938	

6.2 Projects In Progress

Project Type	Location/Description	NVSD Name	Potential Electrical Savings (kWh)	Potential Other Fuel Savings (GJ)	Total Budget Costs	Projected Completion Date
Lighting upgrade	LED exterior lighting (Handsworth, Seycove, Windsor)	AFG 2015/16 A	44,400		\$ 90,000	Mar-16
Controls	COP Carson Graham investigation (50%)	AFG 2015/16 D4			\$ 15,250	Mar-16
Controls	COP Carson Graham implementation	AFG 2015/16 D6	120,299	241	\$ 43,000	Mar-16
Boiler Plant	New Boiler Plant Boundary and HVAC Upgrade	AFG 2015/16 E	21,300	600	\$545,300	Feb-16
Controls	Post Coaching Phase- 4 Sites	AFG 2015/16 F			\$ 16,000	Mar-16
Controls	DDC Optimization Elementary Schools (Group 4) (Capilano, Cove C, Dorothy L, Eastview, Handsworth, Highlands, Lynn V, Ridgeway, Seymour H, Sutherland, Wsetview, Windsor)	AFG 2015/16 H 50%	8,991	110	\$ 17,500	Mar-16
Boiler Plant	New Boiler Plant Upper Lynn	AFG 2015/16 M		297	\$140,000	Mar-16
Envelope	Window Replacement at Cleveland			200	\$580,000	Sep-17
TOTAL			194,990	1,248	\$1,447,050	

6.3 Potential Projects (AFG 2016/17)

Project Type	Location/Description	NVSD Name	Potential Electrical Svgs (kWh)	Potential Other Fuel Svgs (GJ)	Total Budget Costs	Projected Completion Date
Lighting upgrade	LED exterior lighting (CG, Mountainside, Sutherland)	AFG 2016/17 A1	26,800	-	\$58,000	Mar-17
Lighting upgrade	Lighting interior upgrades (Ross road, Canyon H, Dorothy L, Westview)	AFG 2016/17 A2	175,000		\$410,000	Mar-17
Lighting controls	Common area lighting controls (CG)	AFG 2016/17 B1	19,138		\$25,000	Sep-16
Lighting controls	Common area lighting controls (Argyle, Hansworth, Seycove, Windsor)	AFG 2016/17 B2	32,100		\$90,000	Mar-17
Controls	COP EMIS year 2 - Carson and Argyle	AFG 2016/17 D			\$1,500	Sep-16
Controls	Cop Argyle, Carson Graham - Handoff	AFG 2016/17 D2			\$3,000	Apr-16
Controls	COP Argyle investigation (SECOND 50% of WORK)	AFG 2016/17 D3			\$14,050	May-16
Controls	COP implementation - Argyle	AFG 2016/17 D5	77,896	377	\$40,000	Sep-16
Boiler Plant Upgrade	Eastview Boiler Upgrade	AFG 2016/17 E	700	415	\$232,000	Mar-17
DDC Optimization	DDC Group 5 - Four highest BEPIs estimated at 3% savings	AFG 2016/17 H	23,606		\$30,000	Mar-17
Envelope	Air Sealing (4 locations: Ross Road, Norgate, Boundary, Canyon)	AFG 2016/17 J		698	\$40,000	Mar-17
DDC Optimization	Copper Tree Fault Detection Program - charge to Maint. Ops budget	Maintenance Ops Budget			\$20,000	Apr-16
DDC Optimization	AFK/ESC controls and HVAC improvements at 15%	Maintenance Ops Budget	153,183			Mar-17
DDC Optimization	Larson temperature sensors and zone valves to classrooms	Maintenance Ops Budget			\$20,000	Apr-16
Controls Upgrade	Cheakamus (NVOS) Controls		55,000	88	\$84,144	Mar-17
Power Factor	Power Factor Correction for multiple sites				\$6,500	Apr-16
Coil Cleaning	Coil Cleaning at 2 locations (Capilano, Westview)		3,299		\$1,000	Sep-16
TOTAL			566,722	1,578	\$1,075,194	

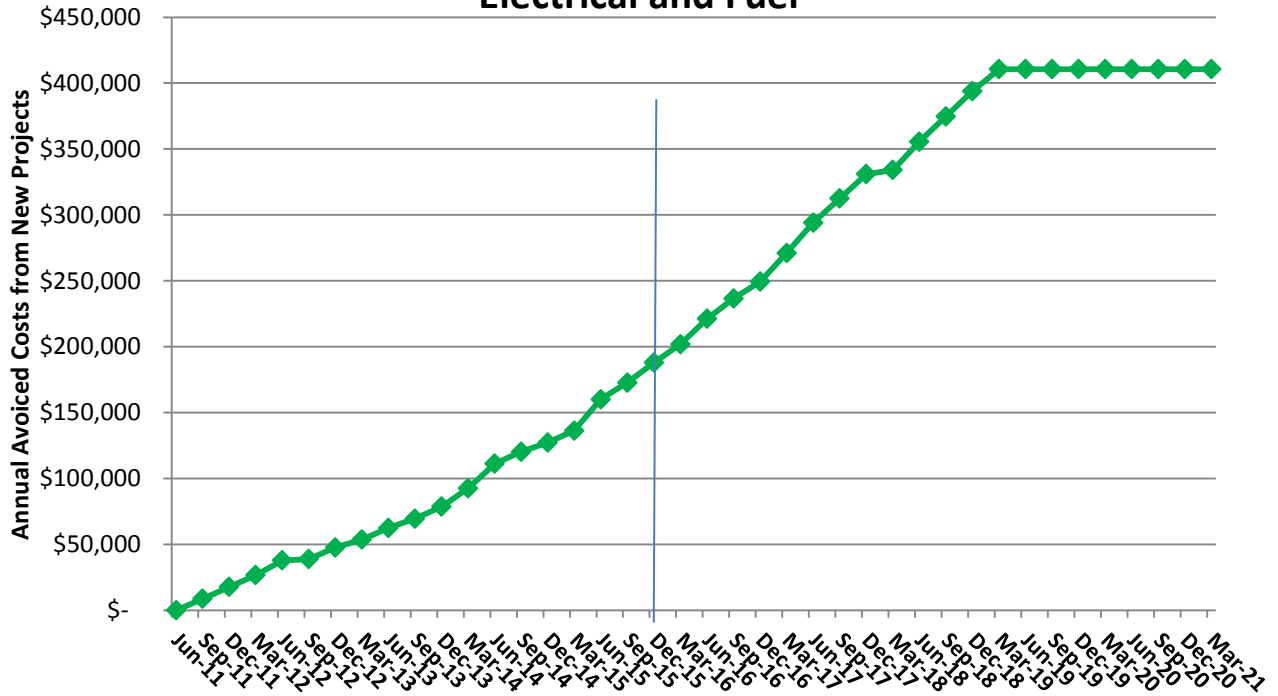
6.4 Potential Projects (beyond AFG 2016/17)

Project Type	Location/Description	NVSD Name	Potential Electrical Svgs (kWh)	Potential Other Fuel Svgs (GJ)	Total Budget Costs	Projected Completion Date
Lighting upgrade	Relamping and Controls at ESC		25,861		\$ 40,000	Mar-17
Boiler Plant Upgrade	Dorothy Lynas Boiler Upgrade		500	603	\$198,000	Mar-18
Boiler Plant Upgrade	Blueridge Boiler Upgrade			285	\$165,000	Mar-18
Controls	COP EMIS year 3 - Carson and Argyle	AFG 2017/18 D			\$2,000	Mar-18
Controls	COp Argyle, Carson Graham - Coaching	AFG 2017/18 D6			\$8,000	Dec-17
TBD	Future Projects to be Identified		296,769	2,716		June-19
TOTAL			323,130	3,604	\$413,000	

6.5 Projected Avoided Costs

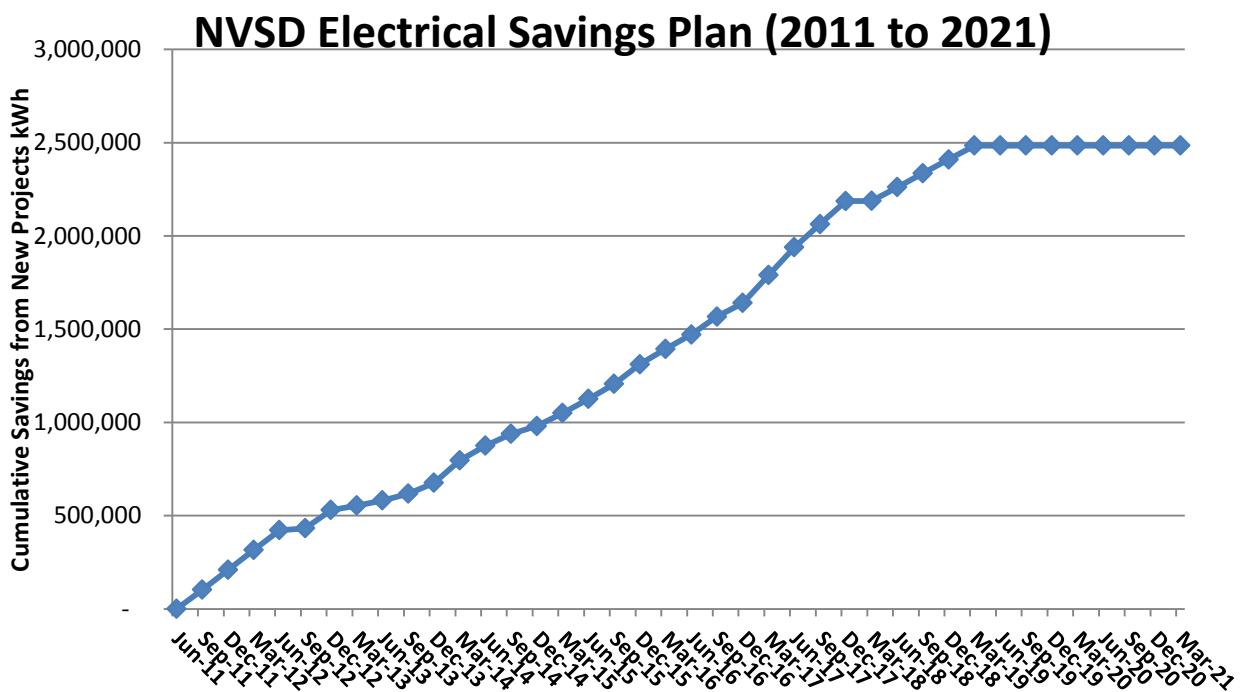
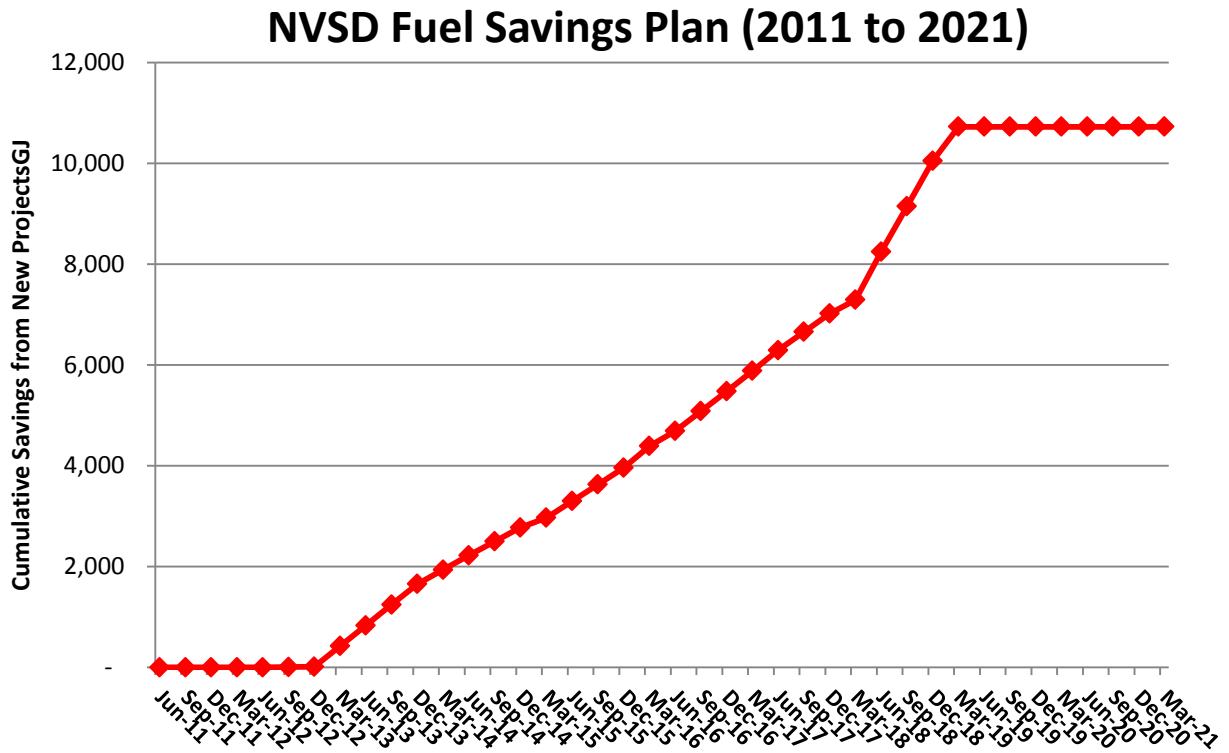
Based on the projects identified, the avoided costs related to energy management projects will grow during the implementation of the SEMP. After the 10 year period, in 2019, the **annual** avoided costs will reach approximately \$410,000. This is based on actual rates from 2011 to 2015 and the reported increases from BC Hydro from 2015 onwards. Not included in this figure are carbon offset costs.

NVSD Annual Avoided Costs (2011 to 2021) Projected
Electrical and Fuel



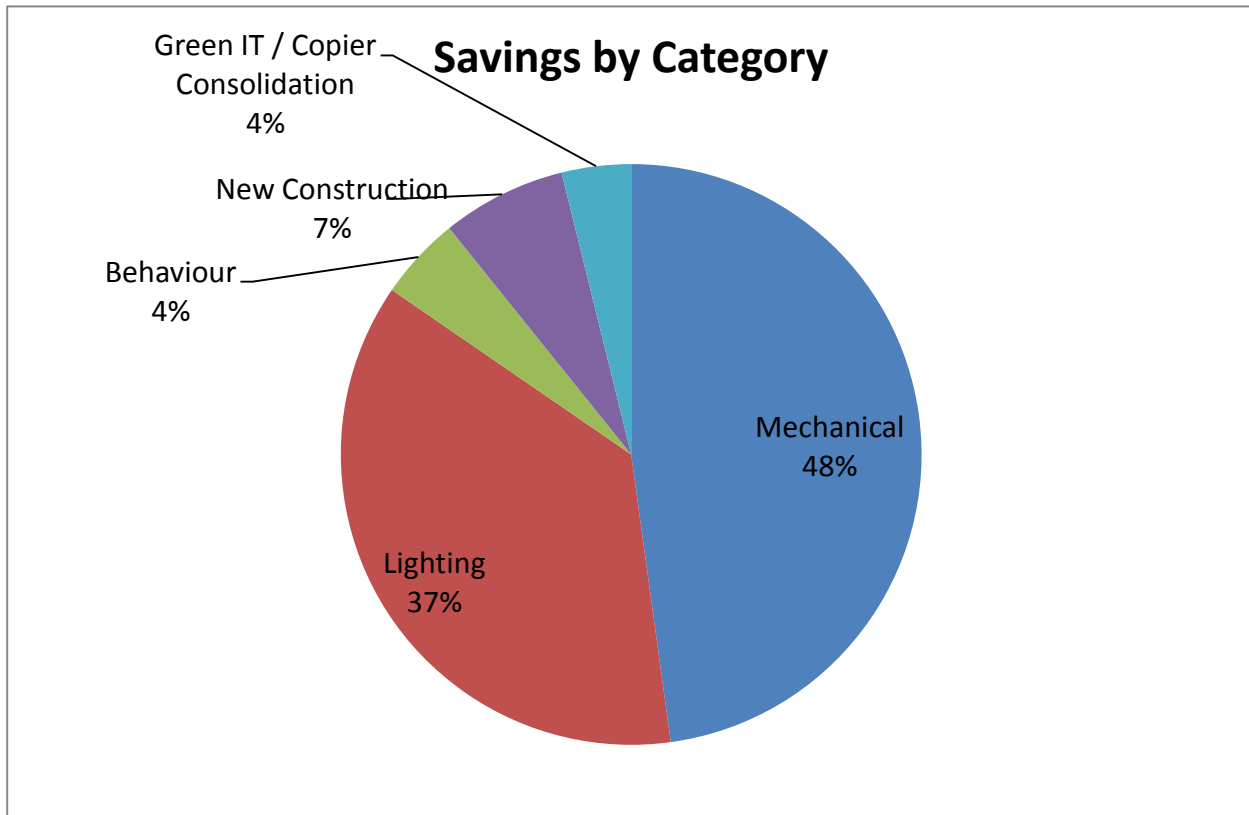
6.6 Planned Actions

Based on the anticipated electrical and fuel projects, the projected energy savings (electrical in kWh and fuel in GJ) savings timelines are shown below.



6.7 Source of Planned Savings

The electrical savings will result from the following breakdown of project types:



6.8 Energy Studies

A number of sites have undergone energy studies over the last three years. Specifically, 4 sites have participated in the first Phase of BC Hydro Continuous Optimization for Commercial Buildings (COp) Program:

- Windsor Secondary
- Handsworth Secondary
- Seycove Secondary
- Sutherland Secondary

Boiler plant reviews have also been completed over the last three years for the following:

- Boundary EL
- Brooksbank EL
- Cove Cliff EL
- Larson EL
- Eastview EL
- Norgate EL

In 2013/14, lighting studies at 6 of the high schools, specific to the common area lighting controls, were completed.

In the 2014/15 school year, two additional schools were approved for the BC Hydro Continuous Optimization program and are now underway:

- Argyle Secondary
- Carson Graham Secondary

In 2014/15, we completed envelope investigations at some of the following sites high fuel sites: Ross Road, Norgate, Boundary, Canyon Heights. We are also reviewing the DDC system for further savings potential at all sites and will also be reviewing savings from filter changes.

For 2016/17, we are also planning investigations at: Ross Road, Canyon Heights, Dorothy Lynas and Westview.

Identified projects make up 82% of the 3 year target: the remaining projects will be identified to make up the gap.

6.9 Organizational Initiatives

Other organizational initiatives at NVSD include the following:

- ✓ updating utility data in PUMA;
- ✓ ensuring the continuation of the Energy Manager role;
- ✓ supporting where possible the LEED goal of new buildings;
- ✓ a comprehensive review of sustainability initiatives;
- ✓ and being mindful of the copier consolidation process.

6.11 Energy Management Engagement

Energy Management Engagement, Training and Communication Plan

Educators, staff and students play an important role in energy conservation efforts at the North Vancouver School District. They have direct control over much of the equipment that consumes energy in a school or classroom, including lights, computers and plug loads.

To promote energy conservation at the District, we have developed a revolving Sustainability Engagement Action Plan. The Action Plan is updated every August with annual goals and a schedule of activities for the year. It covers four key strategy areas to encourage energy conservation behaviour change. The strategy areas are:

- Sustainability Program Planning
- Engagement programs
- Campaigns
- Communication

In 2012/13, we launched BC Hydro's Workplace Conservation Awareness (WCA) program in ten schools, wrote two success stories, spoke at a custodian staff meeting about turning off lights and developed an energy kiosk.

In 2013/14, activities focused on strengthening the participation rates in BC Hydro's WCA program, engaging principals and custodians, writing success stories and promoting energy management curriculum opportunities. We also worked to encourage school participation in BC Hydro's FirstWave programs, specifically in the Secondary School level Energy Ambassadors program.

In 2014/15, we worked closely with the District's Communication Manager to deliver 5 district wide conservation campaigns including: Dining in the Dark, Sweater Day, Spring Break Shutdown, Lights out Lunch for Earth Day, Summer Shutdown. Over 80% of schools participated in at least one campaign. We also organized a Green Tea Celebration event for teachers and staff working on sustainability initiatives.

In 2015/16, we will work with the Superintendent to develop an overarching Sustainability Policy that outlines strategies and resources to support current sustainability initiatives and further integrate sustainability into the District operations and programs. We will also organize 6 District wide campaigns:

- **October:** Spooky Days
- **December:** Holiday Shutdown
- **February:** Sweater Day
- **March:** Spring Break Shutdown
- **April:** Lights out Lunch for Earth Day
- **June:** Summer Shutdown

A key focus this year will be engaging custodial staff in holiday shutdown campaigns, beginning with a custodial engagement workshop in September. Further detail on engagement activities is provided in this year's Energy + Engagement Action Plan.



7. MONITORING AND REPORTING – HOW ARE WE DOING?

7.1 Historical progress

Looking back to the year 2000, we have reduced our annual energy consumption by approximately 42%:

Historical Energy Usage & Savings (Prior to Energy Upgrades in 2000-2005)

Utility	2000 (approximate figures)	2014/15	Decrease*
Electricity	12,000,000	9,289,828	23%
Fuel	111,000	55,782	50%
Total	154,200	89,225	42%

*absolute numbers, not adjusted for weather, closures, area changes etc...

7.2 Energy Savings Progress

Over the last few years, the district has seen growth with the new ESC, a new Ridgeway Elementary, an expanded Carson Graham High School and a new building at the Cheakamus Centre. Typically these new buildings are more energy intensive than the buildings they replaced as they need to meet current code requirements, although built with energy efficiency in mind². Furthermore, new IT growth has added a significant (and unmetered) load to the district. The following numbers include the heating and cooling provided by the Lonsdale Energy Corporation (LEC), and propane.

Compared to our baseline, the energy savings as of December 2015 for all facilities (excluding leased locations) are:

- **1,635,638 kWh** **14.6% for electricity**
- **5,641 GJ** **9.3% for fuels**
- **11,530 eGJ** **11.4% overall energy savings**

To measure savings for any new sites added after 2009/10, we are using the first year of operation as its baseline. Sites which have been sold or demolished have been removed from the portfolio.

The cumulative savings shown in the figures and tables below are represented by equivalent GJ (eGJ) and are normalized for fluctuations in weather. *Negative* savings (below zero) on the graph represent an *increase* in consumption. These savings are calculated from the end of the baseline year (2009/10).

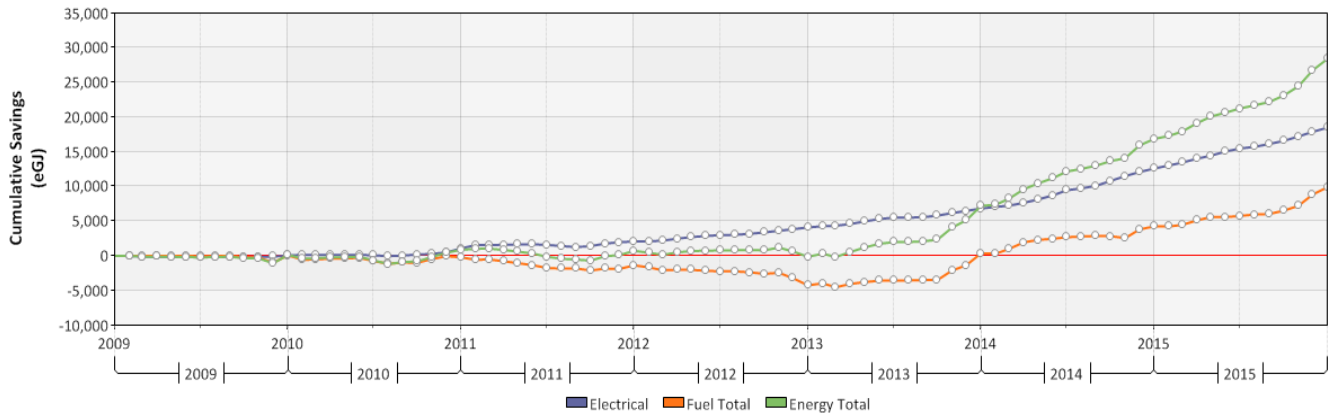
² New buildings are being built with efficiency as a focus. However, they may be more energy intensive to meet the higher ventilation rates required by current code requirements, the addition of cooling for computer rooms, and the high tech and IT loads. Also, increased rentals of these new facilities increase energy usage.

The next figures illustrate trends in savings from where we stand as of **calendar year 2015** in terms of energy savings, avoided costs and greenhouse gas emissions saved.

Total Energy Savings:

The graph below shows the cumulative savings for NVSD since the end of 2009/10. We can see that there has been steady electrical savings since the implementation of the Energy Management program and that fuel trends are improving since late 2013.

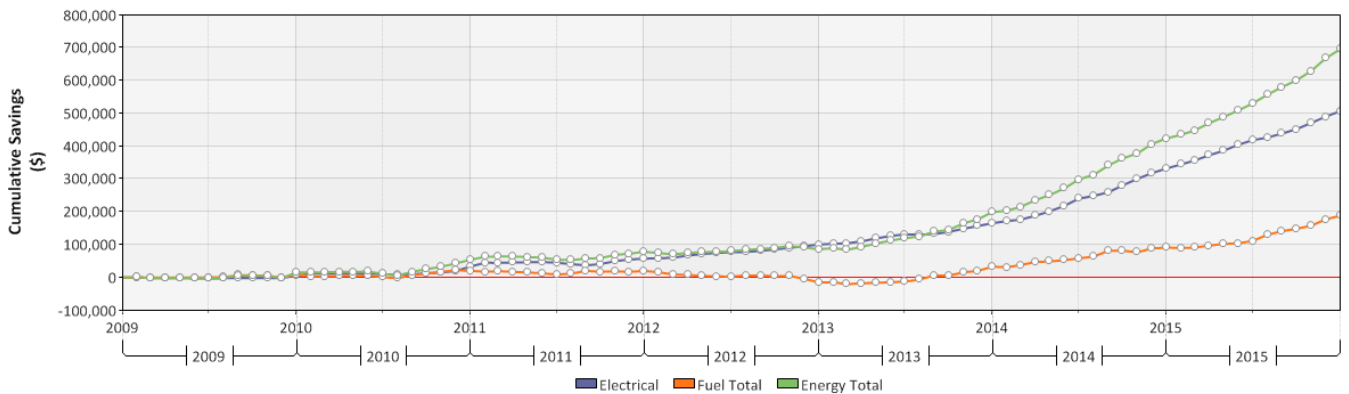
Cumulative energy savings (as of Dec 2015): 28,408 eGJ



Total Avoided Costs:

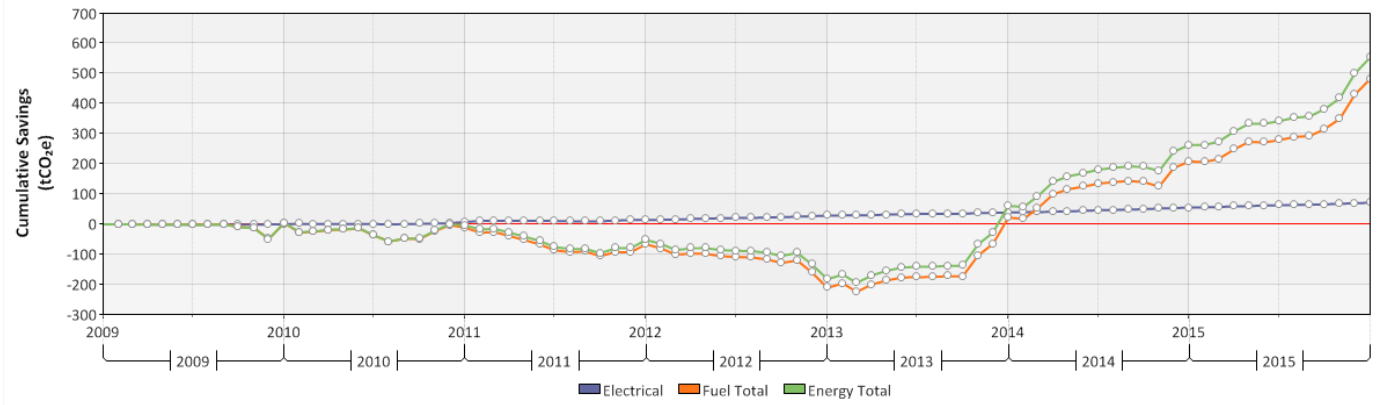
Similarly as we have just done for energy, we can show the cumulative sum of savings for cost, as shown in the two charts below. The cumulative avoided costs since the end of 2009/10 are more than **\$696,150** (based on average costs of energy each month).

Cumulative cost savings (as of Dec 2015): \$ 696,150



Greenhouse Gas Savings:

For greenhouse gas emissions, we can also show the cumulative sum of savings, as shown in the chart below
 Cumulative GHG savings: 554 tCO₂e



The greenhouse gas savings since the baseline year are the following:

Year	Annual Reduction of GHG
2009/10:	-35 tCO ₂ e
2010/11:	-73 tCO ₂ e
2011/12:	-79 tCO ₂ e
2012/13:	-127 tCO ₂ e
2013/14:	200 tCO ₂ e
2014/15:	364 tCO ₂ e (5.3%)

8. APPENDIX A - STAKEHOLDERS AND COMMITTEES

Energy Team			
Name	Title / Position	Organization	Role
John Lewis	Superintendent of Schools	NVSD	Executive Support
Georgia Allison	Secretary-Treasurer	NVSD	Financial Approval and contact for BC Hydro contracts
Jim Mackenzie	Director of Facilities and Planning	NVSD	Facilities lead
Mike Chapman	Assistant Director of Facilities and Planning	NVSD	Facilities
Jeff Jackson	Maintenance Manager	NVSD	Operations and DDC lead
Vacant	Communications Manager	NVSD	Approval for Internal and External communications
David Jennings	IT Representative	NVSD	IT Programs
Robert Greenwald	Energy Manager	Prism Engineering	Energy Management Program coordination
Sarah Smith	Energy Manager Team Member	Prism Engineering	Behaviour and outreach Program Coordination
Wayne Cousins	Key Account Manager	BC Hydro	Primary contact for NVSD at BC Hydro
Sustainability Leadership Team – SLT (since January 2012)			
Conor McMullan, Chair	Educational Director at Cheakamus Centre	NVSD	
Diane Ehling	Vice Principal, Sherwood Park		
Debra Benedict	Vice Principal, Ridgeway		
Christy Sacre	School Board Trustee		
Justin Wong	VP Handsworth		
Victor Elderton	VP Norgate		
Kate Keogh	Vice Principal, Outdoor School at Cheakamus Centre		
Mike Chapman	Assistant Facilities Director		
Vacant	NVSD Communications Manager		

9. APPENDIX B - SUSTAINABILITY POLICY

A. Sustainability Policy

In March 2011 the Board adopted *Policy 613-Sustainability as shown below*. This policy can also be found on the NVSD's website.

Policy

The Board will strive to maintain and operate its facilities and services in a sustainable manner, and seek opportunities in its short- and long-term planning to reduce its environmental footprint. The Board is committed to working in ways that do not jeopardize current and future social, environmental, and economic resources. It will integrate economic, environmental, and social considerations into its decision-making.

Rationale

The Board recognizes that a sustainable approach to its services and operations is essential to fulfilling its mandate of preparing students for responsible citizenship and success in life. The Board values the contributions of students, staff, parents, and the community to reduce the environmental impacts of our learning communities. In collaboration with local, provincial, regional, and global communities, the Board will provide leadership in environmental education and sustainability practices.

Definition

This policy is built upon four pillars of sustainability:

- *Support environmental education and sustainability initiatives*
- *Decrease dependencies upon the earth's finite resources*
- *Reduce waste and harmful emissions into the environment*
- *Respect green space through responsible stewardship.*

Administrative Procedures

In practice, the Board will:

- *Support environmental education and sustainability initiatives, and*
- *Encourage staff towards professional development that expands their understanding and capacity to teach sustainability principles and practices*
- *Support sustainability leadership to:*
- *Build capacity amongst students, staff, and parents as responsible contributors to their own environmentally-sustainable future*
- *Identify and implement effective sustainability initiatives and solutions*
- *Foster and celebrate successful sustainability initiatives within the School District*
- *Recognize and promote successful sustainability initiatives by students, staff and parents*
- *Support development of the Environmental Learning Centre (ELC) and associated educational programs*
- *Consider community partnerships that will assist the School District in achieving its sustainability goals.*
- *Decrease dependencies upon the earth's finite resources, and:*
- *Develop and maintain a current, School District-wide Sustainability Plan that is progressive, transparent, and measurable*
- *Embed its commitment to sustainability in the Board's Strategic Plan*
- *Balance and broaden its decision-making to include considerations of ecological, economic and social well-being*
- *Consult with internal and external advisors for necessary guidance and consideration of sustainability issues*

- *Pursue solutions for sustainability challenges in partnership with its communities and governments.*
- *Reduce waste and harmful emissions into the environment, and:*
- *Develop and operate its facilities and services in a sustainable manner*
- *Encourage sustainable initiatives that realize both cost-savings and reduce environmental impact*
- *Implement all legislative requirements to promote sustainability.*
- *Respect green space through responsible stewardship, and:*
- *Evaluate existing and future green spaces on School District property to ensure due diligence and full consideration in land space decision-making*
- *Support the maintenance of healthy and diverse green spaces where the Board has a presence*
- *Support development of the Environmental Learning Centre (ELC) and associated lands*
- *Collaborate with local municipalities to create an integrated perspective on future community green spaces.*

B. BC Ministry of Education and the BC Energy Plan

The Ministry of Education established the Sustainability Education Framework in 2008 with the vision to encourage the K-12 education system to show leadership in adopting and promoting:

- Environmentally sustainable practices, and
- Learning opportunities that support healthy, natural, social and economic environments for current and future generations

This vision is also supported by the BC Energy Plan that sets out a strategy to encourage British Columbians to take responsibility for our climate and environment.

The Framework will help ensure that that all K-12 students in British Columbia are being educated in the basics of living sustainably. Students and the education community will understand that sustainable development requires each individual to examine issues within the context of economic prosperity, consumption, social justice, and ecological stewardship.

10. APPENDIX C - ENERGY MANAGEMENT ASSESSMENT (EMA)

BC Hydro Power Smart sponsors participation in the Energy Management Assessment (EMA) Workshop with the end goal of each commercial customer developing and implementing a long-term Strategic Energy Management Plan (SEMP).

The first EMA took place in May 2010, using the Star Rating from www.one-2-five.com.

The NVSD #44 scored:

Overall Ranking: 1 Star, % Achievement: 17%, % required to reach next Star level: +4%

The key areas of focus for the Energy Manager were: Secure Leadership Commitment, Understand Energy Performance and Opportunities, Address Resourcing Needs, Develop Maintenance Procedures, Provide Energy Reporting and Feedback.

The second EMA took place in November 2012, using the SEGEMA tool.

The SEGEMA tool was used as a vehicle to prompt the site management team with a series of structured characteristics organized into functional categories, namely Strategic, Enabling and Functional. SEGEMA is designed to evaluate, identify and prioritize the critical energy-related business practices to target for improvement. The NVSD #44 scored:

SEGEMA Scoring Summary			
Components	Level of Rigor (LR)	Balance Rating (TBR/CBR)	Definition
Overall	1.31	0.59	Strategic approach to EM with initial progress towards Operationally Integrated approach.
Strategic	1.70	0.11	
Enabling	1.54	0.56	Current EM business practices are somewhat unbalanced.
Functional	0.87	0.48	

The third EMA took place in November 2013, using the SEGEMA tool.

SEGEMA Scoring Summary			
Components	Level of Rigor (LR)	Balance Rating (TBR/CBR)	Definition
Overall	1.50	0.70	Strategic approach to EM with progress towards Operationally Integrated approach.
Strategic	2.20	0.56	
Enabling	1.65	0.53	Current EM business practices are somewhat unbalanced.
Functional	0.97	0.48	

The key focus for the Energy Manager in the 2013/2014 year includes five action areas: Policy, Targets/Reporting, Plans/Actions, Teams/Committees, and Employee Awareness/Training.

The fourth EMA took place in July 2015, using the SEGEMA tool, NVSD scored:

SEGEMA Scoring Summary			
Components	Level of Rigor (LR)	Balance Rating (TBR/CBR)	Definition
Overall	1.55	0.60	Strategic approach to EM with progress towards Operationally Integrated approach.
Strategic	1.98	0.51	
Enabling	1.75	0.50	Current EM business practices are somewhat unbalanced.
Functional	1.12	0.43	

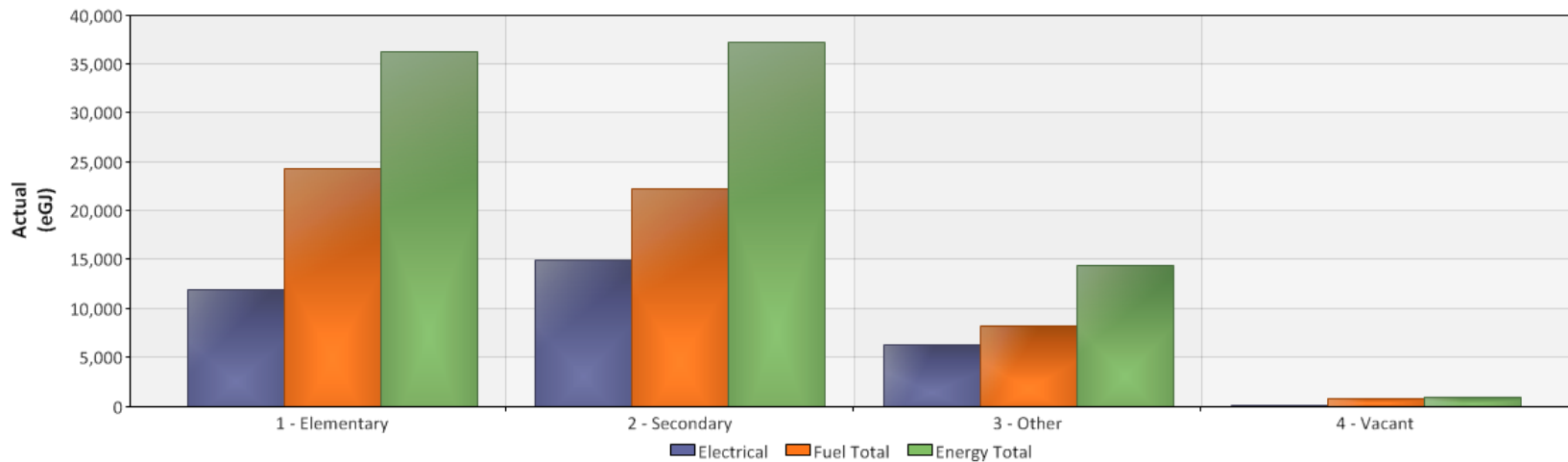
11. APPENDIX D - ENERGY DATA AND REPORTS

Performance By Year By Grouping

Project: **SD#44-Energy Manager 2009/10 Baseline (2011111-9/10)**

Classification: **Facility Type**

Year: **2014/2015**



Grouping Name	Electrical		Fuel Total	Energy Total
	kWh	eGJ	GJ	eGJ
1 - Elementary	3,333,257	12,000	24,341	36,341
2 - Secondary	4,160,328	14,977	22,302	37,279
3 - Other	1,748,253	6,294	8,199	14,493
4 - Vacant	42,753	154	864	1,018
Overall:	9,284,590	33,425	55,707	89,132

Included in the groupings are:

Other:

ESC

Lucas Centre

Cheakamus Centre

Vacant:

Cloverly

**SD#44 - North Vancouver - Energy Manager (2011111)
Performance by Site 2014/15**

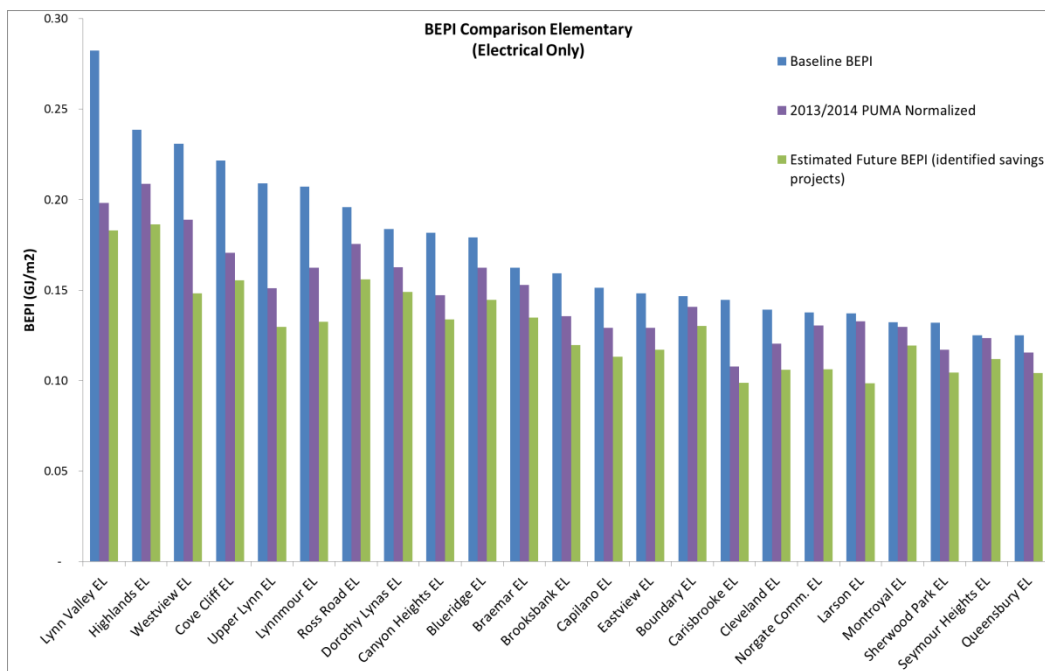
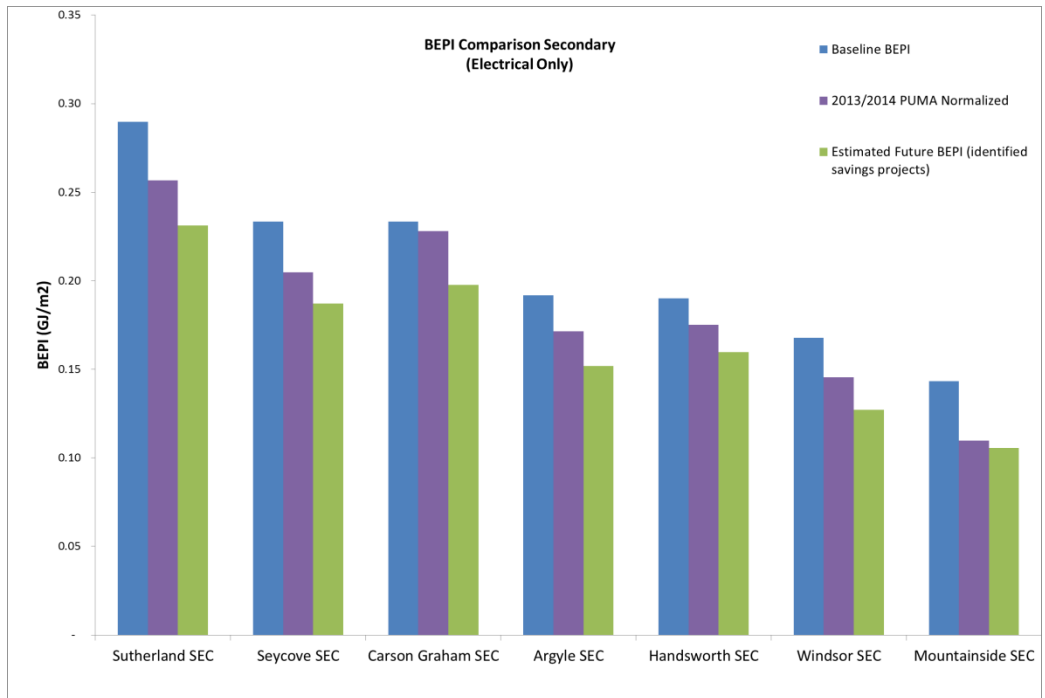
Site - Name	Site - Description	Electrical - Consumption - kWh	Electrical - Consumption - eGJ	Electrical - Cost - \$	Fuel Total - Consumption - GJ	Fuel Total - Cost - \$	Energy Total - Consumption - eGJ	Energy Total - Cost - \$
Argyle SEC	1131 Frederick Road	664,040	2,391	58,916	4,763	39,507	7,154	98,423
Blueridge EL	2650 Bronte Drive	136,568	492	15,147	1,142	11,695	1,633	26,842
Boundary EL	750 E 26th Street	129,395	466	14,786	1,135	11,604	1,601	26,390
Braemar EL	3600 Mahon Avenue	152,340	548	17,573	1,211	12,312	1,759	29,884
Brooksbank EL	980 E 13th Street	118,016	425	13,167	1,033	10,574	1,458	23,741
Canyon Heights EL	4501 Highland Boulevard	158,968	572	17,593	1,491	15,267	2,063	32,860
Capilano EL	1230 W 20th Street	137,484	495	15,611	1,098	11,482	1,593	27,093
Carisbrooke EL	510 E Carisbrooke Road	107,638	387	11,942	952	9,731	1,340	21,673
Carson Graham SEC	2145 Jones Avenue	944,130	3,399	94,606	1,501	14,115	4,900	108,721
Cheakamus Centre	2170 Paradise Valley Rd.	636,772	2,292	73,691	904	13,825	3,196	87,516
Cleveland EL	1255 Eldon Road	128,600	463	14,803	1,217	12,794	1,680	27,597
Cloverley	440 Hendry Avenue	42,753	154	5,080	864	8,679	1,018	13,759
Cove Cliff EL	1818 Banbury Road	118,384	426	13,561	712	7,558	1,138	21,119
Dorothy Lynas EL	4000 Inlet Crescent	181,273	653	20,427	1,419	13,476	2,072	33,903
Eastview EL	1801 Mountain Highway	141,015	508	15,412	1,297	13,197	1,805	28,609
ESC/AFK	2121 Lonsdale Avenue	806,575	2,904	92,882	3,012	92,054	5,915	184,936
Handsworth SEC	1044 Edgewood Road	609,384	2,194	55,589	4,449	36,955	6,643	92,544
Highlands EL	3150 Colwood Drive	174,855	629	20,126	495	5,311	1,124	25,437
Larson EL	2605 Larson Road	137,880	496	15,278	999	10,575	1,495	25,854
Lucas Centre	2132 Hamilton Avenue	304,906	1,098	25,425	4,191	36,050	5,289	61,475
Lynn Valley EL	3250 Mountain Highway	125,452	452	14,330	517	5,505	968	19,836

Lynnmour EL	800 Forsman Avenue	45,353	163	4,927	825	8,473	988	13,400
Montroyal EL	5310 Sonora Drive	108,096	389	11,796	894	9,179	1,283	20,975
Mountainside SEC	3365 Mahon Avenue	244,222	879	25,127	2,713	23,608	3,592	48,735
Norgate EL	1295 Sowden Street	105,696	381	11,673	1,089	11,142	1,469	22,815
Queen Mary EL	230 West Keith Road	206,925	745	22,677	456	17,494	1,201	40,171
Queensbury EL	2020 Moody Avenue	83,880	302	9,058	722	7,794	1,024	16,853
Ridgeway EL	420 E. 8th Street	165,360	595	20,220	716	7,484	1,312	27,704
Ross Road EL	2875 Bushnell Place	165,385	595	18,241	1,619	15,461	2,215	33,702
Seycove SEC	1204 Caledonia Avenue	456,120	1,642	45,441	2,131	19,920	3,773	65,361
Seymour Heights EL	2640 Carnation Street	84,428	304	9,055	649	6,854	953	15,909
Sherwood EL	4085 Dollar Road	151,300	545	17,241	971	9,958	1,515	27,199
Sutherland SEC	1860 Sutherland Avenue	704,132	2,535	66,968	1,995	17,816	4,529	84,784
Upper Lynn EL	1540 Coleman Road	161,384	581	17,195	971	9,938	1,552	27,132
Westview EL	1660 Bewicke Avenue	107,584	387	12,184	685	7,133	1,072	19,317
Windsor SEC	931 Broadview Drive	538,300	1,938	51,905	4,748	38,288	6,686	90,193
TOTAL		9,284,593	33,425	969,653	55,586	602,808	89,008	1,572,462

12. APPENDIX E: TARGETS BY SITE (2013/14)

Annual Energy Intensity Targets by School (Electrical only)

Based on completed and identified projects, the targets were broken down on a school by school basis in 2013/14. For electrical energy only, the opportunities equate to a reduction of 0.03 eGJ/m² for elementary schools and 0.04 eGJ/m² for secondary schools. The following two graphs show the electrical targets for each school in terms of a new building energy performance index (BEPI). The baseline figures are based on the 2009/10 normalized data.



13. APPENDIX F - ASSET REGISTRY

40 Total sites

Secondary Schools (7)	Floor Area - m ²
Argyle SEC	15,092
Carson Graham SEC	16,007 old 13,102 new
Windsor SEC	13,355
Handsworth SEC	12,932
Sutherland SEC incl daycare	10,763
Seycove SEC	8,582
Mountianside SEC (formerly Balmoral) including Student Services and Continuing Education	8,419

Other Locations (3)	Floor Area - m ²
Lucas Centre (Continuing Education including Maintenance, Leo Marshall Curriculum Centre)	10,754
ESC/ AFK (Education Services Centre and Artists for Kids)	5,725
Checkamus Centre (NV Outdoor School)	3,935

Closed Locations (1)	Floor Area - m ²
Cloverley EL	2,483

Leased Locations to Others (4)	Floor Area - m ²
Fromme	2,809
Kenneth Gordon (Formerly Maplewood)	2,883
Lions Gate Christian Academy (Formerly Plymouth EL)	2,742
Brockton Prepatory (Formerly Westover)	2,110

Under Renovations (0)	Floor Area - m ²

Elementary Schools (25)	Floor Area - m ²
Blueridge EL	3,360
Boundary EL	3,491
Braemar EL	4,065
Brooksbank EL	3,539
Canyon Heights EL	3,792
Capilano EL	4,224
Carisbrooke EL	3,697
Cleveland EL	4,231
Cove Cliff EL	2,753
Dorothy Lynas EL	4,609
Eastview EL	4,255
Highlands EL	3,254
Larson EL	3,928
Lynn Valley EL	2,535
Lynnmour EL	2,848
Montroyal EL	3,324
Norgate EL	2,897
Queensbury EL	2,668
Queen Mary EL	4,402
Ridgeway EL (<i>Demolition summer 2009; re-occupied Sept 2011</i>)	4,060
Ross Road EL	3,774
Seymour Heights EL	2,794
Sherwood EL	5,171
Upper Lynn EL	4,420
Westview EL	2,400

TOTAL (2015)	Floor Area - m ²
Total	206,177

*Areas do not include portables.