



Memorandum

Date: January 31, 2020
To: Planning and Facilities Committee
From: Mitch Van Aller, Director of Operations

Information Item: FortisBC's New Construction Performance Program and Efficient Boiler Program

1.0 RELEVANT BOARD MOTION/DIRECTION

Policy 660 – Environmental Sustainability (Appendix A).

2.0 BACKGROUND

FortisBC provides incentives for school buildings that are aiming to achieving whole-building energy performance that exceed BC Building Code (BCBC) requirements. Consistent with the BC Energy Step Code, the program establishes a target level of energy performance, as measured by the building's total energy use intensity (TEUI) and offers incentives based on achieved energy performance levels, based on an energy model study. Central Okanagan Public Schools' new school project - Canyon Falls Middle School (CMS) was not subject to the BC Energy Step Code; however, CMS was eligible for FortisBC incentives. The District retrofitted three schools with energy efficient boilers (Anne McClymont Elementary School, Davidson Road Elementary School and South Kelowna Elementary School) which were also eligible for FortisBC incentives.

3.0 INFORMATION STATEMENT

Performance incentives encourage the construction and renovations of school buildings that achieve higher energy performance beyond the minimum levels required by the BC Building Code. The Central Okanagan Public Schools design team created the pathway to achieve the District's energy efficiency goals for the CMS project. As a result, reduce energy use and greenhouse gas emissions, save money and increase occupant comfort. The District received \$241,871 from FortisBC's New Construction Performance Incentive Program and \$37,000 for FortisBC's Efficient Boiler Program.

4.0 DIRECTOR'S COMMENTS

The Operations Department understands that standard energy-efficiency measures are not always sufficient for the complex and specialized requirements of new school buildings. Staff encourage our Design Team to develop creative, energy-efficient solutions tailored to the design of new school facilities.

5.0 NEXT STEPS

Staff will continue to explore new technologies and work with partner groups for future incentives.

6.0 APPENDICES

- A. Policy 660 – Environmental Sustainability
- B. Participant Guide, Commercial New Construction Performance Program



“Together We Learn”

School District No. 23 (Central Okanagan)
Policies And Procedures

Section Six: School District Facilities

660 – ENVIRONMENTAL SUSTAINABILITY

Introduction

Definition:

Sustainability: meeting the needs of the present without compromising the ability of future generations to meet their own needs.

The Board of Education:

- is committed to providing leadership in improving and protecting the quality of the natural environment;
- is committed to environmental sustainability in all areas of operation and will follow appropriate standards for managing sustainability throughout the district;
- expects that environmental impact will be considered carefully in decision-making and that concern for the quality of the natural environment will be reflected in the daily activities and decision-making process;
- believes that all staff, students and the public have a significant impact upon the environment, and expects all to be cognizant of their environmental impact and contribute to environmental sustainability;
- encourages and supports the integration of environmental education into the curriculum; and
- recognizes the global ecological imperative that we act locally and approach our daily functioning as an educational institution in an environmentally focused and sustainable manner, while seeking continuous improvement.

Guiding Principles:

1. To integrate environmentally sustainable considerations, which are fiscally responsible, into all our business decisions.
2. To ensure staff, students, and parents are fully aware of our policy, regulations, actions and results.
3. To ensure suppliers and clients are aware of our policy and demonstrate sound sustainable environmental management practices when providing services to our district.
4. To review, report and continually strive to improve our environmental sustainability performance.

Date Agreed: February 10, 2010
Date Amended: November 26, 2014
Related Document:



Participant guide

Commercial New Construction Performance Program

April 2019



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Partners in energy efficiency

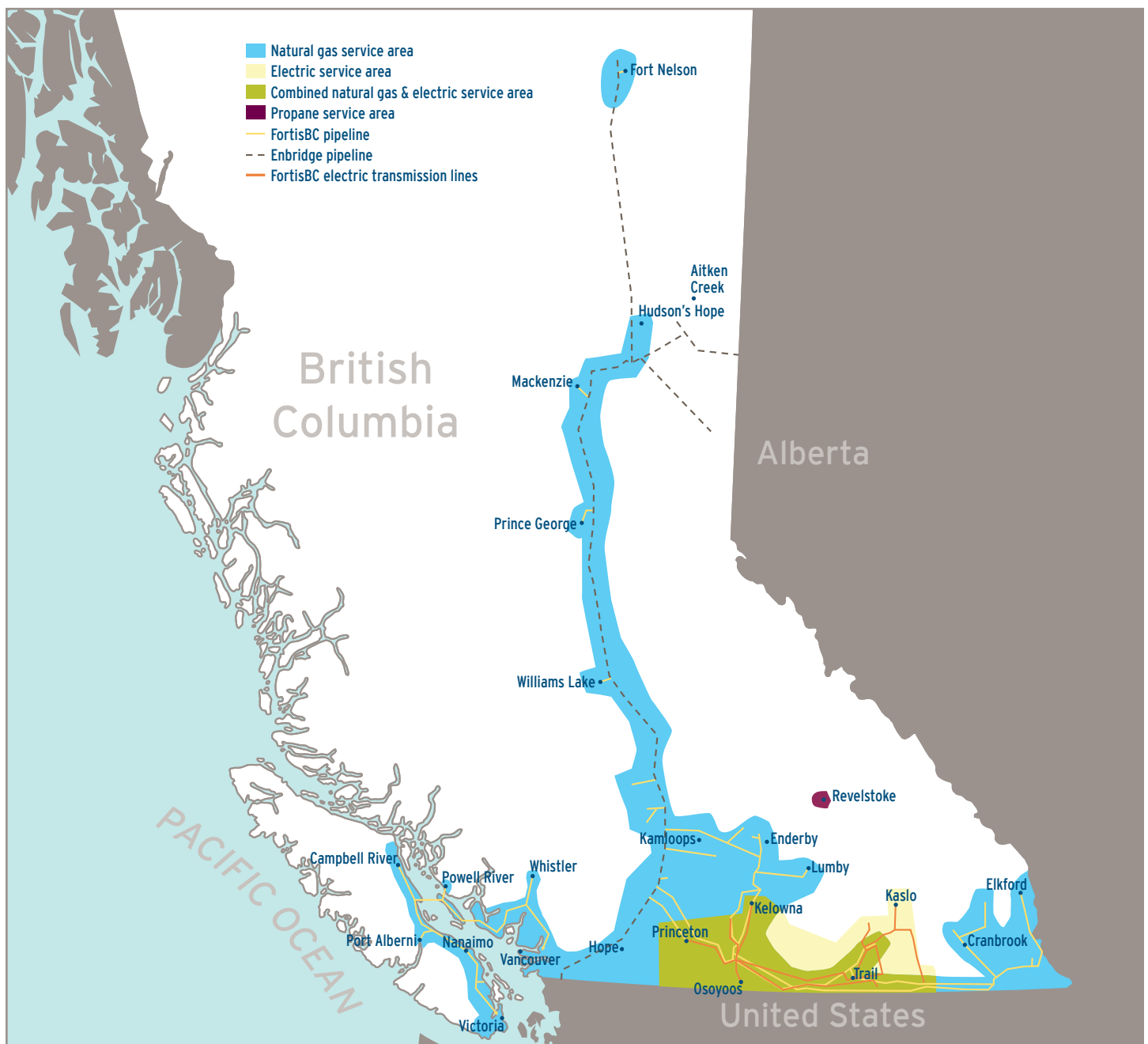
FortisBC delivers the energy British Columbians need while constantly seeking better, more efficient ways of using this energy. For commercial customers, we offer incentive programs that encourage you to explore and implement energy-efficiency projects using natural gas and electricity.

We understand that standard energy-efficiency measures are not always sufficient for the complex and specialized requirements of commercial buildings. The Commercial New Construction Performance Program addresses this by encouraging you to develop creative, energy-efficient solutions tailored to the design of your new building or facility.

This guide provides an overview of the program, including details about the incentives, as well as the type of projects most suited for the program.

Step-by-step instructions on how the program works are also provided, along with answers to frequently asked questions.

FortisBC service areas



When saving energy requires a customized approach

The Commercial New Construction Performance Program encourages the construction of high-performance, energy-efficient buildings in British Columbia to help you reduce energy use and greenhouse gas emissions, save money, increase occupant comfort and lessen the impact on the environment.

The program provides financial incentives for exceeding minimum energy performance levels required by the British Columbia Building Code (BCBC). Consistent with the [BC Energy Step Code](#), the program establishes a target level of energy performance, as measured by the building's total energy use intensity (TEUI), and leaves it to you and the design and building team to decide on how to achieve it, using energy conservation measures (ECMs) customized to the design of your new building.

Participants must use energy modelling software to demonstrate that their design meets the targeted level of energy performance, and may use any materials or construction methods to do so. If your project is located in an area that hasn't yet adopted Step Code requirements, your building may still be eligible for incentives by targeting a percentage improvement over the BCBC.

Take a direct role in reducing energy use and greenhouse gas emissions.
Improve the performance of your new building.
Save money on operating costs.

To participate in the program, you must hire a consultant to perform a detailed energy model study to identify building features or ECMs that will reduce natural gas and/or electricity consumption within your new building. These features and measures may include:

- eliminating unnecessary energy use by shutting off idling or unneeded equipment through control systems
- implementing passive design strategies
- reducing the rate of energy consumption in low occupancy periods
- using more efficient lighting, equipment and mechanical systems
- air tightness and high-efficiency heat recovery ventilation and energy recovery
- improving building envelope performance

Although this is not a complete list of the potential ECMs that can be included, it's easy to see how these types of measures can deliver energy and cost savings throughout a building's lifecycle.

This program may be modified or cancelled by FortisBC at any time. Visit fortisbc.com/newconstructionfunding for up-to-date information and full terms and conditions.

Is this program right for you?

We offer two different program types to encourage high-performance commercial new construction:

- The Commercial New Construction Performance Program provides performance incentives for larger, more complex Part 3 buildings looking to achieve higher whole-building performance over the BCBC.
- Commercial product rebate programs provide fixed incentives for high-efficiency natural gas and electrical equipment for buildings not pursuing a whole-building approach to building design.

To help determine if our Commercial New Construction Performance Program is right for you, consider the following:

- ☐ Is your project one of the following [Part 3 buildings](#):
 - commercial
 - institutional
 - multi-unit residential
 - light industrial (excludes buildings where manufacturing or industrial process occur)
- ☐ Will the building receive natural gas from FortisBC and/or receive electricity from FortisBC, the District of Summerland, City of Grand Forks, City of Penticton or Nelson Hydro?
- ☐ Are you still in the pre-design or design process (i.e. have not begun construction)?
- ☐ Are you planning to design a building that performs higher than the BCBC?
- ☐ Are you planning on implementing one or more of the following energy-efficient technologies:
 - high-performance building envelope
 - heat recovery systems
 - on-demand ventilation
 - advanced building controls
- ☐ Are you planning on, or considering completing, a building energy model study to evaluate how your proposed building will perform?

If you checked off each question, this program may be right for you.

If **NOT**, you may want to consider the various product rebates we offer. Buildings that will receive natural gas from FortisBC may qualify for rebates for installing high-efficiency boilers, water heaters, kitchen equipment and more. In addition, buildings that will receive electricity from FortisBC, the District of Summerland, City of Grand Forks, City of Penticton or Nelson Hydro may qualify for incentives for installing LED lighting, heat pumps, variable speed drives, high-efficiency refrigeration and more.

For more information, contact your [key account manager, energy solutions manager or technical advisor](#).

Performance incentives to encourage high-performance buildings

Improve energy efficiency. Optimize overall performance. Achieve cost savings.

This program provides financial incentives to cover a portion of the incremental cost to build a higher performing building, compared to a building that simply meets the minimum code requirement of the BCBC. The incentives are based on a dollar per square foot (\$/sq. ft.) basis. The higher performing the building, the higher the incentive.

- For buildings that receive natural gas from FortisBC and electricity from BC Hydro or the City of New Westminster, you're eligible for the applicable square footage (\$/sq. ft.) incentive prorated by the amount of the TEUI supplied by natural gas.
- For buildings that will receive natural gas from FortisBC and electricity from either FortisBC, the District of Summerland, City of Grand Forks, City of Penticton or Nelson Hydro, you're eligible for a maximum (\$/sq. ft.) incentive as the TEUI supplied by FortisBC is 100 per cent.
- For buildings that receive electricity from FortisBC, the District of Summerland, City of Grand Forks, City of Penticton or Nelson Hydro, but don't receive natural gas from FortisBC, you're eligible for the applicable square footage (\$/sq. ft.) incentive prorated by the amount of the TEUI supplied by electricity.

Path 1: For the following building types, incentives are based on the BC Energy Step Code.

Building type	BC Energy Step Code performance target	Incentive factor	Maximum incentive
Multi-unit residential (MURB), hotels and motels	Step 2	\$0.70 /sq. ft. x indoor floor area (sq. ft.) x % TEUI supplied by FortisBC	\$500,000 per year
	Step 3	\$1.40 /sq. ft. x sq. ft. x % TEUI supplied by FortisBC	
	Step 4 and higher	\$2.10 /sq. ft. x sq. ft. x % TEUI supplied by FortisBC	
Office and retail	Step 2	\$1.80 /sq. ft. x sq. ft. x % TEUI supplied by FortisBC	
	Step 3 and higher	\$3.40 /sq. ft. x sq. ft. x % TEUI supplied by FortisBC	

Mixed-use buildings must be energy modelled to produce a single TEUI and thermal energy demand intensity (TEDI) for the building. The TEUI and TEDI should be compared with the whole-building targets by area weighting using the highest of the following TEDI and TEUI target Step Code combinations that the building meets. Combined Step Codes for a mixed-use building can receive incentives as described in this table:

Building type	BC Energy Step Code performance target		Incentive factor	Maximum incentive
	MURB, hotel or motel (Space A)	Office and retail (Space B)		
Mixed use	2	2	(\$0.70 /sq. ft. x indoor floor area of Space A (sq. ft.) + \$1.80 /sq. ft. of Space B (sq. ft.)) x % TEUI supplied by FortisBC	\$500,000 per year
	3	2	(\$1.40 /sq. ft. x Space A sq. ft. + \$1.80 /sq. ft. x Space B sq. ft.) x % TEUI supplied by FortisBC	
	4	3	(\$2.10 /sq. ft. x Space A sq. ft. + \$3.40 /sq. ft. x Space B sq. ft.) x % TEUI supplied by FortisBC	

Path 2: For commercial building types not subject to the BC Energy Step Code, the following incentives are available:

Building type	Performance target % better than BC Building Code	Incentive factor	Maximum incentive
Multi-unit residential outside Climate Zone 6 and higher	10-20%	\$0.70 /sq. ft. x indoor floor area (sq. ft.) x % TEUI supplied by FortisBC	\$500,000 per year
	21-40%	\$1.40 /sq. ft. x sq. ft. x % TEUI supplied by FortisBC	
	>40%	\$2.10 /sq. ft. x sq. ft. x % TEUI supplied by FortisBC	
Office and retail outside Climate Zone 6 and higher	10-20%	\$1.80 /sq. ft. x sq. ft. x % TEUI supplied by FortisBC	
	21-30%	\$2.20 /sq. ft. x sq. ft. x % TEUI supplied by FortisBC	
	>30%	\$3.40 /sq. ft. x sq. ft. x % TEUI supplied by FortisBC	
Other building types not subject to BC Energy Step Code (e.g. hospitals, schools, churches, institutional)	10-20%	\$1.80 /sq. ft. x sq. ft. x % TEUI supplied by FortisBC	
	21-30%	\$2.20 /sq. ft. x sq. ft. x % TEUI supplied by FortisBC	
	>30%	\$3.40 /sq. ft. x sq. ft. x % TEUI supplied by FortisBC	

How incentives are calculated

Incentive = indoor floor area (sq. ft.) x maximum incentive (\$/sq. ft.) x percentage of TEUI supplied by FortisBC natural gas and/or electricity supplied by FortisBC, the District of Summerland, City of Grand Forks, City of Penticton or Nelson Hydro.

The incentive is payable in two installments.

1. Energy model completion incentive

The energy model completion incentive is paid at the completion and approval of the energy model study to help you with the cost of a detailed engineering analysis of your facility. The energy model completion incentive is equal to 10 per cent of the total incentive as verified by the model, to a maximum of \$25,000.

2. Post-completion incentive

The post-completion incentive is paid after the building construction and commissioning is complete, subject to a successful site inspection to confirm that the ECMs were installed as described in the energy model. The post-completion incentive is equal to the final total incentive less the already paid energy model completion incentive.

Total Energy Use Intensity (TEUI) is a measure of the total amount of energy a building uses over the course of a year, per unit of building area. The metric considers all energy used in a building, including plug loads (e.g. lighting, appliances) and mechanical loads (e.g. elevators, mechanical systems, fans). TEUI is measured and expressed in kWh/m²/year.

Examples:

Example 1

A 120,000 sq. ft. office building is constructed in Vancouver and is subject to the BC Energy Step Code. Natural gas will be supplied by FortisBC and electricity by BC Hydro. The plan for the building is to use natural gas condensing rooftop units to supply the majority of space heating, as well as centralized natural gas condensing water heaters for domestic hot water. Natural gas supplies 34 per cent of the TEUI, with the remaining 66 per cent supplied by electricity. The proposed building achieves Step 3 of the BC Energy Step Code.

Area = 120,000 sq. ft.

Maximum incentive = \$3.40/sq. ft. (office and retail building, Step 3)

Percentage of TEUI supplied by FortisBC = 34%

Calculation = 120,000 sq. ft. X 34% X \$3.40/sq. ft. = \$138,720

Energy model completion incentive

(10 per cent of total)

\$13,872

Post-completion incentive

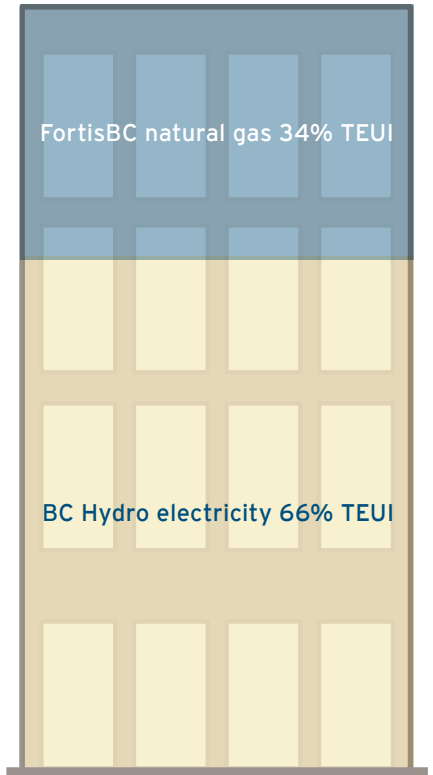
(remaining 90 per cent)

\$124,848

Office building

120,000 sq. ft.

Step Code 3 (\$3.40/sq. ft.)



Example 2

An 80,000 sq. ft. mixed MURB and retail building is constructed in Surrey with 60,000 sq. ft. of residential space and 20,000 sq. ft. of retail space and is subject to the BC Energy Study Code. Natural gas will be supplied by FortisBC and electricity by BC Hydro. Residential heating is supplied by electric baseboard heaters. Retail heating is supplied by natural gas furnaces. A central condensing natural gas hot water heater supplies domestic hot water. Natural gas supplied 40 per cent of the total building TEUI, with the remaining 60 per cent supplied by electricity. To determine the Step Code target, the area weighted TEDI and TEUI for each Step Code combination is calculated and the highest Step Code combination for the building's TEDI and TEUI is selected. Based on energy model results, the highest Step Code combination the proposed building achieves is Step 3 for MURB and Step 2 for retail.

Residential area = 60,000 sq. ft.

Retail area = 20,000 sq. ft.

Maximum residential area incentive = \$1.40/sq. ft. (MURB, Step 3)

Maximum retail area incentive = \$1.80/sq. ft. (office and retail building, Step 2)

Percentage of residential TEUI supplied by FortisBC = 40%

Percentage of retail TEUI supplied by FortisBC = 40%

Total incentive = residential incentive + retail incentive

Residential calculation =

$\$1.40/\text{sq. ft.} \times 60,000 \text{ sq. ft.} \times 40\% = \$33,600$

Retail calculation =

$\$1.80/\text{sq. ft.} \times 20,000 \text{ sq. ft.} \times 40\% = \$14,400$

Total incentive = \$33,600 + \$14,400 = \$48,000

Energy model completion incentive

(10 per cent of total)

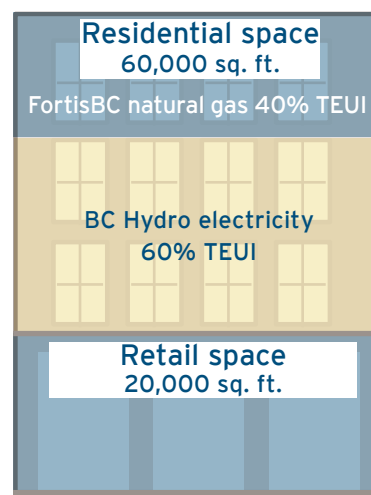
\$4,800

Post-completion incentive

(remaining 90 per cent)

\$43,200

Mixed-use building
80,000 sq. ft.



Example 3

A 100,000 sq. ft. care centre is built in Kelowna and is not subject to the BC Energy Step Code (see Path 2 table, other building types). Natural gas and electricity will be supplied by FortisBC. An energy study is conducted that suggests the care centre will be built to 22 per cent better than BCBC by implementing heat recovery chillers, LED lighting with advanced occupancy controls and heat recovery. Natural gas supplies 25 per cent of the TEUI, with the remaining 75 per cent supplied by electricity.

Area = 100,000 sq. ft.

Maximum incentive = \$2.20/sq. ft. (21-30% better than BCBC)

Percentage of TEUI supplied by FortisBC = 100%

Calculation = $\$2.20/\text{sq. ft.} \times 100,000 \text{ sq. ft.} \times 100\% = \$220,000$

Energy model completion incentive

(10 per cent of total)

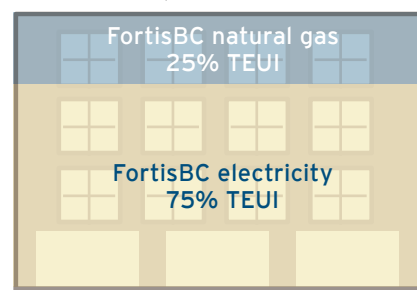
\$22,000

Post-completion incentive

(remaining 90 per cent)

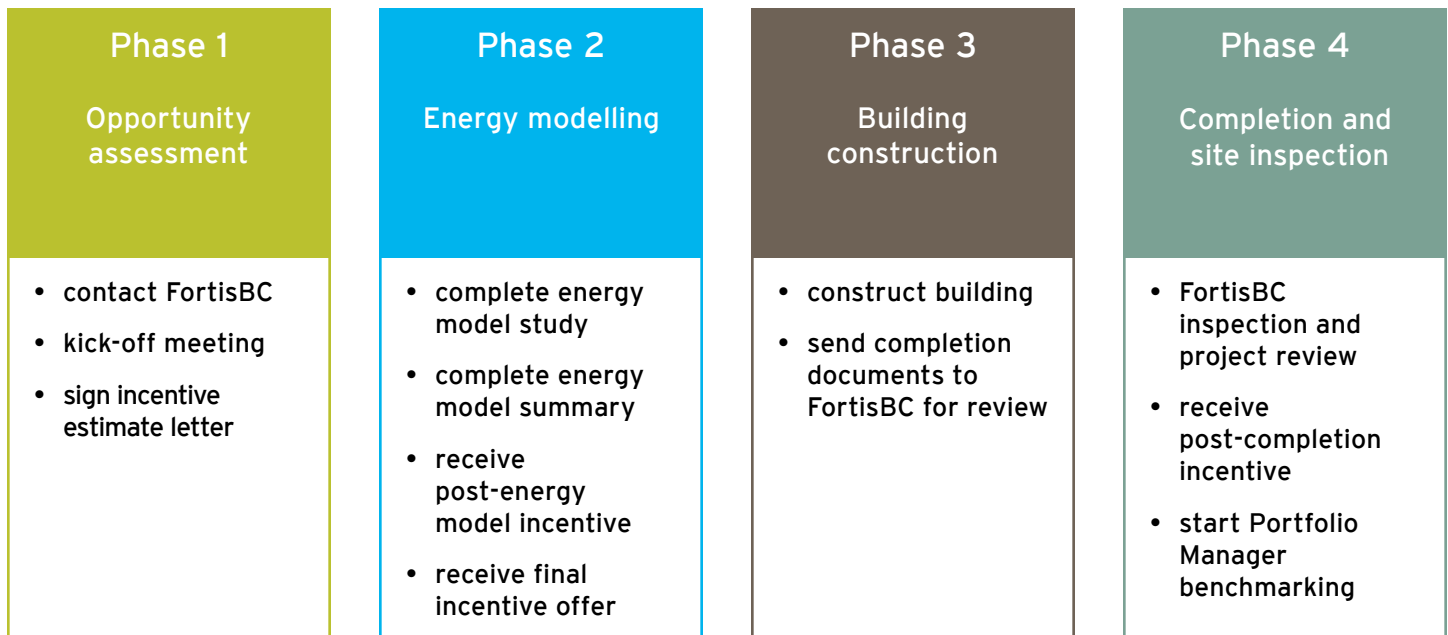
\$198,000

Care centre
100,000 sq. ft.



Program phases

The program is comprised of four distinct phases that when successfully completed will help your new building achieve enhanced energy efficiency, improved building performance and long-term cost savings. Here's how it works.



Phase 1: Opportunity assessment

- Step 1:** Contact your FortisBC key account manager, energy solutions manager or technical advisor to discuss your project. See the Contact us section for details.
- Step 2:** Schedule a project kick-off meeting between you, your design team and FortisBC.
- Step 3:** Have your consultant or design team prepare initial estimates of building performance.
- Step 4:** During the kick-off meeting you'll review the program, initial project estimates and receive incentive estimates. We'll provide you with an application form and thermal energy service provider form.
- Step 5:** You decide whether or not to proceed. If participating, sign the incentive estimate letter and submit the thermal energy service provider form. Construction must be completed within five (5) years.

Phase 2: Energy modelling

- Step 1:** Your consultant performs the energy model.

For buildings subject to BC Energy Step Code

- Step 2A:** The consultant models the designed TEUI performance of your building as per the [City of Vancouver Energy Modelling Guidelines](#), and outlines the building features required to achieve it. The results are provided to you for review.

- Step 3A:** You or your consultant completes the energy model summary template for your building design, and forwards it and the energy model report to FortisBC.

For buildings not subject to BC Energy Step Code

- Step 2B:** The consultant models the reference building per the [BC Hydro New Construction Energy Modelling Guidelines](#), the designed performance of your building and the ECMs required to achieve it. The results are provided to you for review.

Step 3B: You or your consultant completes the energy model report and forwards it to FortisBC.

For all buildings

Step 4: FortisBC completes final review of project and issues the final incentive offer along with the energy model completion incentive.

Phase 3: Building construction

Step 1: Construct your building according to the energy model and energy model summary (BC Energy Step Code buildings) or energy model and approved ECMs (non-BC Energy Step Code buildings). The building must be completed within five (5) years of signing the incentive estimate letter.

The post-completion incentive is provided within 90 days of completing the site inspection and reviewing all related documentation from Phase 3.

Step 2: When the building is complete and commissioned, provide all necessary completion documentation, including final progress drawings, and schedule a site inspection with FortisBC.

Step 3: FortisBC reviews the documentation and requests additional details or information as required.

Phase 4: Completion and site inspection

Step 1: FortisBC conducts a site inspection.

Step 2: FortisBC conducts final review. If any of the building features on the energy model summary (BC Energy Step Code buildings), ECMs (non-BC Energy Step Code buildings) or other major inputs to the energy model are found to have changed substantially, then we may require additional modelling to assess the final building performance and will amend the post-completion incentive accordingly. Program participants will be responsible for completing the additional energy modelling.

Step 3: FortisBC provides the final post-completion incentive.

Step 4: Report the building's energy use to [ENERGY STAR® Portfolio Manager®](#) for three years post commissioning.

Step 5: FortisBC may also conduct periodic inspections for up to three years after building commissioning.

Frequently asked questions

Q. Why does FortisBC want us to reduce energy use?

A. We're committed to providing customers value for their energy dollar. Plus, helping customers conserve energy is one of the most cost-effective ways for us to meet future energy needs.

Q. Can I receive FortisBC product rebates if I'm participating in the Commercial New Construction Performance Program?

A. You may either participate in the Commercial New Construction Performance Program or receive rebates through our individual product rebate programs for your project.

Q. What happens if I want to change any of the ECMs and/or building features or add a new one to my project?

A. First, notify us. The program requires you to advise us promptly of any proposed changes to the ECMs that either eliminate or substantially change their design during the course of the design, tender or construction of such measures. Second, as long as the ECMs still target the same end uses and achieve the same or greater energy savings, no changes will be necessary to the final incentive letter. If however, the changes target different end uses or result in different energy savings, the approved energy model may need to be updated to reflect these changes. We will pay the remaining post-completion incentive based on the pro-rated amount of energy savings that result from the updated energy model. You are responsible for the cost of revising the energy model and incentive adjustments may be made at FortisBC's sole discretion.

Q. I've applied for additional funding to support energy efficiency through another funding program (e.g. federal grant, another utility or government program). How does this impact the funding I will receive from FortisBC?

A. You must notify us in writing if you receive contributions or contribution commitments from a third-party organization. In the event the combined total of FortisBC funding and third party contributions exceed 100 per cent of the FortisBC-approved amounts, we will adjust the funding or, if already paid, you will be required to repay us for the full amount of the excess within 30 days of receiving the notice to repay.

Q. What modelling software can I use to develop the energy model?

A. Consultants are free to choose the modelling software as long as it meets the [City of Vancouver Energy Modelling Guidelines](#) (for BC Energy Step Code buildings) and the [BC Hydro New Construction Guidelines](#) (for non-BC Energy Step Code buildings). Note: energy models and energy model outputs need to be provided to us for review.

Q. How accurate are the energy models in predicting actual energy performance?

A. The energy performance outlined in energy models serve as a standardized comparison between similar buildings for regulatory purposes. Actual energy performance may vary significantly from the energy model based on occupancy, occupant behaviour, tenant end-uses, operation and maintenance and weather, amongst many other factors.

Q: How is the incentive administered for multi-phase projects?

A: For projects with multiple phases that may be completed in different years, the incentive and scope of the energy model will be based on all the phases and occupancy permits issued in a calendar year or completion of all phases if one energy model is used. In all cases, the incentive is limited to one incentive per project per year, to a maximum of \$500,000.

Q: Are projects connected to district energy systems eligible?

A: Projects with district energy systems will be accepted on a case by case basis. They must use natural gas as the primary heating source.

Q: How large does my building need to be to participate in the program?

A: The program will consider any Part 3 building that has completed a program-compliant energy model. However, we recommend a minimum building size of 85,000 sq. ft. Smaller buildings can still receive incentives through FortisBC product rebate programs. For more information, contact your [key account manager, energy solutions manager or technical advisor](#).



Contact us

For more information on this or other FortisBC programs, please contact your [energy solutions manager, key account manager or technical advisor](#) to discuss your project.

Don't know who your account manager or technical advisor is?

Call **1-866-884-8833**

Email commercialrebates@fortisbc.com


Visit fortisbc.com/newconstructionfunding



Connect with us



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