

Power Smart Application for New Construction Program – Whole Building Design



PROJECT INFORMATION

Building Name:

Legal Property Description:

City:

Postal Code:

Estimated Occupancy Date:

Other Incentives and Grants:

Funding Provider:

Funding Amount:

Funding Status:

Funding Date:

CUSTOMER INFORMATION

Company Information:

Legal Name of Registered Company:

Corporate Head Office
Address (Street):

City:

Postal Code:

GST/HST Number:

Project Contact Information:

Project Contact Name:

Title:

Phone:

Cell:

Fax:

Email:

Power Smart Application for New Construction Program – Whole Building Design



DESIGN TEAM CONTACTS

Energy Modeller

Company Name:	Contact Name:
Phone:	Email:

Mechanical Engineer

Company Name:	Contact Name:
Phone:	Email:

Electrical Engineer

Company Name:	Contact Name:
Phone:	Email:

Architect

Company Name:	Contact Name:
Phone:	Email:

General Contractor

Company Name:	Contact Name:
Phone:	Email:

Power Smart Application for New Construction Program – Whole Building Design



LEAD CONSULTANT'S DECLARATION

I, the undersigned, certify:

- that the above information and the information in the New Construction Program ("NC Program") Energy Study Proposal is accurate,
- that we are an approved BC Hydro consultant (If more than one consultant is used the consultant named below will assume the lead role for the energy study and incorporate all information into one report),
- that I have read and complied with the NC Program Energy Study Proposal Requirements, Minimum Requirements for a NC Program Energy Study and the Terms and Conditions of the NC Program,
- I also understand that the Energy Study and accompanying documents will be reviewed by BC Hydro engineers and consultants.

Company Name:

Authorized signature:

Date:

Print Name:

Mailing Address (Street):

Phone:

City:

Fax:

Postal Code:

Email:

APPLICANT'S DECLARATION

I, the undersigned, declare:

- that I am the owner of or a duly authorized representative of the owner of the building described above,
- that the information in this application is accurate and complete,
- that I have read and complied with the New Construction Program ("NC Program") Energy Study Proposal Requirements, Minimum Requirements for NC Program Energy Study and the Terms and Conditions of the NC Program,
- that any offer from BC Hydro will be in writing and if I accept, I will be required to sign a Power Smart NC Program Energy Study Agreement before receiving any funding.
- that I have received written consent from BC Hydro to enter into an agreement with a BC Hydro approved consultant to perform the work outlined in this application,
- I have included with this application a copy of the consultant's Energy Study proposal, and
- that I have not ordered or purchased any of the materials or equipment required to implement the energy-saving measures described in the Energy Study Proposal,

Authorized signature:

Date:

Print Name:

Title:

Mailing Address (Street):

Phone:

City:

Fax:

Postal Code:

Email:

NEW CONSTRUCTION PROGRAM ENERGY STUDY PROPOSAL REQUIREMENTS

IMPORTANT: The Energy Study proposal forms part of the application and must be submitted at the same time as the application. The proposal should be submitted on a separate page (or multiple pages as required), and should include all supporting documentation.

The following items must be included in a proposal to conduct an energy study (the requirements for the study itself are set out in the following section):

1. Qualifications of the firms involved and the key personnel in performing energy analysis and energy efficient design in the areas under consideration. Attach corporate profiles and/or staff resumes as appropriate.
2. Copy of schematic design or design development documents and drawings where available.
3. List the baseline building systems including a brief description of each. Indicate whether the fuel source for space and service water heating is from gas or electricity.
4. List the proposed building systems including a brief description of each. Indicate whether the fuel source for space and service water heating is from gas or electricity.
5. List the energy conservation measures to be evaluated including the associated baseline, and any issues or specific components to be reviewed. Baseline shall be in accordance with current good design practice, current BC Building Code, or other applicable codes, standards and guidelines (i.e. City of Vancouver Energy utilization By-Law).
6. Discuss the study methodology (including software package). Acceptable software for whole building analysis includes:
 - DOE2.1e (EnergyPro, VisualDOE, EE4 version 1.7)
 - DOE2.2 (eQuest, PowerDOE)
 - Energy Plus (DesignBuilder, Bentley Hevacomp Simulator V8i)
 - IES Virtual Environment
 - Bentley, Tas Simulator V8i
 - ESP-r
 - TRNSYS
 - Trane Trace 700 (Version 6.1 and higher)
 - Carrier E20-II HAP

Acceptable software for lighting (only) analysis includes the following and their up-dated release:

- | | |
|-----------------------|-----------------------|
| • AGI 32/ 1.1 | • AUTOLUX 6.2 |
| • GENESYS II | • LIGHT 3.0 |
| • LIGHT STAR 3.20 | • LITE PRO 1.0 |
| • LIGHT WORKS PRO 4.5 | • LUMEN MICRO 7.5 |
| • LUXICON 2.2.8 | • MICRO-SITE-LITE 2.2 |
| • SIMPLY INDOOR 2.0 | • SIMPLE 3.20 |
| • VISUAL BASIC 2.0 | • VISUAL PRO 2.0 |
7. Total cost of the energy study (include a fee schedule, quantity surveyor fee, listing participants, all tasks along with hours and hourly rate).
 8. Participation in other initiatives e.g. LEED, etc.
 9. Other Contributions or potential contributions to the cost of the energy study.
 10. Request for energy study funding. NOTE: New Construction (“NC”) study funding request is limited up to 50% of total energy study cost. Energy study funding request will be paid upon BC Hydro’s approval of the Energy Study Report and start of construction.

MINIMUM REQUIREMENTS FOR A NEW CONSTRUCTION PROGRAM ENERGY STUDY

The following minimum requirements for a New Construction Program (“NC Program”) Energy Study are to be viewed as a set of core elements that BC Hydro expects to be addressed by the Consultant performing the study, and not a step by step protocol for the consultant to follow.

The Energy Study Report is to be submitted prior to tender drawings and purchasing the materials and equipment necessary to implement the energy-saving measures contemplated in the Energy Study Report. If there are changes to the energy-saving measures, building design or any other part of the Energy Study Report, the Energy Study Report is to be updated post-tender with post-tender costs and any other changes. The following items are to be included in the Energy Study Report.

1. Executive Summary

This summary is important, as it is used to provide the customer and BC Hydro with an outline of the Energy Study's recommendations, including:

- Date of energy study completion.
- If applicable, description of integrated design process at the preliminary design stage and thereafter.
- A table of results for all energy-saving measures studied as part of this proposal (regardless of outcome). The table must include the following columns:
 - name and measure
 - incremental capital costs (including installation)
 - annual energy savings kWh/GJ (electricity, gas, other)
 - annual energy cost savings (\$/yr)
 - annual demand savings
 - annual maintenance cost savings
 - simple payback
 - discussion
- Recommended bundle of energy-saving measures to be considered for capital incentive and reason for selection of the energy-saving measures.
- Identification of non-energy benefits.

2. Building Description, type, size, number of floors, and number of residential units (if applicable)

- Occupancy pattern/schedules
- Design/setback temperatures
- HVAC, lighting and other applicable systems
- Mechanical system schedules
- Heating type (gas/electric/both)
- Percentage glass
- Plug load (W/ft²)
- Lighting density (W/m² or W/ft²)
- Ventilation rate

3. Energy Costs

Include the utility rates (energy and demand steps) used in the study.

4. Analysis

For the **Whole Building Design** option (where the scope of the study encompasses the entire building), include the following:

- Overall energy use (kWh/yr), and cost (\$/yr).
 - Although not required in the report, BC Hydro may request a list of modeling inputs and outputs to support energy use estimates.
- Overall energy use intensity (kWh/ft²yr), and cost (\$/ft²yr).
- Energy disaggregation (cooling, heating, interior lighting, HVAC equipment, plug loads, refrigeration, exterior lights, vertical transportation, DHW, cooking, and other), and peak electrical demand.

For the **Building System Design** option (where the scope of the study is focused on a building subsystem), include electronic copies of spreadsheets or other calculations used for detailed mechanical and/or lighting energy savings estimates.

For both the **Whole Building Design** and **Building System Design** options, and for each end use measure, include the

following:

- Description of the energy savings opportunity and each energy-saving measure.
- Description of the baseline against which the measure is compared. This should be in accordance with current good design practice, current BC Building Code, or other applicable codes, standards and guidelines (i.e. City of Vancouver Energy utilization By-Law).
- Name of energy modeling tool used, specialized tools used, and other relevant issues.
- The annual energy use of both the baseline and proposed system, as well as the decrease (or increase) of estimated annual energy use for each associated utility (electricity, gas, steam, etc.). Energy and demand savings should both be estimated, and savings should be shown in energy units as well as dollars.
- The decrease (or increase) of estimated annual maintenance costs, and the basis of the cost estimate.
- Capital cost estimate must be performed by a Professional Quantity Surveyor or Contractor. The total capital cost estimate for each energy-saving measure/system for both, baseline and proposed system must be properly documented. Include any increases or decreases in costs associated with other related systems (e.g. decreases in transformer size when replacing electric baseboards).
- The simple payback of the measure based on incremental capital cost, incremental maintenance costs, and energy cost savings.
- Identify non-energy benefits of identified energy-savings opportunities (e.g. production/performance, occupancy, comfort, sales, construction cost reductions, environmental benefits such as reduced emissions, air quality, material selection, waste reduction, recycling, etc.).
- Complete and submit an electronic copy of BC Hydro economic analysis spreadsheet.

Isolate a recommended bundle of measures from the list of studied measures. Provide (in like manner to the individual measures above) the annual energy and maintenance savings, incremental capital and labour costs, and simple payback of the bundle of recommended measures and the estimated value of non-energy benefits. If applicable, this shall take into account savings interactions between measures. Provide read/write Excel electronic copy of the BC Hydro's life cycle cost analysis spreadsheets and if applicable, read/write electronic copies of mechanical and/or lighting detailed energy saving estimations.

5. Lighting Systems

Include the following:

- Types of systems.
- Lighting levels for significant areas.
- Include:
 - Luminaire inventory (explicitly describe type of luminaire, lamp and ballast combination including input wattage) for each option. For input wattage use BC Hydro approved data or provide updated manufacturer specifications.
 - Point-by-point lighting calculations and graphic outputs for upgraded lighting design in significant areas.

6. Other Systems and Processes (example refrigeration)

Include the following:

- Equipment data sheets (make, model number, design flow & pressure, performance curves, etc.) for all equipment under review.
- Estimated annual operating hours at various equipment capacities for all equipment under review.
- Equipment / system efficiencies.
- Control system and strategy.

7. Study Coordinator

- Include name and company of energy modeller.
- Name of Professional Engineer or Registered Architect responsible for Energy Study.
- Professional Engineer or Registered Architect's dated signature on the Energy Study.

8. Timing of Submission

- The Energy Study Report is to be submitted to BC Hydro for review and approval prior to tender drawings and purchasing the materials and equipment necessary to implement the energy-saving measures contemplated in the Energy Study Report. If the implemented energy-saving measures are different from the energy-saving measures approved by BC Hydro or there are changes to the building design or any other changes to any part of the Energy Study Report, the Energy Study Report is to be updated post-tender and the model and costs should be adjusted to reflect all changes. BC Hydro will review and approve the updated Energy Study Report and may recalculate the capital incentive based on the implemented energy-saving measures.

TERMS AND CONDITIONS

1. The New Construction Program ("NC Program") only applies to new buildings located in the Province of British Columbia and within the area served by BC Hydro.
2. The Applicant will ensure that the building system designs adhere to the current BC Building Code and other applicable codes, standards and guidelines.
3. The Applicant warrants that the Applicant meets all requirements established by BC Hydro and that the Applicant complies with all qualifying requirements.
4. The Applicant warrants that all information contained in this application is true and correct. Should any information cease to remain true and correct, the Applicant must promptly notify BC Hydro in writing.
5. BC Hydro reserves the right to change or terminate this program at any time without notice, but will continue to process applications submitted prior to the announcement of the changes or termination under the procedures existing at the time of submission of the application.
6. The submission of a completed application form by the Applicant to BC Hydro will not in any way guarantee the granting of any Energy Study funding or Capital Incentive to the Applicant by BC Hydro. BC Hydro reserves the right to reject or accept, at its sole discretion, any applications submitted by the Applicant.
7. BC Hydro will determine whether the proposed energy-saving measures are eligible under the program.
8. BC Hydro will reserve the right to decide the baseline against which any measure will be compared. This may include, but is not limited to, current good design practice, current BC Building Code, or other applicable codes, standards and guidelines (i.e. City of Vancouver Energy utilization By-Law).
9. BC Hydro decisions relating to product or customer eligibility, energy savings potential of the proposed projects, amount of Energy Study funding or Capital Incentive or other issues will be final and binding on all parties.
10. BC Hydro will conduct an evaluation of the application within a reasonable time after submission.
11. BC Hydro (or its designates) will not evaluate any applications until and unless all required program information is received by BC Hydro.
12. BC Hydro reserves the right to determine whether or not an application is complete and all required information has been submitted and/or the level of Energy Study funding or Capital Incentive that will be offered to the Applicant.
13. BC Hydro may evaluate any or all of the applications it receives on any basis, including, but not limited to, the over all cost impact of the application, the technical ability, commercial credibility, financial resources, and environmental responsibility of the Applicant.
14. Once the application is reviewed and accepted, BC Hydro will send a NC Program Energy Study Agreement to the Applicant. The Agreement must be signed by the Applicant and returned to BC Hydro within **30 days**.
15. BC Hydro will have no obligation, risk, title or interest in connection with any energy-saving measures adopted or recommended by the Applicant, whether BC Hydro has assisted in the application or otherwise.
16. BC Hydro, not being a designer or manufacturer of energy efficient products or a designer of buildings, makes no representation or warranty whatsoever, express or implied, as to the fitness, quality of design practices or capability of the material, equipment or workmanship, nor warrants that any design or product will satisfy the requirements of any law, rule, specification or contract, whether BC Hydro has assisted in the application or otherwise.
17. The energy modeller must be a BC Hydro approved consultant. The Applicant may choose an energy consultant from the Power Smart Alliance or may, subject to BC Hydro's prior approval of the consultant's qualifications, utilize an energy consultant chosen by the Applicant. BC Hydro's referral or acceptance will not constitute endorsement of any particular consultant; nor any manufacturer, product, system design, supplier or installer of energy-saving measures and/or products that may be recommended by the energy consultant.
18. BC Hydro is not responsible for any tax liability imposed on the customer as a result of the receipt of any Energy Study funding or Capital Incentive.

If the Applicant is eligible for a Capital Incentive, the Applicant will be required to enter into a Capital Incentive Agreement with BC Hydro that include the following terms and conditions:

19. BC Hydro may provide a Capital Incentive to eligible Applicants for the implementation of the energy-saving measures proposed by the Applicant and described in the Energy Study Report approved by BC Hydro.
20. The Applicant may be required to submit evidence satisfactory to BC Hydro that the Applicant is financially sound and viable.
The Applicant will ensure that all of the projects and equipment and the application and installation of that equipment must meet or exceed regulatory requirements in British Columbia.
21. The Applicant may select a prime contractor (as the term is defined in the Workers Compensation Act) or general/implementation contractor as the case may be. The Applicant must ensure that the prime contractor or general/implementation contractor meets the following qualifications:
 - (a) holds comprehensive general liability insurance policy of not less than \$2.0 million; and
 - (b) is in good standing with WorkSafeBC.

The Applicant will ensure that the prime contractor or general/implementation contractor continues to comply with the above requirements throughout the term of the Capital Incentive Agreement.

22. Once the Energy Study Report is approved by BC Hydro and the Applicant is eligible for a Capital Incentive, BC Hydro will send a NC Program Capital Incentive Agreement to the Applicant. The Agreement must be signed by the Applicant and returned to BC Hydro within **60 days**.
23. The Applicant has not ordered or purchased any materials or equipment in regards to implementation of the energy-savings measures outlined in the Energy Study Report approved by BC Hydro, unless otherwise agreed to, in writing, by BC Hydro.
24. The Applicant will be required to complete the installation of energy-saving measures and to commission fully the measures by no later than **36 months** after the execution of the NC Program Capital Incentive Agreement by the Applicant.
25. Evidence of purchase and installation of energy-saving measures, and of commercial operation of the facility satisfactory to BC Hydro must be provided to BC Hydro to receive the Capital Incentive.

April 2011