

# Guidance for the Preparation of Electrical Planning Reports for Strata Corporations in British Columbia

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*The information in this guide is provided for the user's convenience as an aid to preparing electrical planning reports for strata corporations and in recognition of the increasing demand for electricity. In British Columbia (B.C), strata corporations with five or more lots are required by law to get electrical planning reports.*

*This guide provides some general information and guidance. Given the large variety of strata corporations that include complicated variations of commercial strata (identified as non-residential), mixed use commercial and residential, industrial, multiple corporation and property joint use and air space parcels; these guidelines may not be applicable for every strata corporation.*

*The guide is not intended as interpretive legal or technical advice.*

## ACKNOWLEDGEMENTS

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# 1. Introduction

## 1.1 Purpose of the Guide

The purpose of this guideline document is to clarify the scope of electrical planning reports (EPRs) for strata corporations in B.C. and to help EPR providers meet the requirements set out in the Strata Property Act and Regulations in a cost-effective way.

The intended audience of the guide is EPR service providers, however the guide may also provide helpful context for strata councils.

## 1.2 Definitions and Abbreviations

Table 1: Definitions and Abbreviations

ABBREVIATION / TERM	EXPANDED TERM / DESCRIPTION
<b>Brownouts</b>	<i>A temporary weakening of electrical devices caused by a reduction in the power supply caused by excessive demand or supply. Brownouts can occur during peak load demand and should be avoided.</i>
<b>CEC</b>	<i>Canadian Electrical Code.</i>
<b>COP</b>	<i>Coefficient of Performance.</i>
<b>CRF</b>	<i>Contingency reserve fund.</i>
<b>DHW</b>	<i>Domestic hot water.</i>
<b>EGBC</b>	<i>Engineers and Geoscientists of British Columbia.</i>

<b>Electrification</b>	<i>The process of converting an energy-consuming device or system from non-electric sources of energy to electricity.</i>
<b>Load Management System</b>	<i>A technology that actively controls electricity consumption by adjusting or shifting electrical loads within a network, aiming to balance the power supply with demand by regulating when and how much electricity devices use, typically done to reduce peak demand during high usage times.</i>
<b>EPR</b>	<i>Electrical Planning Report.</i>
<b>EV</b>	<i>Electric vehicle.</i>
<b>EV Ready Report</b>	<i>A report which outlines a strategy that would provide a minimum of one EV-ready parking space per residential unit.</i>
<b>Make-Up Air Unit</b>	<i>Helps maintain balanced airflow in the building, making up the air that gets exhausted from kitchen, bathroom and dryer exhaust systems. The make-up air unit is generally located at the top of a building, either in a mechanical room or on the roof. These systems are mandatory where an elevator has direct access to a parking garage to prevent chimneying of exhaust and smoke into occupied spaces.</i>
<b>OIC</b>	<i>An Order in Council is a legal instrument used by governments to pass regulations and make some appointments.</i>
<b>Peak Demand</b>	<i>Refers to the peak demand in kilowatts (kW), calculated from hourly kilowatt per hour (kWh) data, or from measured peak demand data, with a safety factor to allow for variation in peaks over the sampling period.</i>
<b>TSBC</b>	<i>Technical Safety BC.</i>

## 2. Understanding Electrical Planning Reports

Strata corporations with five or more lots are required to obtain EPRs. EPRs help strata corporations manage increasing demands for electricity including electric vehicle charging, conversions of hot water production to electric or heat pump systems and heat pumps.

### 2.1 Electrical Planning Reports - Deadlines and Exemptions


Strata corporations with five or more strata lots are required to obtain an EPR by the following dates:

- By December 31, 2026, for strata corporations located in:
  - The Metro Vancouver Regional District (excluding islands which are only accessible by air or boat such as Bowen Island).
  - The Fraser Valley Regional District.
  - The Capital Regional District, CRD (excluding islands which are only accessible by air or boat such as the Southern Gulf Islands).
- By December 31, 2028, for strata corporations located in other areas of British Columbia (including the Southern Gulf Islands and Bowen Island).
- New strata corporations will have five years from the deposit of the strata plan to obtain an EPR.

Phased strata corporations have some specific timelines as set out in the Strata Property regulation, 5.9.2.2 Purpose of Electrical Planning Reports.

An EPR provides a strata corporation with important information about the strata corporation's electrical system for electrical management, general understanding, and for **preliminary planning** purposes.

An EPR also provides information to strata corporations for reviewing and approving owners' requests for EV charging.



An EPR also helps strata corporations avoid:

- Inadvertently reaching the limits of their existing electrical capacity precluding other uses.
- Brownouts.
- Expensive upgrades to obtain more electrical capacity.

EPRs provide the current estimate of the available capacity and an order of magnitude estimate (that is a broad estimate) of the electrical capacity required for adding various electrical loads. They may also identify upgrades or modifications to the electrical system that may be required as well as opportunities for reducing electrical loads or using load management solutions.

**Limits of an EPR:** An EPR cannot be used to proceed with the installation of any electrical loads. If the strata corporation plans to make changes or additions to their electrical system, the strata corporation must hire a professional to select equipment, confirm electrical capacity, determine the required electrical upgrades and comply with any legal or regulatory requirements.

**Cost-Savings & Load Management:** There may be some opportunities for cost-savings for strata corporations, as some EPR providers can deliver these additional services (such as determining electrical load or preparing an EV Ready Report). The EPR report providers may be able to offer a better price for “bundled” services when completed at the same time as an EPR.

### 3. Who is a Qualified Person?

Only qualified persons as defined by Section 5.10 of the Strata Property Regulation can conduct EPRs. The professionals qualified to deliver an EPR depends on whether it is a type 3 or a type 9 building, as per the BC Building Code.

For a **Part 9 building**, the qualified person must meet at least one of the following requirements:

- A professional engineer (P.Eng) in the field of electrical engineering and who is a member in good standing with Engineers and Geoscientists BC (EGBC).
- An applied science technologist registered under the Professional Governance Act.
- An electrician who is a journey person, as defined in the Skills Trades BC Act, in the construction electrician or industrial electrician trade.

For a **Part 3 building**, or any building other than Part 9, the qualified person must be either:

- A professional engineer (P.Eng) in the field of electrical engineering and who is a member in good standing with EGBC.
- An applied science technologist registered under the Professional Governance Act.

If a strata corporation has a mix of Part 3 and Part 9 buildings, then the EPR provider must be qualified for Part 3 buildings.

#### COMPARISON OF PART 3 AND PART 9 BUILDINGS

- **Part 3 Buildings:** Design criteria for larger, more complex buildings are found in Part 3 of the BC Building Code. Part 3 buildings can be any height or footprint and may include, for example, condo towers and mid-rise apartment blocks. Generally, Part 3 buildings are more than three stories in height or have a building footprint exceeding 600 square meters.
- **Part 9 Buildings:** Design criteria for housing and small buildings can be found in Part 9 of the BC Building Code. Part 9 buildings are not more than 3 storeys and not larger than 600 square meters in their footprint. Part 9 buildings can include, for example, single-family homes and small buildings.



## 4. Guidelines for Producing an EPR

This section provides guidelines to help cost-effectively produce an EPR and meet the requirements for an EPR as set out in the Strata Property Act and Strata Property Regulation. Some local governments, like the City of Vancouver, may also have requirements for electrical planning, such as the Vancouver Energy Management Plan.

There is no requirement to use the resources provided in this document, they are provided as general guidance to help support EPR providers. The EPR provider is responsible for producing an EPR report that meets legal requirements and the needs of the strata corporation.

**Permanent Record:** The EPR is a permanent record of the strata corporation and will be referred to over many years by strata councils, strata owners and prospective purchasers. The EPR must be disclosed on the Form B: Information Certificate if requested by a prospective purchaser.

The EPR should be a report that can be shared widely. It should not include personal information of strata council members or owners (as members are elected annually) or pricing information.

If additional information, that is not part of an EPR, is sought by the strata corporation, it should be provided as a separate document.

In addition to these guidelines, there are resources available in Appendix A and Appendix B of this document.

**Appendix A** provides links to additional resources and training on EPRs.

**Appendix B** contains:

- An example of an EPR Report Template that illustrates the minimum requirements of an EPR.
- An Excel workbook to help generate an EPR. The contents of the Excel workbook can be pasted into the EPR report to support various sections of the report, as applicable.

The language used in this section of the guide should be interpreted as is listed in Table 2.

Table 2: Comparison of Retrofit Opportunities Assessment, EV Ready Plan and EPR

WORD	INTENDED MEANING
<b>Must</b>	<i>When the EPR provider needs to meet a legislative requirement.</i>
<b>Should</b>	<i>A recommendation that is encouraged, but not legislatively required.</i>
<b>May</b>	<i>An option which is allowed within the scope of the EPR requirements.</i>

## 4.1 Data Collection

The following information can be collected by EPR providers:

### Information from the Strata Corporation

Work with the strata corporation to understand current and anticipated future electrical needs as this information **must** guide the content of the EPR.

To understand electricity demands and priorities, the strata corporation may hold meetings with strata residents, conduct surveys or discuss at an annual general meeting.

The EPR provider **should** consider asking the following questions to the strata corporation:

- How is the strata corporation planning for EV charging? How many and which stalls (for location) are being considered?
- Is the strata corporation planning the addition of heat pumps for heating and/or cooling as part of the common property or for individual strata lots? It is important to inform the strata corporation that heat pumps can provide both heating and cooling in one system rather than two separate systems, helping to mitigate the electrical demand.
- Is the strata corporation planning or anticipating the electrification of any other mechanical systems? For example, will the strata corporation be switching from natural gas to electricity for domestic hot water, make-up air, fireplaces, pools, hot tubs, dryers or cooking ranges.

Are there any specific questions that the strata corporation would like this report to inform? For example: how many EV chargers or heat pumps can the strata corporation install within the current available electrical capacity?

The EPR provider **should** consider the following questions internally as they work through the EPR:

- How will an electrical load management system help support EV charging?
- If the strata corporation is planning on installing heat pumps, will electric base board heaters continue to be used or as a condition of permission to install and manage the loads will they be removed?
- Can heat pumps be used in any common areas in the building, such as the electrical/mechanical rooms or elevator room?

*a. The type of strata corporation:*

Any property can be strata-titled from condo towers to bare land strata developments to shopping malls. Many strata corporations are mixed-use with residential and commercial sections, multiple corporations sharing joint facilities, social housing or have agreements with air space parcels.

The following data **should** be collected from the strata corporation prior to conducting a site visit:

*b. A description of the property:*

- A copy of most strata plans identifies common property, limited common property, boundaries of strata lots, the total number of strata lots and locations of common mechanical services.
- Mechanical and electric plans and drawings, if available.
- Description of the systems in the building or on the property that require energy including:
  - Electrical systems such as: heating, cooling, ventilation, waste management, sanitary management, flood management, EV charging, make-up air units, heat pump conversions and installations, elevators, and any other motor systems.
  - Any system that uses oil, gas, or propane.
  - Parking garage heating elements.

## In preparation for the site visit, the EPR provider requires:

- Full access to the common property systems. This includes:
  - Electrical room(s).
  - Mechanical, elevator, and electrical closets, electric vaults.
  - Roof systems.
  - Parking areas.
  - Alternative energy systems (for example, Natural gas, Geothermal, Photovoltaic).
  - A sample of strata lots.

If providing an EPR for a strata corporation that is part of an Air Space Parcel, mixed use Commercial and Residential, Commercial and Industrial, or exclusively Commercial designated, it is essential to identify:

- The type of shared use and property designations.
- If there are any shared electrical services.
- If the electrical vaults are within a joint use area.
- If the vaults and distribution centres serve more than one strata corporation or air space parcel.
- If there are any utilities that deliver electrical service to more than one strata corporation or air space parcel.
- Any limitations or capacity issues that arise from joint use of electrical services.

### INDEPENDENTLY SUPPLIED STRATA LOTS & SHORTENED EPRS

In some strata corporations, individual strata lots are directly connected to the utility's electrical distribution system, meaning there is no shared electrical infrastructure. This is most common in bare land strata developments. In such cases, the EPR provider **must** confirm the independent electrical supply and issue a shortened EPR stating that each strata lot's electrical capacity is unaffected by the electricity use of others. The report should briefly describe the electrical distribution system (per Section 4.4.1) and include key details about the strata and provider (per Section 4.2). The shortened EPR **must** still include key details about the strata corporation and the EPR provider, as specified in Section 4.2 of this guide. **\*Note:** Separate utility bills do not confirm independent supply. If a distribution vault or transformer serves the strata, a full EPR is required.

**Regulatory Reference:** Strata Property Regulation Part 5.2, Division 2, Section 5.11: (3) *If each strata lot in a strata plan receives electricity directly from a utility, independent of other strata lots, the electrical planning report must only include:*

- (a) *The information specified in subsection (2)(a) and (b);*
- (b) *A statement confirming that each strata lot is supplied with electricity independently.*

## Additional documents the EPR provider may collect:

- Electrical utility billing statements.
- Utility property peak load electrical data form. [Access your building's peak load electrical data \(bchydro.com\) available at: https://app.bchydro.com/accounts-billing/rates-energy-use/access-load-data.html](https://app.bchydro.com/accounts-billing/rates-energy-use/access-load-data.html)
- Electricity demand for typical units/suites.
- Electric Operating Permit Logbook.
- Notices or orders relating to electrical management or operations that have been issued to the strata corporation from the regional district, municipality or Technical Safety BC.
- Any existing depreciation reports, EV Ready Plans or other past reports such as a Building Condition Assessment (BCA).

## 4.2 Section One: Strata and Provider Details

This section **must** include, at a minimum, the date of the EPR and information about the EPR provider such as name, qualifications, relationship to the strata and error and omission insurance, if applicable.

As per the Strata Property Regulation Part 5.2, Division 2, Section 5.11<sup>1</sup>, an electrical planning report **must** include the following information:

*(a) the date of the electrical planning report.*

*(b) the name of the person from whom the electrical planning report was obtained and a description of*

*(i) the person's qualifications;*

*(ii) the error and omission insurance, if any, carried by the person;*

*(iii) the relationship between the person and the strata corporation.*

An example of how this information could be included in the EPR is shown in Appendix B.

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<sup>1</sup> [https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/12\\_43\\_2000](https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/12_43_2000)

## 4.3 Section Two: Executive Summary

An executive summary will help strata councils, strata owners and prospective purchasers understand key points of the EPR. Many readers will limit their attention to the summary of the report. The use of plain language for non-technical readers **should** be used.

### Introduction

The introduction highlights the purpose of the EPR. It **should** include the date of the site visit and include any relevant disclaimers on the limitations of the information within the EPR.

### Executive Summary

The executive summary provides an overview, in plain language, of the findings within the EPR. This section **should** include information, such as:

- A summary of the plans and priorities shared by the strata corporation during the data collection stage.
- A summary of the estimated electrical capacity and its potential limitations.
- Answers to questions that might have come up during the conversations with the strata (e.g. approximately how many EV chargers can be installed with the current electrical capacity?).
- Additionally, potential next steps if the strata corporation is planning for, or anticipating, adding electrical loads.

## 4.4 Section Three: Existing Electrical System Details

As per the Strata Property Regulation Part 5.2, Division 2, Section 5.11<sup>2</sup>, an EPR **must** include the following information:

- (c) the current capacity of the strata corporation's electrical system;*
- (d) a list of existing demands on the electrical system, including, without limitation, demands from
  - (i) EV charging infrastructure, if any, and;*
  - (ii) heating, cooling, ventilation and lighting systems;**
- (e) the current peak demand on and spare capacity of the electrical system.*

This section **must** include:

- A short description of the electrical system;
- The current total, peak, and spare capacity of electrical system;
- A list of the existing major demands on the electrical system including, without limitation, demands from:
  - EV charging infrastructure,
  - Heating, cooling, and ventilation,
  - Domestic hot water (DHW),
  - Lighting systems,
  - Large motors and/or pumps, and
  - Elevators.

An example of how this information could be included in the EPR is shown in the Excel workbook and the electric planning report template.

The EPR provider **is recommended to conduct a site visit** to become familiar with the strata corporation, its electrical systems and major existing loads.

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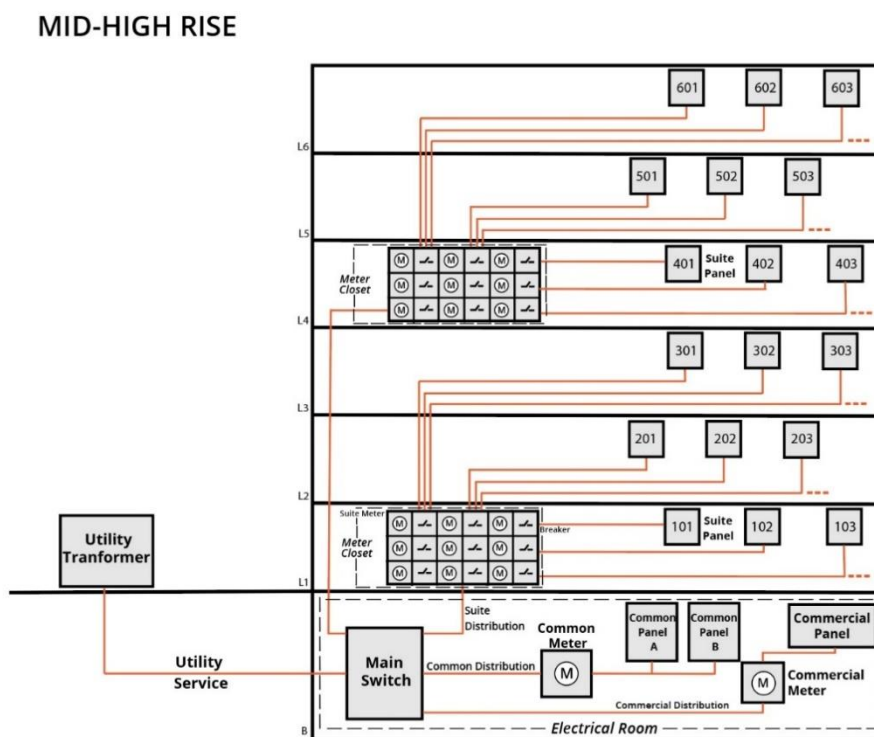
<sup>2</sup> [https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/12\\_43\\_2000](https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/12_43_2000)

#### 4.4.1 Description of Electrical System

The EPR provider **is recommended to** include a short description of the existing electrical distribution system. This will provide strata corporations with an overview of how their system is laid out and a better understanding that electrical capacity limitations depend on where in the system the load is being added.

The description **may** be a few sentences describing how power comes from the utility/customer owned transformer to their main switch and is distributed to the common and/or suite loads. In addition, the EPR provider **may** include a generic interconnection diagram or site photos. An example of a generic interconnection diagram for mid-high-rise building is shown below.

Figure 2: Mid-High Rise Building Sample Interconnection Diagram





#### 4.4.2 Current Capacity, Peak Demand and Spare Capacity

The EPR **must** include, at a minimum, the current capacity, peak demand and spare capacity of the main electrical system or systems serving the strata corporation.

Include the current capacity, peak demand and spare capacity of the major electrical distribution branches for the site that feed the residential suite(s) or unit(s), and house/common panels. This may be specific to townhouse or bare land strata developments. Requesting sample metering data from individual suite owners can provide additional hourly peak demand data.

- The current capacity (power in kW) can be calculated by using the rating of the main switch/breaker, multiplied by the operating voltage, multiplied by the rating of the switch (typically 80%).
- The method used to estimate the existing peak demand of the strata's electrical system is to be determined by the EPR provider. The method used **should** be described in the EPR.

**Two possible methods** calculations are outlined below:

##### (1) Using Measured Maximum Demand Load to Estimate Spare Capacity

The Canadian Electrical Code (CEC) Rule 8-106 (8)<sup>3</sup> allows using measured demand load to estimate the spare capacity *"Where additional loads are to be added to an existing service or feeder, the augmented load shall be permitted to be calculated by adding the sum of the additional loads, with demand factors as permitted by this Code, to the maximum demand load of the existing installation as measured over the most recent 12-month period, but the new calculated load shall be subject to Rule 8-104 5) and 6)."*

- i) Obtain the 12-month period measured maximum demand load from the utility.
  - If the electrical utility is BC Hydro, this information can be obtained by filing an online request with BC Hydro: <https://app.bchydro.com/accounts-billing/rates-energy-use/access-load-data/request.html>. The requirements to obtain this information are as follows:
    - Provide a list of service addresses or BC Hydro account numbers.

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<sup>3</sup> [https://www.csagroup.org/standards/areas-of-focus/electrical/?srsltid=AfmBOoqdx1g8hgucs8wGg23\\_qsdOBda\\_A9JEsHndmjCByrow87VSDSK-](https://www.csagroup.org/standards/areas-of-focus/electrical/?srsltid=AfmBOoqdx1g8hgucs8wGg23_qsdOBda_A9JEsHndmjCByrow87VSDSK-)

- Identify the time period you need data for, typically the past 12 months.
  - A BC Hydro building authorization form <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/power-smart/business/programs/building-owner-authorization-form.pdf> will need to be signed by someone authorized by the strata corporation. This is to confirm that the EPR provider has the consent of the strata corporation to request the utility data.
  - Contact all other utility providers directly for data and information.
- ii) Calculate the maximum/peak demand from the data provided by BC Hydro or another utility.
- Since most multi-unit residential lots do not have a main electrical meter, BC Hydro is only able to provide service address' aggregated maximum kWh per hour read over a one-year period. This information is typically labeled as 'Service Address Max kWh (1y)'. This value needs to be converted to kW.
  - Calculate the maximum/peak demand for the site by taking the service address maximum kWh over the specified time period and applying a **safety factor**.
  - The equation for estimating the peak demand is as follows:  

$$\text{Estimated Peak Demand} = \text{Service Address Max kWh} \times \text{Safety Factor}$$

Where the safety factor is a percentage increase to account for variation in peaks over the sampling period of the utility metering data.

    - Safety factor: For multi-unit residential buildings, the chosen safety factor is at the discretion of the EPR provider until an industry standard is determined.
    - Technical Safety BC (TSBC) has published information on the use of [safety factors for single dwellings](#), however, there is currently no guidance on safety factors for multi-unit residential or mixed-use buildings.
- iii) The data provided by BC Hydro or another utility provider will also include the maximum kW or kWh over the specified time period for the house/common meter, as applicable. This information can be used to estimate, in a similar way as described above, the spare capacity of the house/common distribution.

This may be applicable to bare land, townhouse and detached townhouse strata corporations.

## **(2) Using the Calculated Loads per the CEC to Estimate Spare Capacity**

The EPR provider **may** choose to calculate the estimated peak demand by using demand factors and allowances as permitted by the Canadian Electrical Code (CEC) Section 8.

An important caution: This method is typically more conservative and may result in a calculation that offers less spare capacity when compared to the hourly data with application of safety factor.

This method is available to estimate the spare capacity of the electrical distribution for the strata lots if they are all metered separately, and the electrical utility cannot provide maximum demand load for them. This limitation may be encountered where there are sections, air space parcels, or joint use corporations with integrated electric distribution.

To calculate the spare capacity, take the calculated capacity and subtract the estimated maximum/peak demand.

### **4.4.3 List of Existing Demands**

The list of the existing major demands on the electrical system can be compiled by surveying the major equipment on site and by reviewing existing building drawings, and any past electrical upgrades if available.

For the existing major demands, it **should** be noted in the EPR which distribution system they are connected to, as this can be useful information for future planning. Applicable to strata corporations with multiple buildings, townhouse and bare land.

## 4.5 Section Four: Additional Electrical Loads

As per the Strata Property Regulation Part 5.2, Division 2, Section 5.11<sup>4</sup>, an EPR **must** include the following information about anticipated future demand for electricity:

*(f) if applicable, an estimate of the electrical capacity that would be needed to power systems, including heating, cooling and ventilation systems, that are currently powered by an energy source other than electricity;*

*(g) an estimate of the electrical capacity needed for any other anticipated future demands on the electrical system, including electrical capacity needed to power*

*(i) heating, cooling, ventilation and other systems that the strata corporation anticipates may be modified or installed in the future, and;*

*(ii) EV charging infrastructure that the strata corporation anticipates may be installed in the future.*

This section **must** include an estimate of the capacity needed to power:

- Major systems currently not powered by electricity.
- Any other anticipated future demands.

An example of how this information could be included in the report is shown in the Excel workbook and the report template.

### 4.5.1 Estimate of Capacity Required for Electrification

The EPR provider **must** provide an estimate of the electrical capacity needed to power, without limitation, heating, cooling, ventilation, and DHW systems that are currently powered by a source other than electricity. The method used to estimate the capacity needed is chosen by the EPR provider. All methods and assumptions **must** be clearly stated in the report.

EPR providers under the Strata Property Regulations are required to consider the impact of high-efficiency electrical equipment, such as heat pumps, and to calculate the required heating loads in their estimates. The EPR provider **may** use a one-to-one conversion for estimating the required capacity and apply an estimated reduction based on a typical average coefficient of performance (COP), for example 2.5-3, if high-efficiency electric heat pumps are recommended. This is outlined below.

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<sup>4</sup> [https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/12\\_43\\_2000](https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/12_43_2000)

## Converting from BTU/hr to kW

Estimating the capacity **may** be done by converting the rated output of the equipment into a kW equivalent using the following calculation:

$$(1) \quad \text{Estimated Capacity (kW)} = \text{Rated Output} \left( \frac{\text{BTU}}{\text{hr}} \right) \times 2.931 \times 10^{-4}$$

Where the Rated Output is the nameplate rating of the equipment in BTU/hr.

To estimate the electrical efficiency based on the COP, the EPR provider may use the equation below.

$$(2) \quad \text{Energy Efficient Demand (kW)} = \text{Estimated Capacity (kW)} / \text{COP}$$

Where 'Estimated Capacity' is the calculated capacity from converting BTU/hr to kW in equation (1) above.

This method does not account for actual required heating loads. Therefore, if this method is used. Inform the strata corporation that the load estimate *could* be further reduced through properly sizing mechanical equipment at the time of equipment design and selection. For example, in older buildings (1960-1970), gas boilers have been found to be on average oversized by 2 to 3 times the required heating load.

The EPR **must** indicate if there appears to be sufficient spare capacity on the electrical system for electrification of each piece of equipment. The EPR provider **must** include demand reduction opportunities as appropriate. Load management systems or upgrade reductions may be considered.

### 4.5.2 Anticipated Future Electrical Demands

The EPR provider **must** work with the strata corporation to understand the strata corporation's priorities and plans for future anticipated electrical installations. The loads **must** be estimated at a high order of magnitude level/peak demand and noted in the EPR.

The EPR provider exercises their professional judgement in assessing possible future loads, beyond those mentioned by the strata corporation.

At a minimum, the following anticipated future loads **should** be considered:

- **EV Charging infrastructure:** It is expected that demand for EV charging will continue to increase. The EPR provider **may** consider municipal requirements for new buildings to determine a reasonable number of EV chargers to be included in the estimate.
- **Space cooling:** the need for heat pumps due to rising demand for space cooling is expected to increase in many areas of B.C. The EPR provider **may** consider the BC Building Code as a reference, which now requires new residential buildings to provide at least one living space with a temperature that does not exceed 26°C in each dwelling unit.
- **Calculate the optimization of converting electrical heating to be supported through heat pump(s) for both heating and cooling.**

Any requirements for electrification by the federal government, Province or local governments such as replacing gas hot water tanks with electrically powered hot water systems.

## 4.6 Section Five: Recommendations

As per the Strata Property Regulation Part 5.2, Division 2, Section 5.11<sup>5</sup>, an electrical planning report **must** include specific information.

The information that **must** be included in EPR is as follows:

*(h) steps, if any, that the strata corporation could practicably take to reduce the demands on the capacity of the electrical system;*

*(i) upgrades or modifications, if any, to the electrical system that the strata corporation could practicably undertake to increase the capacity of the electrical system;*

*(j) an estimate of the electrical capacity that would be made available if the strata corporation were to take steps referred to in paragraph (h) or undertake upgrades or modifications referred to in paragraph (i).*

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<sup>5</sup> [https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/12\\_43\\_2000](https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/12_43_2000)

The EPR provider **must** provide recommendations to the strata corporation for possible ways to mitigate the required capacity of existing or future demands, as well as possible upgrades that could allow the strata corporation to effectively manage demand for electricity. An example of how this information could be included in the report is shown in the Excel workbook and the report template.

#### 4.6.1 Electrical Load Reduction Strategies


The report **must** include a list of demand reduction strategies that the strata corporation could implement to reduce the electrical demand on their system either currently or for future installations and avoid or limit capacity upgrades. The EPR provider **should** indicate the priority of each upgrade and a phasing plan for implementation.

An example of demand reduction strategies that **may** be considered, without limitation, are as follows:

- Changing lighting to LED, and the calculated reduction in demand.
- Implementing controls for lighting or HVAC systems to reduce electrical consumption, for example, occupancy/vacancy sensors, thermostats, or time clocks.
- Installing an EV Load/Energy Management Systems (EVEMS).
- Providing heating/cooling through high efficiency electrical equipment such as heat pumps.
- Replacing electric heating with heat pump installation for both heating and cooling.
- Using high-efficiency electrical appliances (laundry, dishwashers, ranges, etc.).
- Adding solar and/or battery storage and improving the building envelope as described in the April 2024 Building Code updates.
- Additionally, the EPR provider provides a high-level estimate of the savings from the demand reduction strategies where data is available from published and reputable sources for relevant estimates.

#### 4.6.2 Recommendations for Electrical Upgrades

The EPR provider **must** provide any recommendations for upgrades or modifications that could be practicably undertaken to increase the existing electrical capacity based on the information they've gathered and their observations on site.



If necessary, this **may** include a recommendation for an electrical service upgrade. Given the potential costs, prior to recommending an electrical service upgrade it is important to identify the strategies mentioned above to reduce and manage where possible within existing electrical capacity.

This does not account for other upgrades within the building or strata corporation that will depend on the equipment selected and where it is being installed. This includes electrical disconnects, overcurrent devices, feeders and panels. The EPR provider **should** inform the strata corporation that other potential upgrades to electrical capacity may be required at the time of installation of additional electrical equipment.



## 5. Deliverables Beyond the Minimum Requirements

EPR providers may provide additional deliverables outside of the requirements of Strata Property Act and Regulation, adding value to their services. As some strata corporations may have limited budgets to complete an EPR, the EPR providers need to ensure their quote clearly outlines the costs to comply with the mandatory minimum requirements of the EPR separately from the costs for additional services outside the requirements.

Some possible additional deliverables are listed below:

- Cost estimates for the work outlined in the report.
- Specifications for equipment.
- Full assessment of electrical infrastructure.
- EV ready planning report.
- Feasibility study to expand electrical capacity.
- Design drawings and specifications.
- Further details on next steps and how the strata corporation can utilize the report.

The EPR provider determines the needs of the strata corporation prior to commencing work so the provider can deliver desired services.

## 6. Best Practices for Electrical Planning Reports

This section outlines the best practices for EPR providers to consider while completing an EPR. These are not legislated requirements, however, implementing these practices can provide additional value to an EPR and potentially provide cost reductions by avoiding duplication of work.

### 6.1 Informing Depreciation Reports and Vice Versa

EPRs provide information about the current capacity of the strata corporation's electrical system and an analysis of existing and future electrical demands including heating, cooling, ventilation, and other systems, as well as electric vehicle (EV) charging infrastructure. EPRs also provide recommendations on steps to reduce demands and strategies to increase the capacity of the current electrical system.

A depreciation report on a five-year cycle provides an inventory of all common property and common assets of a strata corporation and their life cycles, and cost estimates for renewals. Depreciation planners may benefit from reviewing an electric planning report in evaluating electrical; and mechanical systems, their current life cycles and future performance. Depreciation planners are advised to consult local government bylaws and conversion requirements when completing a new report or renewal. Energy conversions and upgrades such as boiler electrification, heat pumps and EV charging may be imposed. Check local government regulations when completing a depreciation report. Depreciation reports do not identify electric management and distribution within a strata corporation, shared facilities or air space parcels.

### 6.2 Benefits of Obtaining an EV Ready Plan in Parallel with an Electrical Planning Report

There is some alignment in scope between an EV Ready Plan and an EPR, so there could be cost savings available if the strata corporation has decided that they would like to install EV charging. This could include savings from reducing the number of site visits required, calculating peak demand and spare capacity, as well as using EV charging calculations from the EV Ready Plan in the EPR.

## EV READY PLAN

An EV Ready Plan is a professional document prepared by a licensed electrical contractor and/or electrical engineer. It includes a detailed plan for the core infrastructure to provide each residential unit with at least one EV Ready parking space.

EV ready plans are optional for strata corporations considering the electrification of parking areas designated for residential use. Some grants and funding support are periodically provided by local governments and the province and may require the provision of an EPR before funding is granted.

### 6.3 Benefits of Obtaining an Opportunity Assessment in Parallel with an Electrical Planning Report

There is alignment in scope between a Retrofit Opportunity Assessment and EPR, so there could be cost savings available if the strata corporation would like to conduct them together. This could include savings from reducing the amount of site visits required, the number of peak demand and spare capacity calculations, using the upgrade recommendations from the opportunity assessment in the EPR, as well as capitalizing on the funding available to complete these reports to help offset the costs of EPRs.

## THE RETROFIT OPPORTUNITY ASSESSMENT

Designed to provide CleanBC [Multi-Unit Residential Building Retrofit Program](#) participants with a high-level, short-and-long-term plan for transitioning their building from using electric baseboards or fossil fuels to high-efficiency electric systems, improve building efficiency, integrate solar and battery, and become electric vehicle (EV)-ready. The Retrofit Opportunity Assessment identifies all retrofit opportunities, highlights priority retrofits (based on participant priorities, energy savings/GHG emissions) and links participants to available program rebates and other financial supports.

Strata corporations are under no obligation to have a Retrofit Opportunity Assessment prepared but, as of January 2025, the [Multi-Unit Residential Building Retrofit Program](https://www.bchydro.com/powersmart/business/programs/multi-unit-residential-buildings.html?utm_source=direct&utm_medium=redirect&utm_content=multiunitoffers) (Access at: [https://www.bchydro.com/powersmart/business/programs/multi-unit-residential-buildings.html?utm\\_source=direct&utm\\_medium=redirect&utm\\_content=multiunitoffers](https://www.bchydro.com/powersmart/business/programs/multi-unit-residential-buildings.html?utm_source=direct&utm_medium=redirect&utm_content=multiunitoffers) provides 100% funding up to \$5,000 for these assessments.)

The scope of a Retrofit Opportunities Assessment, EV Ready Plan, as well as which parts could align with an EPR, are shown in the table below.

Table 3: Comparison of Retrofit Opportunities Assessment, EV Ready Plan and EPR

CONTENT	EPR	RETROFIT OPPORTUNITY ASSESSMENT	EV READY PLAN
Review of previous energy audits, building condition assessments, drawings, as available	Recommended	Required	Electrical drawings only
Site visit to assess existing mechanical and electrical equipment	Recommended	Required for whole building	Required for electrical infrastructure and parking stalls
Facility description	Focused on electrical infrastructure and power source of major equipment	Detailed whole facility description	Focused on electrical infrastructure and parking stalls
Electrical capacity check	Required	Required	Required
Electrification opportunities (for systems not powered with electricity)	Electrical capacity estimates only	Electrical capacity estimates and detailed descriptions	Not required

Table 3 Continued: Comparison of Retrofit Opportunities Assessment, EV Ready Plan and EPR

CONTENT	EPR	RETROFIT OPPORTUNITY ASSESSMENT	EV READY PLAN
Anticipated future electrical demands (e.g. cooling and EV chargers)	Electrical capacity estimates only	Electrical capacity estimates and detailed descriptions for all opportunities	Electrical capacity estimates and detailed descriptions for EV chargers only
Electrical demand reduction strategies	Identify & estimate electrical capacity (where possible)	Electrical capacity estimates and detailed descriptions	Not required
Recommendations for Electrical Upgrades	High-level service level upgrades	Identify in reference to each opportunity	Detailed description for EV chargers only
Energy Breakdown of Current Energy Use	Not required	Required	Not required
Energy and utility cost impact calculations for electricity, fuel consumption, and GHG emissions	Not required	Required	Not required
Capital cost estimates	Not required	For each opportunity	For EV charging upgrades
Summary and estimation of applicable rebates or tax credits	Not required	For each opportunity	For EV charging upgrades

## Appendix A: Resources and Training

### BC Housing's Report on Electrical Planning:

- Maintenance Matters Bulletin 23: Electrification in Multi-Unit Residential Buildings (Access at: <https://www.bchousing.org/sites/default/files/media/documents/MM23-Electrification-In-Multi-Unit-Residential-Buildings.pdf>)

### CHOA (Condominium Homeowners Association of B.C.):

- Introduction to Electrical Planning Reports (Access at: <https://choa.bc.ca/wp-content/uploads/Electrical-Planning-Reports-Feb-27-2024.pdf>), Power point deck, 26 slides
- Air Space Parcel Agreements (Access at: <https://choa.bc.ca/wp-content/uploads/pdf/600/600-005-Understanding-ASP-agreements-May-20-2015.pdf>)

### Province of B.C.'s Strata Housing Website:

- Electrical planning reports: (Access at: <https://www2.gov.bc.ca/gov/content/housing-tenancy/strata-housing/operating-a-strata/the-environment/electrical-planning-report>)
- Electric vehicle charging in strata corporations (Access at: <https://www2.gov.bc.ca/gov/content/housing-tenancy/strata-housing/operating-a-strata/the-environment/electric-vehicle-charging>)

### VISOA (Vancouver Island Strata Owners Association):

- Electric vehicle charging in stratas (Access at: <https://visoa.bc.ca/resources/electric-vehicle-charging-in-stratas/>)
- 10 facts about electrical planning reports for BC stratas (Access at: <https://visoa.bc.ca/10-facts-about-electrical-planning-reports-for-bc-stratas/>)



## Appendix B: Additional Resources

## i. Electrical Planning Report (EPR) Template

This document provides a suggested outline and instructions for completing an electrical planning report. If this template is to be used as a 'skeleton' document for an EPR, the instructions should be deleted and replaced with wording for the EPR. This template is meant to support EPR providers along with the 'Guidance for the Preparation of Electrical Planning Reports for Strata Corporations in British Columbia' document and the Excel workbook that accompanies it. Refer to those documents for detailed information as to how to complete each of the sections suggested in this template.

In this guidance, "**must**" is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the minimum requirements of an EPR; "**should**" is used to express a recommendation or that which is advised but not required; and "**may**" is used to express an option or that which is permissible within the limits of the EPR requirements.

### Section 1 - Strata and Provider Details

An example of what information **must** be included is shown below. This format **may** be used in the electrical planning report but is not required.

#### Date and Property Details

Date EPR created (DD/MM/YYYY)

Is each strata lot in the strata plan supplied with electricity independently from each other strata lot? (yes/no)

*If yes, include a description of the electrical distribution to support your answer*

Building address

Building common name (If Applicable)

Strata #

#### EPR Provider Contact and Qualifications

Company name

Address

Name

Qualifications (P.Eng, ASCT, Journey person)

Relationship with strata corporation

#### Error and Omission Insurance (if applicable) (Y/N)

*If yes, attach a copy at the end of the electrical planning report.*



## Section 2 – Executive Summary

### Introduction

The objective of this section is to highlight the purpose of the electrical planning report. It **should** include the date of the site visit and include any relevant disclaimers on the limitations of the information within the electrical planning report. The typical length of this section **should** be around 6-8 sentences.

### Summary

The summary is meant to give an overview, in plain language, of the findings within the EPR. This section **should** include information such as:

- A summary of the plans and priorities shared by the strata corporation during the data collection stage;
- A summary of the estimated electrical capacity and its potential limitations;
- Answers to the questions that might have come up during the conversations with the strata (e.g. how many EV chargers can be installed with the current electrical capacity?);
- Optionally, potential next steps if they wish to add electrical loads.

## Section 3 - Existing Electrical System Details

### Description of Electrical System

This section **should** include a short description of the existing electrical distribution system to give the strata corporation a better understanding of how their system is laid out and be able to understand the concept of how electrical capacity limitations depend on where in the system is the load being added.

### Current Capacity, Peak Demand and Spare Capacity

This section **must** include the current total, peak, and spare capacities of the main electrical distribution system(s) for the strata lot. Optionally, it **may** include the current total, peak, and spare capacities for the residential suite(s) distribution(s) and house/common distribution(s), as applicable. The table below is from the excel workbook and **may** be used in the electrical planning report. If there are multiple main distribution systems, separate rows **must** be included for each one.

<b>Existing electrical service rating (A, % rated)</b>
<b>System operating voltage (V, <math>\phi</math>)</b>

<b>Existing electrical service switch/breaker rating (A, % rated)</b>

<b>Current Capacity on the Service (kW)</b>
<b>Current Peak Demand on the Service (kW)</b>
<b>Current Spare Capacity on the Service (kW)</b>
<b>Current Capacity on the House/Common Distribution (kW)</b>
<b>Current Peak Demand on the House/Common Distribution (kW)</b>
<b>Current Spare Capacity on the House/Common Distribution (kW)</b>
<b>Current Capacity on the Residential Distribution (kW)</b>
<b>Current Peak Demand on the Residential Distribution (kW)</b>
<b>Current Spare Capacity on the Residential Distribution (kW)</b>

Optional
Optional
Optional
Optional
Optional
Optional

**How was existing peak demand determined? (Ex. BC Hydro 12-month maximum demand kWh data with application of safety factor or calculated by applicable rules of Canadian Electrical Code [must cite rules referenced])**

The report **must** indicate how the peak demand was determined.

### **Existing Major Electrical Loads**

This section **must** include a list of the existing major demands on the electrical system. It **should** indicate to which electrical distribution branch (common/house or residential/suites) the loads are connected to. The table below is from the excel workbook and **may** be used in the electrical planning report.

<b>Type</b>	<b>Connected to Electrical Distribution (common-house/residential-suite/NA)</b>
Heating	
Cooling	
Ventilation	
DHW	
Lighting systems	
Laundry	
Major pumps (sump & sanitary)	
Elevators	
EV charging	

## Section 4 – Additional Electrical Loads

### Estimate of Capacity Required for Electrification

This section **must** include a list of ALL systems that are currently powered by a source other than electricity as well as an estimate the magnitude of electrical capacity required to convert each item to an electric source. For each system, it **must** indicate if there is enough capacity for electrification. The table below is from the Excel workbook and **may** be used in the electrical planning report.

System	Description	Quantity	Fuel Source	Existing Energy Output (BTU/hr)	Estimated Magnitude of Electrical Capacity	Capacity Available at Main Service (Y/N)
Space Heating						
Space Cooling						
Ventilation						
Domestic Hot Water						
Other equipment to electrify						

### Anticipated Future Electrical Demands

The EPR provider **must** work with the strata corporation to determine any electrical loads that they anticipate being added in the future. This **may** also include future demands that the EPR provider anticipates being added based on their own reasoning. The table below is from the excel workbook and **may** be used in the electrical planning report.

System	Description	Estimated Magnitude of Electrical Capacity	Capacity Available at Main Service (Y/N)
EV charging			
Cooling			
Other anticipated future demands			

## Section 5 - Recommendations

### Electrical Demand Reduction Strategies

The report **must** include a list of demand reduction strategies that the strata corporation could implement to reduce the electrical demand on their system either currently or for future installations. It **must** also provide an estimate of the impact on the electrical demand, where possible. An example of demand reduction strategies that **may** be considered, without limitation, are as follows:

- Changing lighting to LED,
- Installing an EV Energy Management Systems (EVEMS),
- Providing heating/cooling through high efficiency electrical equipment such as heat pumps,
- Using high-efficiency electrical appliances (laundry, dishwashers, ranges, etc.),
- Adding solar and/or battery storage, and
- Improving the building envelope.

### Recommendations for Electrical Upgrades

The EPR provider **must** provide any recommendations for upgrades that could be practicably undertaken to increase the capacity based on the information they've gathered and their observations on site.

## ii. Electrical Planning Report - Workbook

Note: If each strata lot in the strata plan is supplied with electricity by a utility independently from each other strata lot, only Section 1 of this workbook is required for the electrical planning report.

### Section 1 - Strata and Provider Details

#### Date and Property Details

Date EPR created (DD/MM/YYYY)

Is each strata lot in the strata plan supplied with electricity independently from each other strata lot? (yes/no)

*If yes, include a description of the electrical distribution to support your answer*

Building address

Building common name (If Applicable)

Strata #

#### EPR Provider Contact and Qualifications

Company name

Address

Name

Qualifications (P.Eng, ASCT, Journey person)

Relationship with strata corporation

**Error and Omission Insurance (if applicable) (Y/N)**

*If yes, attach a copy at the end of the electrical planning report.*

**Section 2 - Executive Summary**

**Introduction**

**Summary**

### Section 3 - Electrical System Details

#### Existing Electrical Service Capacity

Existing electrical service rating (A, % rated)

Existing electrical service switch/breaker rating (A, % rated)

Existing system operating voltage (V,  $\phi$ )

Current capacity on the service (kW)
Current peak demand on the service (kW)
Current spare capacity on the service (kW)
Current capacity on the house/common distribution (kW)
Current peak demand on the house/common distribution (kW)
Current spare capacity on the house/common distribution (kW)
Current capacity on the residential distribution (kW)
Current peak demand on the residential distribution (kW)
Current spare capacity on the residential distribution (kW)


How was existing peak demand determined? (Ex. BC Hydro kWh data with application of safety factor, calculated by applicable rules of Canadian Electrical Code *[must cite rules referenced]*)



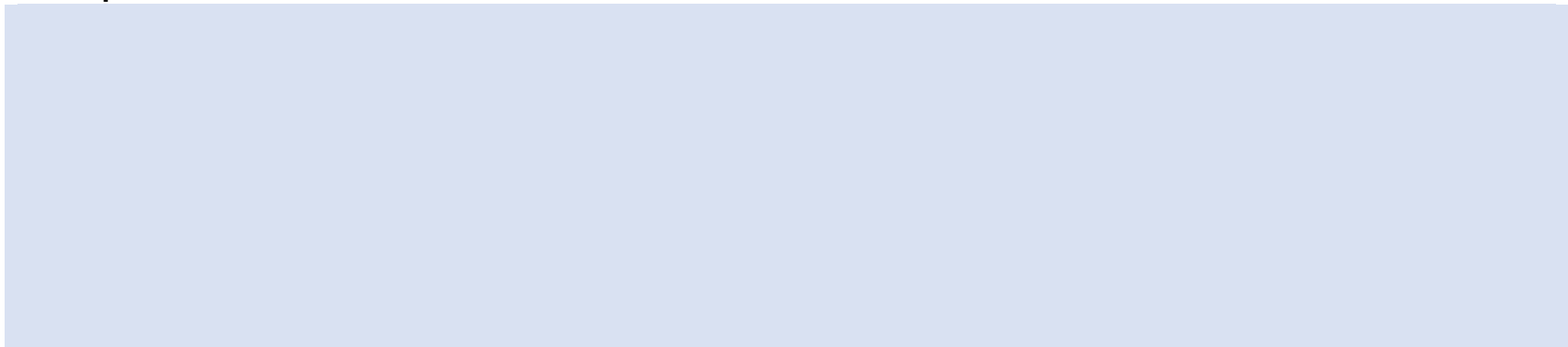
## Existing Electrical Demands

List of existing demands on the electrical system including, without limitation, demands from EV charging infrastructure, heating, cooling, ventilation, and lighting systems.

Type	Electrical Distribution (common or suite)
Heating	
Cooling	
Ventilation	
DHW	
Lighting systems	
Major pumps (sump & sanitary)	
Elevators	
EV charging	

## Description of Existing Electrical Distribution

Description or Schematic of Electrical Distribution



## Section 4 - Additional Electrical Loads

### Estimate of Electrical Capacity Needed to Electrify Heating, Cooling, and Ventilation Systems

If applicable, provide an estimate of the electrical capacity that would be needed to power systems, including heating, cooling, and ventilation systems, that are currently powered by a source other than electricity.

System	Description	Quantity	Fuel Source	Existing Energy Output	Estimated Magnitude of Electrical Capacity	Capacity Available at Building Level (Y/N)
Space Heating						
Space Cooling						
Ventilation						
DHW						
Other Equipment						

## Estimate of Electrical Capacity Needed to Power Anticipated Future Demands

An estimate of the electrical capacity needed for any other anticipated future demands on the electrical system, including electrical capacity needed to power

(i) heating, cooling, ventilation and other systems that the strata corporation anticipates may be modified or installed in the future, and

(ii) EV charging infrastructure that the strata corporation anticipates may be installed in the future;

System	Description	Estimated Magnitude of Electrical Capacity	Capacity Available at Building Level (Y/N)
EV Charging			
Cooling			
Other anticipated future demands			

## Section 5 - Recommendations

### Electrical Demand Reduction Strategies

List steps, if any, that the strata corporation could practicably undertake to reduce the demand on the electrical system and estimated electrical capacity that would be made available from these demand reduction strategies.

## **Recommendations for Electrical Upgrades**

List upgrades or modifications, if any, to the electrical system that the strata corporation could practicably undertake to increase the capacity of the electrical system.

## **Estimate of Electrical Capacity Made Available**

Estimated electrical capacity that would be made available from demand reduction strategies, upgrades or modifications to the electrical system listed above.