

Energy-Efficient Upgrades in Manufactured Homes

Guides for Homeowners &
Manufactured Home Park Owners & Managers



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The project was funded in part by the
BC Hydro Sustainable Communities Project Implementation Offer.











More Comfort, Less Cost:

An Energy-Efficiency Upgrade Guide for Manufactured Home Owners

The City of Nanaimo and the Regional District of Nanaimo partnered to provide this guide on improving your manufactured home's energy efficiency. These upgrades, large and small, can make your home more **comfortable**. They can also help you **save** on your utility bill and help the **environment** by reducing greenhouse gas emissions.

These upgrades will help your home stay warmer in winter and cooler in summer. They may also increase your home's value. The costs and bill savings will depend on your home's current heating system, age, design and needs. You may be eligible for rebates for these upgrades. The **Home Energy Navigator Program** provides free, step-by-step support to understand which upgrades and rebates are a good fit for you and your home.

Upgrade	Cost	Rebates ¹	Benefits	Who can install?
Switch your heating and cooling to an electric heat pump	\$\$\$	Rebates available; BC's Energy Savings Program (ESP) offers up to \$19,000, depending on household income	<ul style="list-style-type: none"> ▶ Utility bill savings when switching from electric or oil ▶ Potential utility bill savings when switching from gas or wood ▶ Provides air conditioning and a dehumidifier 	
Replace your windows with more efficient ones	\$\$	Rebates available; ESP, up to \$950/window	<ul style="list-style-type: none"> ▶ Utility bill savings ▶ Fewer drafts 	
Add insulation to your home's underbelly, walls, roofs or ducts	\$\$	Rebates available; ESP, up to \$5,500	<ul style="list-style-type: none"> ▶ Utility bill savings ▶ Fewer drafts 	
Install insulated skirting around your home	\$\$	Rebates available; ESP, up to \$5,500	<ul style="list-style-type: none"> ▶ Utility bill savings ▶ Fewer drafts 	
Add weather stripping around doors and/or caulking around windows	\$	Free supply and install ²	<ul style="list-style-type: none"> ▶ Utility bill savings ▶ Fewer drafts 	
Add window film to your windows	\$	Free supply and install ²	<ul style="list-style-type: none"> ▶ Utility bill savings ▶ Fewer drafts 	

 A professional should complete this work.
  Do it yourself (DIY), depending on your abilities and comfort.

¹ Rebate eligibility and availability vary over time. Rebates listed are available as of Spring 2025.

² Free supply and install may be available through BC Hydro's Energy Saving Kit & Energy Conservation Assistance Program

How do I complete an energy-efficiency upgrade?



See page 7
for contact information

STEP 1

Considering a heat pump? Talk to the park owner or manager

Your park owner or manager* may have valid concerns about your community's electricity system. They may have requirements for new heat pump installations. There should be no electricity system issue if you are replacing an electric furnace or baseboards with an electric heat pump, as heat pumps use less electricity. Ask if there is any policy or requirement for heat pumps.

* We refer to 'park owners and managers' for clarity, recognizing that some people prefer the term 'community' and 'landowner'.

STEP 2

Learn about rebates and get free support

- ✎ Sign up for the **Home Energy Navigator** program to receive free, independent advice, rebate guidance and support throughout your upgrade journey.
- ✎ Call helplines or visit provincial and federal websites to learn which rebate and financing programs can help fund your upgrade . Some income-qualified programs provide substantial rebates, like the **BC Energy Savings Program** and the **Energy Conservation Assistance Program**. The federal government's **Canada Greener Homes Initiative** offers interest-free loans and oil-to-heat pump rebates.
- ✎ Manufactured homes are generally eligible for B.C. rebates. Homes that sit on a foundation are eligible, including slab, basement, pier and beam, and concrete pad footing with wire-anchored concrete blocks. If uncertain, contact **Better Homes BC**.

CASE STUDY: COOL SUMMERS AND LOWER BILLS WITH A HEAT PUMP

A Qualicum couple living in a 1,500-square-foot manufactured home had an electric heat pump installed in fall 2023. BC Hydro's Energy Conservation Assistance Program provided the heat pump to replace their electric furnace at no cost. The couple's electricity bill was **38 per cent lower** than the previous winter. They now enjoy **air conditioning** from the heat pump. Even with AC, their bill was 29 per cent lower than the summer before because the appliance is so efficient. (Source: BC Hydro)

STEP 3

Find a qualified contractor

- ✎ Use a qualified contractor to ensure quality work and to be eligible for rebates. The provincial rebate program **Better Homes BC** ⓘ maintains a list of registered contractors who have core training and follow a code of conduct. You can look for registered contractors in the Nanaimo region with the **Better Homes BC Find a Contractor Search Tool** ⓘ. You can also check with the Better Business Bureau.

STEP 4

Ask for quotes from multiple contractors for major upgrades

- ✎ For any major upgrade, like a heat pump or windows, it is important to talk to potential contractors. You can provide information on your heating and cooling needs and preferences. For example, you can identify areas of your home that are always cooler than others or you may be planning to insulate some areas. This will help contractors provide the right upgrade options.
- ✎ It is helpful to get two or three quotes to compare costs. The cheapest system may not be the right system for you or offer you the most value for your money. You can have the quotes reviewed by an independent expert through **Home Energy Navigator** ⓘ to help understand what you would be getting with each of the quotes.

STEP 5

Confirm that the contractor will provide documentation and education

- ✎ Qualified contractors will provide you with the documentation on the upgrade. Ask for all the documents needed for your eligible rebates and warranties. A contractor familiar with the rebate programs will know what documentation you need.
- ✎ They should also provide you with information on how to use (if applicable) and maintain the upgrade. For example, the contractor should outline the regular maintenance needed to ensure your heat pump continues to work efficiently and show you how to do this. With proper installation and maintenance, modern heat pumps operate for 15 years or more.

➤ **See additional steps for heat pumps on next page.**

If you are completing a heat pump upgrade

STEP 6

Provide information to the contractor and to the park owner or manager

- 🔧 Your contractor may need to review your meter data to see if your home panel needs an upgrade. Also, your park owner or manager may request information to understand the impact on the community electricity system. Here is how to find the information:
 - ▶ **Your historical electricity use (meter data)**
How do I find it? Your BC Hydro account will include historical consumption (kWh). Log into MyHydro on www.BCHydro.com. Go to the Data Export Centre and select consumption history (select the last 12 months and hourly intervals), then Export Data. You can also call 1-800-224-9376.
 - ▶ **Additional electricity use from the new heat pump**
How do I find it? Ask your contractor to include the heat pump electrical capacity in your quote. It is usually listed in terms of voltage (V) and amperage (A).

STEP 7

Talk to your contractor about where to place the outdoor unit(s)

- 🔧 Ensure your contractor installs the outdoor unit(s) where there is no potential for flooding or other disturbances and meets any park policies. You can also locate the unit where the noise, while minor, would not be a nuisance to you or your neighbour, such as away from windows.

ARE HEAT PUMPS NOISY?

Modern heat pumps are relatively quiet, with a similar sound level to a refrigerator, moderate rainfall or a normal conversation. Heat pumps have a similar or quieter sound level compared to a window air conditioner. Heat pumps list the sound rating in decibels. You can work with your contractor to choose a quiet model. Working with a qualified contractor will help ensure the installation reduces noise through correct placement, system sizing, and reduced vibration.

Top three questions about heat pumps

Question 1: How do heat pumps work?

Heat pumps heat and cool air in a home. Most heat pumps use the outdoor air as a source of thermal energy in heating mode. Heat is energy and there is energy in the air even when it is very cold outside. By using the energy in outdoor air, heat pumps are very efficient and can be a great option to replace your current heating system.

Most air-source heat pumps can operate using only **electricity**. In the Nanaimo region, heat pumps usually do not need a backup fuel but you can ask your contractor.

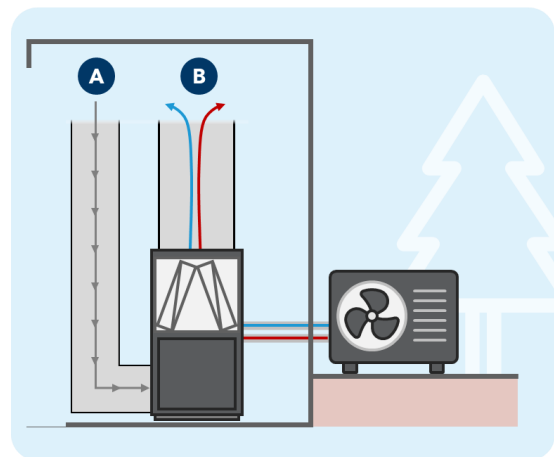
Question 2: What kind of heat pumps are there?

Heat pumps come in two general types:

- 1. Ducted heat pumps** (sometimes called central heat pumps) have an outdoor unit that replaces an oil, gas or electric **furnace**. The hot air (winter) or cold air (summer) comes out of vents throughout your home. It may be able to use your home's existing ducting but sometimes changes to ducting are required.

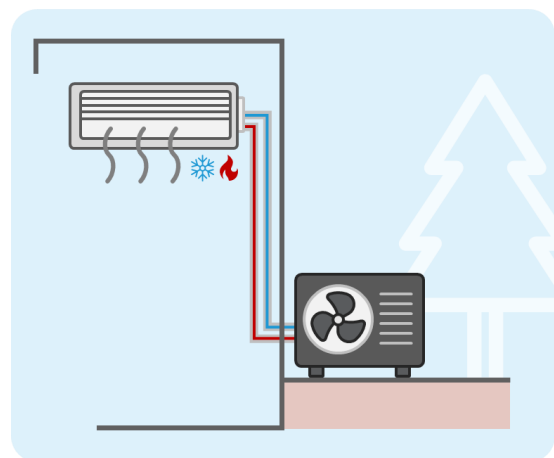
- A** Air drawn from your home
- B** Conditioned air supplied to your home

DUCTED HEAT PUMP



- 2. Ductless heat pumps** (sometimes called mini-split) have an outdoor unit and a unit installed inside on the wall that hot air (in winter) and cold air (in summer) come out of. One mini-split is installed **in each heating area**, which could be one or more rooms. These do not need ducting and are good for homes that currently use baseboard heating.

DUCTLESS HEAT PUMP



Question 3: Why do I need to talk to my park owner about potentially installing a heat pump?

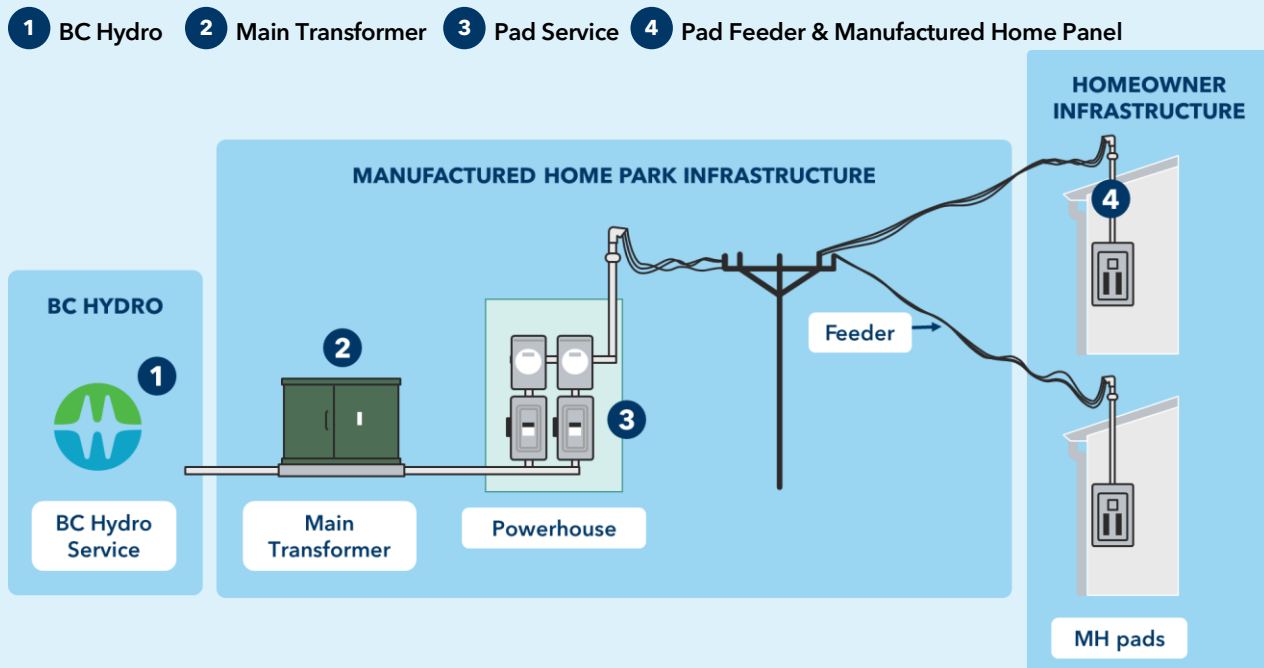
Manufactured home park owners are responsible for delivering electricity to your home. They need to know how much electricity use is coming from all homes and how much space (or capacity) is available in the electricity system.

If there is space, new uses (like heat pumps or electric vehicles) can be added. If there is little or no space, there is a risk of overloading the system. It could result in equipment damage or community blackouts. Heat pumps are important to consider because they can operate all day and year-round. The park owner may need to work with professionals or BC Hydro to understand the current availability and if upgrades are needed to allow new electricity use. Therefore, they need to know about new electricity use in the community.

If the owner or manager is **not familiar** with or **does not currently allow new heat pumps**, **please provide them with this Guide, pointing to section: 'A Guide for Manufactured Home Park Owners and Managers'**. It will help them understand the system and potential options to allow more heat pumps. Navigating heat pump upgrades in parks is complex due to the potential park electrical infrastructure limits. The City of Nanaimo and Regional District of Nanaimo are aware of these electrical challenges and working with stakeholders, including BC Hydro and the Government of B.C., to identify strategies to address them.

POTENTIAL CAPACITY CONSTRAINTS IN YOUR COMMUNITY

Manufactured homes have a unique electrical situation. The electrical capacity is based on BC Hydro infrastructure, manufactured home park infrastructure and your home's panel.



Manufactured Home Owners Resources



For more information on...	Organization	Contact Information
Which upgrades and rebates may be right for you and your home, to review contractor quotes and other upgrade questions:	Home Energy Navigator	Toll-free: 1-866-381-9995 Email: info@homeenergynav.ca Website: www.homeenergynav.ca
Which provincial rebates are available to you (including Better Homes BC):	Better Homes BC Rebate Search Tool website Phone a CleanBC Energy Coach	Website: www.betterhomesbc.ca/rebate-search-tool Toll-free: 1-844-881-9790
Which federal rebates and loans are available to you:	Canada Greener Homes Initiative	Website: www.canada.ca/Greener-Homes-Initiative
Registered contractors with CleanBC in the Nanaimo region:	Visit Better Homes BC Find a Contractor Search Tool Phone a CleanBC Energy Coach	Website: www.betterhomesbc.ca/find-a-contractor Toll-free: 1-844-881-9790 <i>Phone number for CleanBC Energy Coach</i>
Whether you are eligible for BC Hydro's Energy Conservation Assistance Program (free install):	Phone Ecofitt, a CLEAResult company or visit BC Hydro website BC Hydro program partner for manufactured homes	Toll-free: 1-833-455-9029 Website: www.betterhomesbc.ca/rebates/energy-conservation-assistance-program
City and Regional District rebates and support programs:	City of Nanaimo	Tel: 250-755-4491 Email: sustainability@nanaimo.ca Website: www.nanaimo.ca/green-initiatives/climate-action/green-buildings
	Regional District of Nanaimo (RDN)	Tel: 250-390-4111 Email: sustainability@rdn.bc.ca If you are not sure if you live in the City or the RDN, reach out to either and we will direct you.

Heat Pumps and Electrical Capacity: A Guide for Manufactured Home Park Owners and Managers

Residents may want to install heat pumps to improve indoor comfort and reduce utility bill costs. Heat pumps are also a cheaper, cleaner alternative to oil. New heat pumps can impact electrical infrastructure in manufactured home parks. The City of Nanaimo and the Regional District of Nanaimo developed this guide to help you understand what electrification means for your park and assist you in approaching electrical capacity concerns. It aims to help you make informed decisions as you respond to residents' growing interest in heat pumps. It can also help you prepare for resident electric vehicles (EVs) or other new electrical devices (e.g., hot tubs).



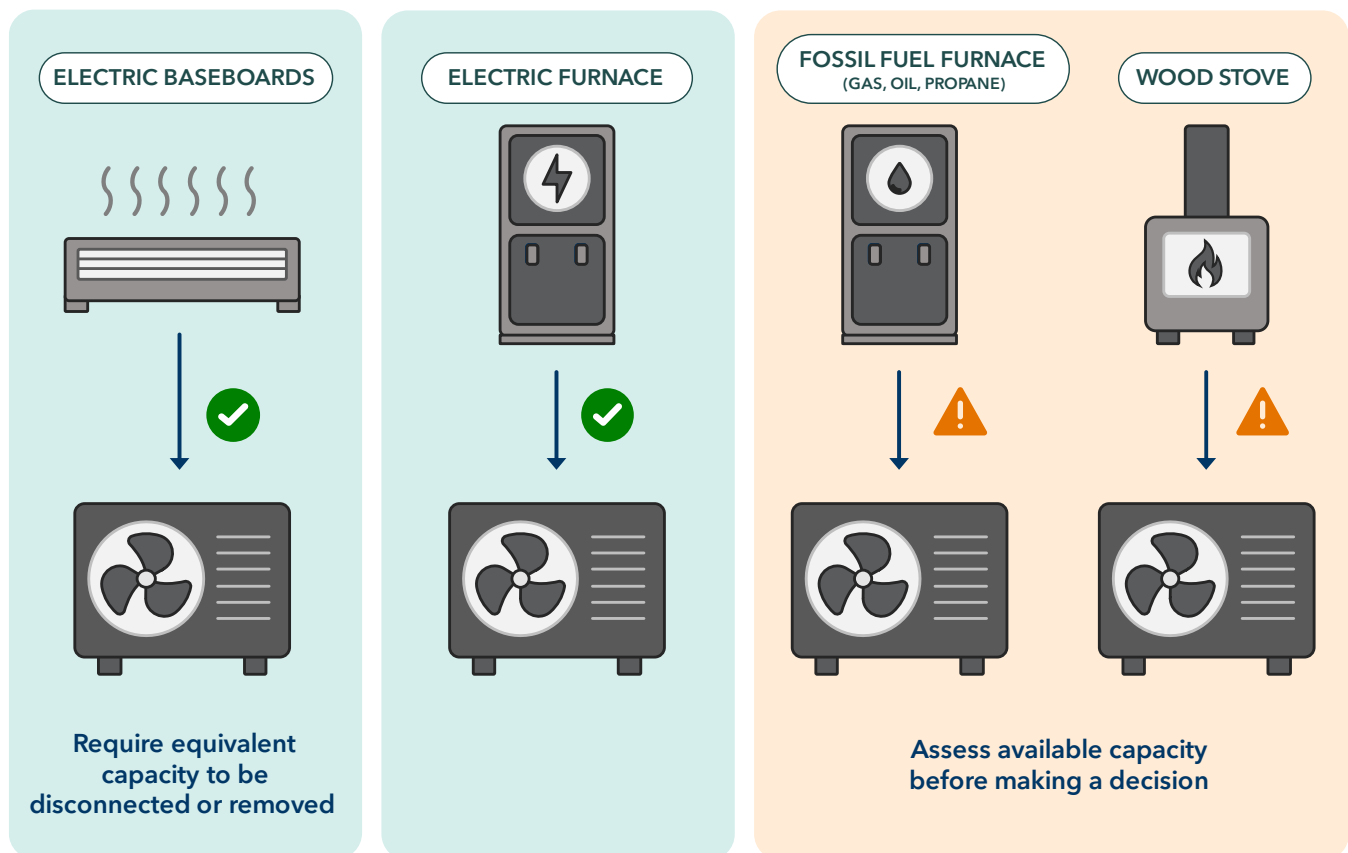
How to navigate heat pump (and other electrification) requests

The impact of heat pumps on electrical load depends on the heating system and energy source currently installed in a home (see figure below). Heat pumps may decrease, increase or have minimal impact on electric load and your infrastructure capacity. Electrification of other energy uses (e.g. hot water), and Level 2 EV charging can also increase electrical loads.

It is important to understand the electrical capacity at your site, strategies to accommodate more electrical load without major electrical upgrades, and when electrical upgrades would be necessary.

THE IMPACT ON ELECTRICAL INFRASTRUCTURE WHEN REPLACING A CURRENT HEATING SYSTEM WITH A HEAT PUMP

✓ No Impact or Load ⚠ Increased Load



How to assess available electrical capacity



See page 13
for contact information

Assessing your available capacity will help you understand if residents can add new electrical load (like heat pumps), and at what point an upgrade to your park electrical system could be needed. To help you navigate this process, here are **four key steps** to understanding your park's electrical system and preparing for future electrification needs.

- 1. Assess current electrical infrastructure capacity:** Work with a qualified person (e.g., a licensed electrical engineer, an electrician, or both) to document and evaluate the capacity of key components from your electrical infrastructure (see page 12). Typically, they can provide a single-line diagram, outlining the electrical capacity specific to these items: panels, transformers, switchgear and feeders to residences.
- 2. Review historical load data and assess remaining capacity:** Ask the qualified person to analyze past electricity consumption data to understand current usage patterns and compare to Step 1 to identify capacity currently available for electrification. You may be able to request aggregated historical load data for all homes in your park from BC Hydro ⓘ. Otherwise, you can provide existing submetering data (or they can install submetering to collect the data), or you can request load data from each homeowner.

Assessing the available capacity (Steps 1 and 2) should be completed before deciding on heat pump or EV restrictions. This will provide you with a clearer understanding of your available capacity and help you make informed decisions. It is usually safe to allow residents to implement heat pumps in cases where electrical resistance elements (baseboard heaters) are removed. Confirm with a qualified person.

- 3. Estimate future load:** Work with the qualified person to forecast future energy needs from heat pumps, EVs and other new electric uses. Ask your expert to consider strategies to potentially delay upgrades, including examples in the Scope of Work below.
- 4. Plan upgrades:** Work with the qualified person to develop a plan for necessary upgrades, including a logical work phasing, cost estimates and financing sources. Upgrade costs could justify a rent increase if approved by the Residential Tenancy Board but is not guaranteed.

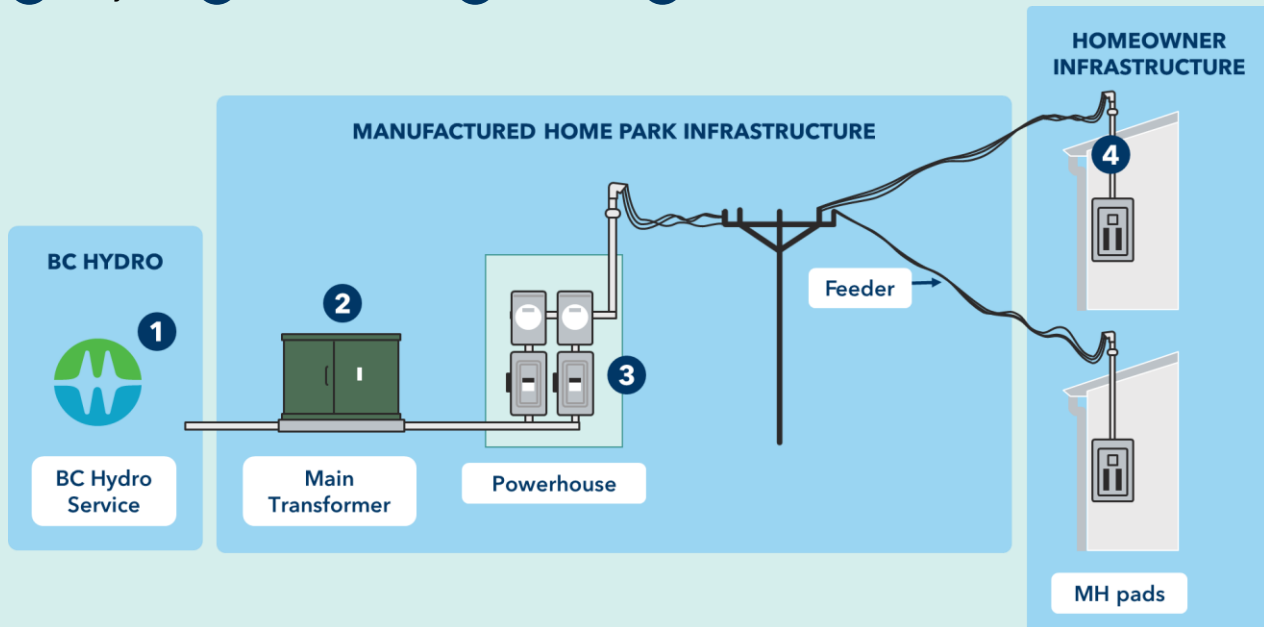
This assessment should be done by a licensed electrical engineer or electrician. To ensure the work aligns with your needs, we have prepared **a detailed scope of work** that **you and your electrical professional can refer to** as you define the project requirements.

Detailed scope of work for the electrical capacity assessment of a manufactured home park

Ask your electrical engineer or electrician to ...	To understand ...
1. Assess electrical infrastructure <ul style="list-style-type: none"> ▶ Identify and document existing electrical infrastructure, including pad panels, feeders and services as well as powerhouses, transformers and main service (see page 12) ▶ Record the nameplate electrical capacity of each component (panel ratings, feeder amperage, transformer kVA, etc.). ▶ Conduct site visit and inspection to assess system condition, identifying components near the end of useful life, and noting any deficiencies, safety concerns, or unusual findings. ▶ Provide a single-line diagram outlining the electrical system. 	... the current electrical infrastructure capacity.
2. Review historical load data and assess remaining capacity: <ul style="list-style-type: none"> ▶ Obtain historical load data to determine the current loading on different elements of your system (per the B.C. Electrical Code, Subrule 8-106(8)), either from: <ul style="list-style-type: none"> ▶ Data from individual pad utility billing data can be totaled at different elements of the system, accounting for appropriate safety factors (per TSBC IB-EL-2022-01). ▶ Aggregated data may be available from BC Hydro by request ①. ▶ Submetering data, from existing or newly installed systems, for this purpose. ▶ Compare with the capacity assessment from Step 1 to identify available capacity at the different components. 	... the electrical capacity remaining for resident energy efficiency upgrades, such as heat pumps.
3. Estimate future load: <ul style="list-style-type: none"> ▶ Estimate additional electrical load from heat pump, EV installations and other electrification measures. ▶ Evaluate how power-efficient design strategies, such as load management strategies (e.g., EV Energy Management Systems, Circuit Switchers), can help minimize load growth and delay the need for upgrades. Encourage residents to include power-efficient design strategies in their homes. ▶ Model different electrification adoption scenarios (low, medium, high uptake of things like heat pumps and EVs). 	... how the load will grow over time.
4. Plan electrical system upgrades <ul style="list-style-type: none"> ▶ Identify system bottlenecks and determine at what point upgrades would be required (e.g., transformer overload, feeder congestion, service panel limitations) (refer to figure on the right). ▶ Plan and phase infrastructure upgrades to align with projected load growth. ▶ Provide a cost estimate and phased implementation plan and timeline. ▶ Recommend potential funding sources, grants or utility incentives to offset upgrade costs. 	... how this load growth will affect your infrastructure and what upgrades might be required.

IDENTIFYING POTENTIAL CAPACITY CONSTRAINTS IN YOUR COMMUNITY

- 1 BC Hydro* 2 Main Transformer 3 Pad Service 4 Pad Feeder & Manufactured Home Panel



* Upgrades to BC Hydro Service may incur costs to the park owner ①.

Navigating electrical upgrades in parks is a complex challenge, particularly due to the cost of upgrades and the current status of the park and BC Hydro infrastructure. There are limited and uncertain means to recoup these upgrade costs, yet there is an increasing need to support more electrical load. The City of Nanaimo and Regional District of Nanaimo are aware of these electrical capacity challenges and are working with other stakeholders, including BC Hydro and the Government of B.C., to identify strategies to address these challenges.

Manufactured Home Park Owners & Managers Resources



For more information on...	Organization	Contact Information
How to complete Steps 1-4:		Talk to a qualified person, such as an electrical engineer or electrician.
Potential availability of aggregated data for your site:	BC Hydro: Access your building's peak load electrical data	Website: app.bchydro.com/accounts-billing/rates-energy-use/access-load-data.html <i>Designed for multi-unit buildings but may be used for manufactured home parks.</i> Email: energydatarequest@bchydro.com
Electrical capacity availability at the service level for park upgrades:	BC Hydro: Electrical Connection Requests	Website: app.bchydro.com/accounts-billing/electrical-connections/connection-requests.html
City and Regional District rebates and support programs:	City of Nanaimo	Tel: 250-755-4491 Email: sustainability@nanaimo.ca Website: www.nanaimo.ca/green-initiatives/climate-action/green-buildings
	Regional District of Nanaimo (RDN)	Tel: 250-390-4111 Email: sustainability@rdn.bc.ca If you are not sure if you are located in the City or the RDN, reach out to either, and we will direct you.

►► **Want to learn more about heat pumps?**
Review the Homeowners' section of this Guide on heat pump basics.

Are there ways we can **improve** this guide?

Please **reach out** to sustainability@rdn.bc.ca or sustainability@nanaimo.ca to let us know.