



Developer Guidelines and Requirements

Version 2.0 - March 2026



www.lonsdaleenergy.ca

This document outlines the guidelines and requirements to be followed at the time it was prepared. Lonsdale Energy will endeavour to make updates to reflect amendments made to the City of North Vancouver's bylaws as well as the developing state of practice and technology.

Please visit www.lonsdaleenergy.ca to view the latest version of the guide. If you have any questions related to the contents within this guide, please email info@lonsdaleenergy.ca.

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Introduction

Purpose

The Developer Guidelines and Requirements guide was created to better support developers and ensure new developments are optimized to connect to the community energy system. It is also intended to serve as a resource for the developer's contractors and design consultants.

The guide provides a general overview of the City of North Vancouver's community energy system, operated and maintained by Lonsdale Energy. It also outlines the responsibilities of developers and of Lonsdale Energy and summarizes the City of North Vancouver's development process as it relates to Lonsdale Energy.

Most importantly, the guide also lists critical factors to consider during building installation.

About Lonsdale Energy

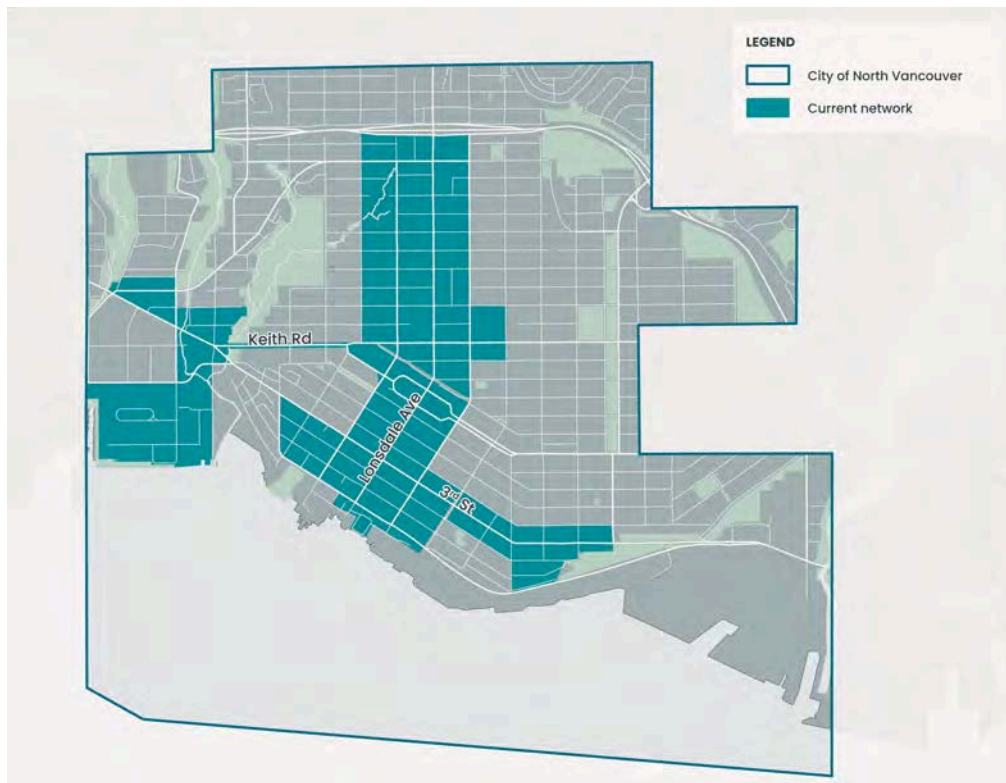
Incorporated in 2003, Lonsdale Energy is a utility company owned by the City of North Vancouver. Lonsdale Energy is responsible for operating and maintaining the community energy system (also known as district energy).

Lonsdale Energy also reviews and inspects development projects on behalf of the City during development, permitting, construction, and operation.

With energy centres located throughout the City, Lonsdale Energy supplies heating and select cooling to connected buildings in Lower Lonsdale, Central Lonsdale, Marine-Hamilton and Moodyville.

Service Area

Our service area focuses on supporting the residents and businesses within the City of North Vancouver.



Lonsdale Energy Service Area Map

Regulatory Framework

The City of North Vancouver's Hydronic Energy Service Bylaw, 2004, No. 7575 (Bylaw No. 7575) establishes the regulatory framework of the community energy system. Developments with a combined floor area of greater than 1,000 m² are required to connect to the community energy system.

Bylaw No. 7575 also establishes general terms and conditions for the services provided by Lonsdale Energy.

Climate Action

Community energy systems are an efficient way to distribute heating or cooling energy to many buildings. Instead of every building having its own system, heating is centrally produced then distributed through an underground network of pipes to all connected buildings.

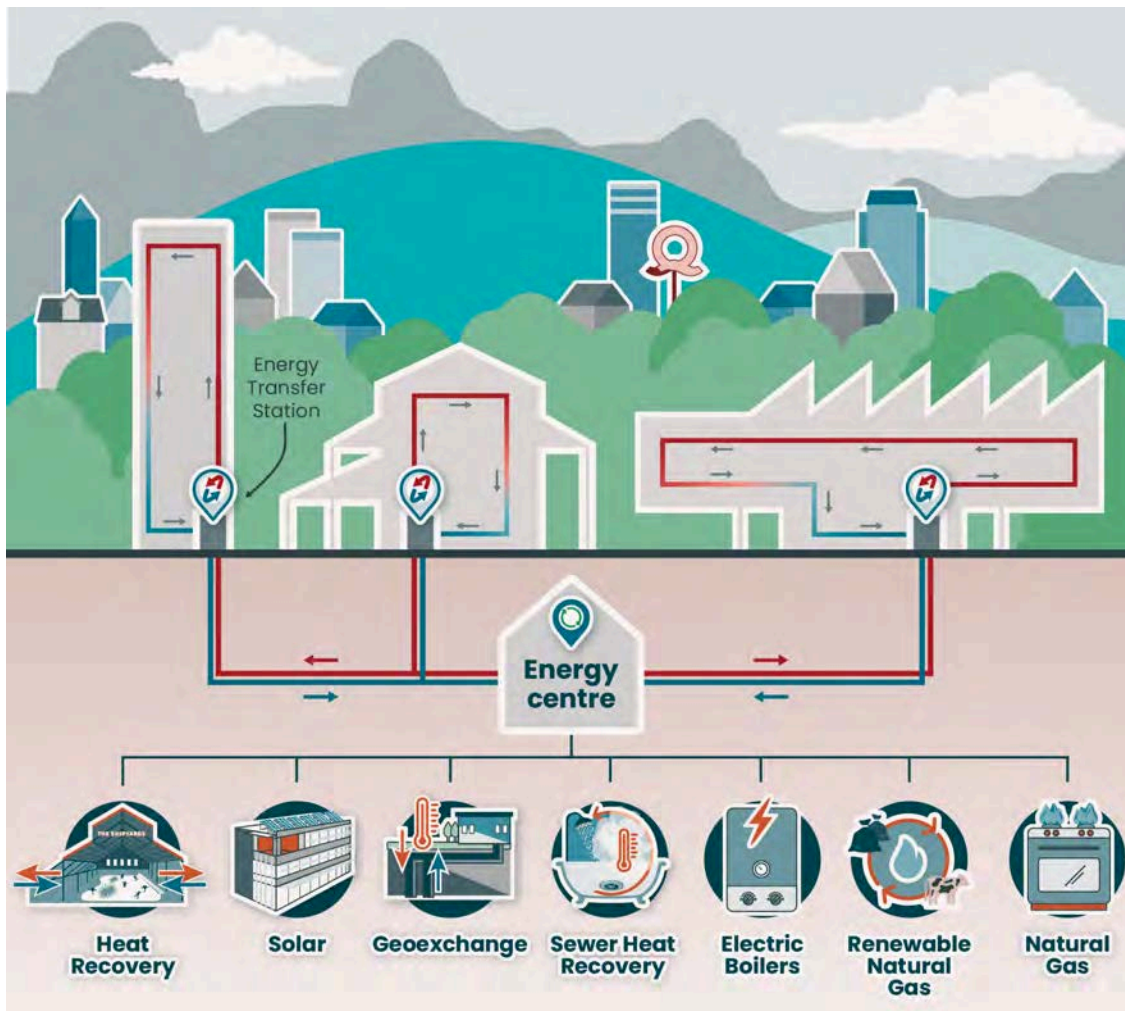
The community energy system is an important part of the City's plan to reduce greenhouse gas emissions from buildings and help reach its target of net-zero emissions by 2050. Buildings are the second largest source of emissions in the City of North Vancouver.

One big benefit of a community energy system is the flexibility to seamlessly switch fuel sources.

Community energy systems can switch to renewable energy sources at a lower cost than if an individual building had to do it alone. For North Vancouver, this means that the emissions of every connected building will be drastically reduced, simply by being a part of the community energy system.

By 2027, Lonsdale Energy aims to have at least 40% of energy generation to come from low-carbon technologies. In line with the City's climate targets, Lonsdale Energy aims to achieve net-zero emissions by 2050.

Community Energy Explained



How it works

Heating is generated at the energy centres and is then distributed to multiple buildings throughout the City.

Step 1: Energy is generated

The process begins at the energy centre, where thermal energy (primarily for heating) is produced. Lonsdale Energy uses a variety of sources to generate heat.

Step 2: Energy is distributed

The heat is carried by water from the centre to the connected buildings through a network of insulated underground pipes.

Step 3: Energy is transferred

Each building connected to the community energy system has a heat exchanger – a system that allows heat to be transferred to the building's distribution system. In addition to space heating, heat can be used for domestic water heating (e.g., taking a shower or washing dishes).

Step 4: System water is returned, reheated, then recirculated

After the energy is used in the buildings, the lower temperature water is returned to the energy centre through a separate set of pipes. This water is reheated and then recirculated back into the system.

Throughout the process, Lonsdale Energy monitors the system to ensure energy is used efficiently, addressing potential system issues and making adjustments to meet the energy demands across the system.

Energy Centres

Lonsdale Energy makes use of a distributed set of energy centres as opposed to a single larger, centralized location. This allows Lonsdale Energy to grow the system as demand increases. The method also allows us to spread the capital costs over time. Energy centres are operated and maintained by Lonsdale Energy.

Distribution Piping System

Energy centres transfer heat to customer buildings through an underground piping network, known as the distribution piping system.

This system includes insulated pipes, communication infrastructure, and other auxiliary equipment. High temperature water is sent to customer buildings through the pipes for various heating needs. Once the heat energy from the hot water is used by the customer, any remaining heat energy is returned to the energy centres to be reheated then recirculated, creating a continuous loop of thermal energy transfer. The distribution piping system is maintained by Lonsdale Energy.

Energy Transfer Stations

In each customer building, there is at least one energy transfer station. The energy transfer station serves to separate the building's heating system from the community energy system. The two systems are hydraulically separate – water from one system does not mix with water from the other. Only thermal energy is transferred between the two systems.

Typically, an energy transfer station includes a heat exchanger, an energy meter, insulated pipes, control equipment, and other ancillary equipment. The energy transfer stations are operated and maintained by Lonsdale Energy.

Key Benefits of Community Energy

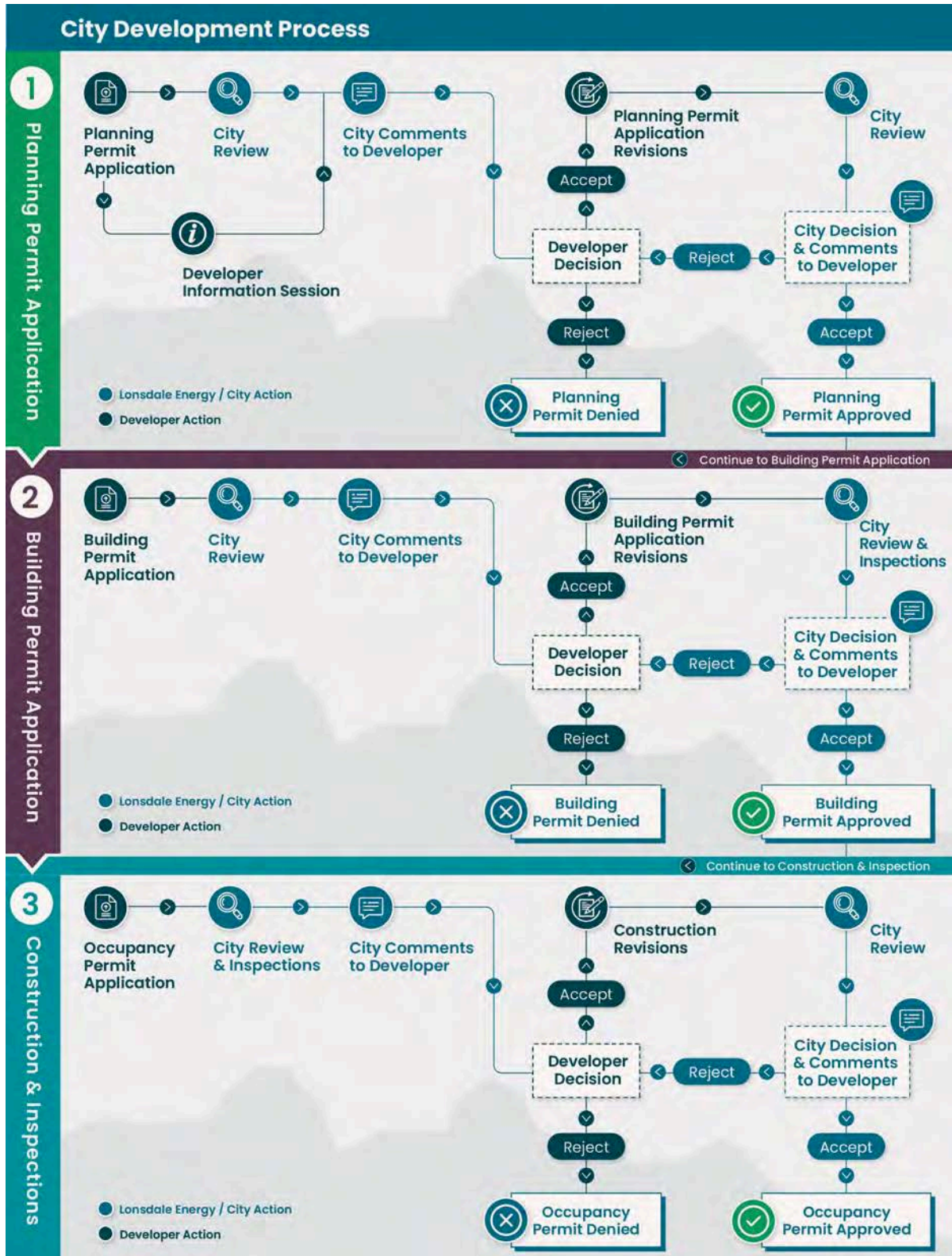
There are many benefits of community energy systems:

- **Energy efficiency:** Community energy systems provide economies of scale and significant efficiencies compared to individual systems, reducing overall energy consumption.
- **Enhanced reliability through redundancy:** With energy centres located throughout the city, customers experience virtually uninterrupted service.
- **Easy switch to low-carbon energy:** Its flexible infrastructure can incorporate a number of renewable and low-carbon energy sources; switching fuel sources would be a costly and very difficult endeavour for an existing (fixed) individual heating system.
- **Space savings:** Developers can benefit from space savings, as it reduces the capital costs associated with designing and constructing a heat generation system for a building. Energy transfer stations are much more compact compared to traditional heating systems, resulting in space savings within buildings.

The City's Development Process



If your development is connecting to the community energy system, follow the City of North Vancouver's development process. The following chart highlights key stages when Lonsdale Energy is involved in the process:



Planning Permit Application

- Submit a planning permit application to the City of North Vancouver.
 - The planning permit application is reviewed by various departments in the City, including Lonsdale Energy. Your application is also reviewed by other City Committees as needed (i.e., Advisory Design Panel).
- Attend a Developer Information Session.
- Update the application to address comments provided by the City and resubmit.
 - The planning permit application is considered by City Council or by the Director of Planning and Development and is either rejected or accepted.
 - If accepted, you may apply for a building permit.

Building Permit Application

- Submit a building permit application to the City.
 - The building permit application is reviewed by various departments in the City, including Lonsdale Energy.
- Update the application to address comments provided by the City, then resubmit.
- Once all comments are sufficiently addressed, the building permit is issued.
- City inspections, including inspections conducted by Lonsdale Energy, are required during construction.

Occupancy Permit Application

- Submit an occupancy permit application to the City.
 - The occupancy permit application is reviewed by various departments in the City, including Lonsdale Energy.
- Update the application to address City comments, then resubmit.
- After all comments are sufficiently addressed, the occupancy permit is issued.

Note: this process may vary if Land Use Approval is outright or discretionary.

Refer to the City's website, www.cnv.org, for forms and more details on the development process.

Regulatory Reviews

The City of North Vancouver acts as the authority having jurisdiction to perform regulatory reviews. Regulatory reviews are undertaken as part of processes established through legislation or regulation, including, but not limited to, permit applications. Regulatory reviews are performed by various City departments. Lonsdale Energy also acts as a City department to assess work submitted by developers and their consultants.

The primary purpose of Lonsdale Energy's regulatory review is to assess compliance and coordination with applicable bylaws and standards administered by Lonsdale Energy and the City of North Vancouver. A regulatory review is not a peer review, nor is it a substitute for documented engineering checks.

Accordingly, our review is limited to matters of regulatory compliance and must not be relied upon as a detailed technical review or be seen as the utility giving technical direction. Suggestions and opinions provided by Lonsdale Energy are to encourage dialogue with the developer's consultants.

To demonstrate compliance with relevant legislation, regulations, bylaws and internal standards, we may require additional peer review of work prepared by the submitting professional.

Prior to document submission

All documentation submitted for regulatory review must comply with the submission requirements of Lonsdale Energy and the City, as applicable. Both organizations retain sole authority to establish submission requirements and expectations related to regulatory compliance with respect to connecting to its district energy system.

The developer's consultants are responsible for ensuring that all submitted documents reflect current legislation, regulations, bylaws, and applicable standards of professional practice, in addition to Lonsdale Energy's submission requirements.

Following document submission

The developer acknowledges that interpretations of regulatory requirements by our representatives may differ from those of the developer's consultants. Regulatory review is a normal and expected component of professional practice, and consultants must be prepared to receive comments and revise submission documents where required.

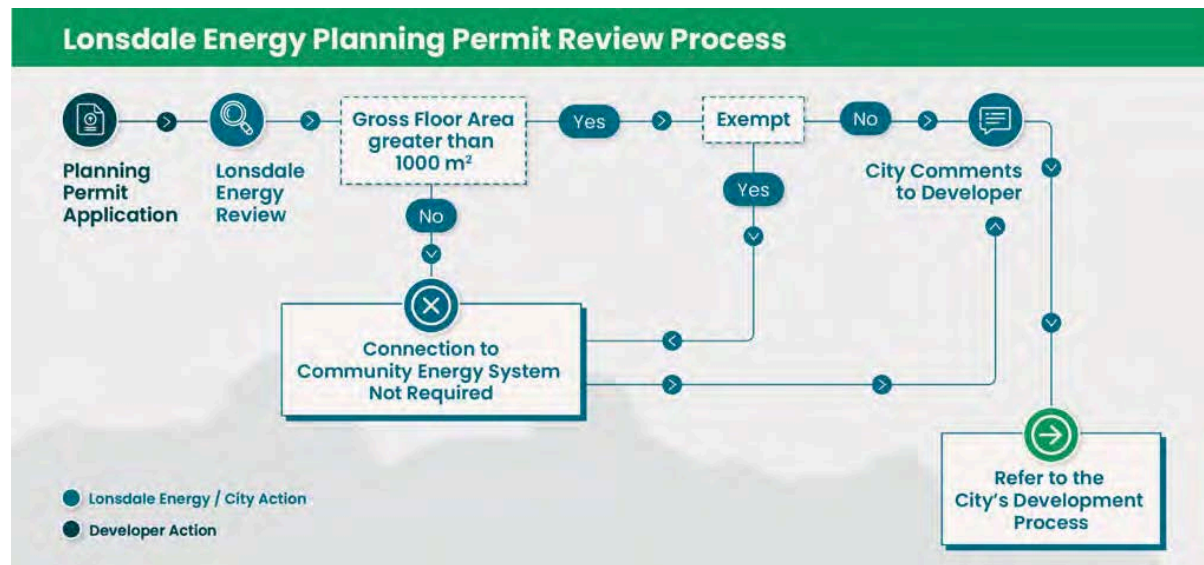
The developer's consultants remain solely responsible for evaluating regulatory review comments, determining whether and how to address them, and revising the submission to achieve compliance. The developer's consultants are expected to acknowledge review comments and engage with us to resolve outstanding compliance matters.

The developer's engineer retains full professional responsibility for the work under review. Neither the completion of a regulatory review nor the incorporation of review comments transfers professional responsibility, liability, or reliance to Lonsdale Energy, the City of North Vancouver or their representatives.

Reviewing Planning Permit Applications

As part of the City's planning permit application review process, Lonsdale Energy performs a review of the application to determine if connection to the community energy system is required.

If connection is required, Lonsdale Energy will provide comments and considerations to the developer through the City.



Refer to **Appendix D** and **Appendix E** for a list of Lonsdale Energy's standard comments. In addition to the standard comments, Lonsdale Energy's review of the planning permit application typically includes the following high-level comments and considerations. Please keep these in mind when preparing an application:

1. Connection to the community energy system – required for developments with a gross floor area of greater than 1,000 m².
2. Lonsdale Energy distribution piping system service connection – Lonsdale Energy will indicate its preferred service connection location.
3. Lonsdale Energy mechanical space – Lonsdale Energy will indicate its preferred mechanical space location and provide preliminary sizing requirements.
4. Mechanical heating system technical performance and compatibility – the Community Energy Agreement defines the overall technical performance requirements.

Exemptions

Connection to the community energy system is typically not required if the development's gross floor area is 1,000 m² or less.

Bylaw No. 7575 allows for an exemption to connect to the community energy system if the City's Chief Financial Officer determines that the cost of providing the service to the property and buildings would be excessive to the City. This may be the case if the development is small or located far from Lonsdale Energy's existing distribution piping system.

Bylaw No. 6700, Division II, Part 4, 419(4) and 420 give requirements to allow buildings to connect to Lonsdale Energy but exempt space heating "to the extent expressly contemplated in respect to each specific zone in this bylaw". This currently applies to the Moodyville Area (CD-669) only. The requirements are summarized below. Refer to Bylaw No. 6700 for more information.

- Compliance with the Passive House energy standard.
- Peak Thermal Load (PTL) for space heating shall be no greater than 10 W/m² (designed and installed).

Reviewing Building Permit Applications

Lonsdale Energy's review of the building permit application continues from the planning application review. More detailed comments are provided based on the building permit submission. The focus is similar to the planning application review, and remains high-level, but reflects the level of detail provided in the building permit submission documents. Refer to **Appendix F** and **Appendix G** for building permit submissions requirements.

LONSDALE ENERGY - DEVELOPER GUIDELINES AND REQUIREMENTS

Prior to Lonsdale Energy's sign-off on the building permit, the following are required:

- All comments made by Lonsdale Energy are sufficiently addressed.
- All Lonsdale Energy building permit application fees are paid.
- The Community Energy Agreement is executed and registered on title.
- The Hydronic Energy Service Agreement is executed.
- The security deposit is provided.

The applicant is responsible for the design of the building mechanical system. Lonsdale Energy will review the design. An accepted design does not release you from meeting the required technical and operating performance requirements.

Reviewing Occupancy Permit Applications

You are required to arrange inspections with Lonsdale Energy during construction. The following items are required prior to Lonsdale Energy signoff on the occupancy permit:

- The service connection fee is paid.
- All items from Lonsdale Energy's inspection reports are sufficiently addressed.
- An authenticated letter is provided from a mechanical engineer certifying that the building has been constructed in accordance with the requirements described in the Community Energy Agreement.
 - The letter should state that all heating-related equipment including domestic water heating systems have been satisfactorily installed, balanced, and commissioned, particularly with respect to return water temperature requirements. The heating system is to operate with a maximum 43°C return water temperature at the energy transfer station delivery point year-round under all non-zero heating load conditions.
- Lonsdale Energy is provided with keys and fob for access to the mechanical room and other spaces with Lonsdale Energy's equipment and services.

The Developer's Responsibilities

Throughout the development, construction, and operational phases of a project, the developer has various responsibilities when connecting to the community energy system. Please refer to **Appendices A, B and H** for additional details and useful information to share with your consultants and contractors.

Building Design and Construction

Requirements and items for consideration are:

- All building services heating applications will be connected to and employ an in-building hydronic heating system served by the community energy system.
- Consider using hydronic instantaneous domestic water heating stations (also known as “heating interface units” or “heat transfer panels”).
- Lonsdale Energy provides a delivery point supply temperature of 65°C.
- Return water temperature at the delivery point shall be no greater than 43°C year-round during all non-zero load conditions.
- Inspections are required during building construction.
- We recommend arranging a meeting with your design consultants (architectural, civil, structural, landscaping, mechanical, electrical, etc.) either before or early in the building permit application to ensure all requirements are addressed and to allow for any questions to be answered.

We also recommend a similar meeting with your construction team either before or early in construction for the same reasons.

LONSDALE ENERGY - DEVELOPER GUIDELINES AND REQUIREMENTS

There are two primary ways to reduce Lonsdale Energy fees and charges through building design and construction:

1. The first method is to reduce the nominated energy capacity, which is the sum of each load required for all heating end-uses (e.g., space heating, ventilation heating, domestic water heating, etc.). This number represents power and is noted in kilowatts.
2. The second method is to reduce energy usage. This number is the operational energy used by the building and is noted in kilowatt-hours.

We strongly recommend minimizing the development's energy capacity and energy usage. This can be accomplished by strategies such as passive design measures, architectural optimization, enhanced building envelope performance, and on-site thermal energy storage.

Energy Transfer Station Requirements

A dedicated mechanical space is required for the energy transfer station. Requirements include the following items:

- Energy transfer station location
- Minimum space allocation and security
- Maintenance and access
- Housekeeping pad
- Electrical service
- Space temperature

Performance and Security Deposit

There are two main performance requirements for buildings connected to the community energy system:

1. Domestic hot water will be heated to a minimum of 60°C under all load conditions. This may not be required if central domestic hot water storage is not used.

LONSDALE ENERGY - DEVELOPER GUIDELINES AND REQUIREMENTS

2. Maximum return water temperature of 43°C year-round under all non-zero load conditions at the delivery point of the energy transfer station.

The City authorizes Lonsdale Energy to require customers to provide a security deposit, in the form of a letter of credit or cash deposit.

- We will retain the security deposit for a minimum holding period of 18 continuous months after the issuance of the final Certificate of Occupancy.
- If the customer building has not been constructed, is not being operated or cannot be operated in accordance with Lonsdale Energy requirements, then Lonsdale Energy may retain a portion or all of the security deposit.
- If the customer building has been constructed and is being operated in accordance with our requirements, then the security deposit will be returned after the minimum holding period has expired.

The design of the in-building system remains the responsibility of the developer, and review and acceptance by Lonsdale Energy does not release the customer from their obligation to meet the required technical and operating performance requirements. Any concerns regarding the in-building system not satisfactorily addressed during the building permit application may result in an increased security deposit.

Operation and Maintenance

The customer is responsible for maintaining good water quality in the building hydronic systems.

Poor water quality can cause fouling, decreased thermal efficiency and heat transfer, and increased pumping costs. Appropriate and ongoing maintenance and water quality management can help ensure a hydronic system's longevity, reliability, and performance.

The customer will be held responsible for any damage to our equipment due to poor water quality in the building hydronic systems.

Distribution Piping System Service Connection

Most buildings connecting to Lonsdale Energy's system will require a service connection from the distribution piping system to the energy transfer station.

For information and details of the typical trench and clearance requirements of the service connection, please refer to **Appendix C**.

Energy Centre Space Requirements

Where required and agreed to with the City, a developer must provide space suitable to operate an energy centre, including any applicable utility connections.

If your development requires an energy centre, please refer to **Appendix C**.

Poor water quality can cause fouling, decreased thermal efficiency and heat transfer, and increased pumping costs. Appropriate and ongoing maintenance and water quality management can help ensure a hydronic system's longevity, reliability, and performance.

The customer will be held responsible for any damage to our equipment due to poor water quality in the building hydronic systems.

Lonsdale Energy's Responsibilities

Energy Centres

It is Lonsdale Energy's responsibility to design and construct the energy centres at our cost. Each energy centre will consist of thermal energy generation equipment, pumps, heat exchangers, expansion tanks, chemical treatment tanks, pipes, and associated ancillary equipment. Construction for an energy centre takes approximately six months to complete.

Distribution Piping System

It is Lonsdale Energy's responsibility to design and construct the distribution piping system that connects a building to the community energy system.

Service connection construction can vary greatly depending on the location and configuration of the development. Most service connections include the following steps:

1. Excavation of sections of the existing distribution piping system
2. Installation of new connection infrastructure including communication conduits to the existing distribution piping system.
3. Excavation of the trench to the new customer building.
4. Installation of new distribution piping system branch and controls cabling conduits to the customer building through developer-provided penetrations.
5. Professional backfilling and pavement restoration.

Energy Transfer Stations

It is Lonsdale Energy's responsibility to design and construct the energy transfer station at our cost. The energy transfer station consists of heat exchangers, control valves, piping, valves, sensors, controls, and energy meters. We select the energy transfer station components based on the buildings nominated energy capacity, and supply and return temperature (65°C/43°C) at the delivery point.

For a standard energy transfer station, construction takes approximately four weeks to complete and follows the installation of the distribution piping system. The typical process for energy transfer station construction is as follows:

1. Heat exchanger installed on developer-provided housekeeping pad.
2. Piping, supports, valves, devices, sensors, and gauges installed.
3. Control panel and field wiring installed.
4. Control panel connected to the developer-provided permanent power.
5. Energy transfer station tested and commissioned.
6. Piping and heat exchanger insulated.
7. Developer-provided fence and lockable gate installed (if in a shared mechanical room).
8. Heating service commenced.

Rates and Fees

Bylaw No. 7575 describes and explains the standard fees, rates and charges for service. Refer to the bylaw for the current rates or visit our website, www.lonsdaleenergy.ca.

Application Fee

The application fee is a one-time fee charged when Lonsdale Energy is involved in the process of building permit issuance or inspection.

Service Connection Fee

The service connection fee is one-time fee calculated by multiplying the service connection rate (\$/kilowatt) by the energy capacity nominated by the developer's professional engineer qualified for such purposes and described in kilowatts.

Generally, more energy efficient buildings have lower service connection fees. Thermal energy storage and appropriate building controls can also help lower service connection fees.

Costs Recovered from the Developer

Some of the most common costs that are recovered from the developer are described below. An agreement will be drafted by Lonsdale Energy and signed by both parties describing the scope of the services. We will recover design, material, labour and administrative costs from the developer. Refer to Bylaw No. 7575 for more information on these and other recoverable costs.

- Energy transfer station and service connection location: Lonsdale Energy designates the location and space requirements of the energy transfer station and the service connection on the customer's premises.

LONSDALE ENERGY - DEVELOPER GUIDELINES AND REQUIREMENTS

- The developer may request a different routing or location. We will charge the customer for all additional costs to install the energy transfer station and service connection according to the customer's request if it is feasible to do so.
- Additional energy transfer stations and service connections: The developer may request additional energy transfer stations and service connections. Lonsdale Energy will charge the customer for all costs incurred to install the energy transfer station and service connection according to the customer's request if it is feasible to do so.

Meter Charge

The meter charge is a fixed, monthly administrative fee.

Capacity Charge

The capacity charge is a fixed monthly charge per kilowatt multiplied by the energy capacity nominated by the developer's professional engineer qualified for such purposes and described in kilowatts.

Generally, more energy efficient buildings have lower capacity charge fees. Thermal energy storage and appropriate building controls can also help lower capacity charge fees.

Commodity Charge

The commodity charge is a charge per kilowatt hour of thermal energy consumed by a customer.



Contact

Lonsdale Energy
15 Chesterfield Place
North Vancouver, B.C.
V7M 3K3



236-874-0176



info@lonsdaleenergy.ca



www.lonsdaleenergy.ca

LONSDALE
energy