

Report to Committee

To:

Finance Committee

Date:

November 17, 2022

From:

John Irving, P.Eng., MPA

File:

01-0060-20-LIEC1/2022-

General Manager, Engineering and Public Works Chief Executive Officer, Lulu Island Energy Vol 01

Company

Jerry Chong, CPA, CA General Manager, Finance

Chief Financial Officer, Lulu Island Energy

Company

Re:

Lulu Island Energy Company - 2023 Operating and Capital Budgets

Staff Recommendation

That the Lulu Island Energy Company report titled "Lulu Island Energy Company- 2023 Operating and Capital Budgets", dated November 17, 2022 from the Chief Executive Officer and Chief Financial Officer, Lulu Island Energy Company be received for information.

John Irving, P.Eng., MPA

Jh hing

General Manager, Engineering and Public Works

Chief Executive Officer,

Lulu Island Energy Company

(604-276-4140)

Jerry Chong, CPA, CA Director, Finance and Chief Financial Officer, Lulu Island Energy Company

(604-276-4064)

REPORT CONCURRENCE	
CONCURRENCE OF GENERAL MANAGER Alim	
REVIEWED BY SMT	Initials:
APPROVED BY CAO	



Report

6911 NO. 3 ROAD RICHMOND, BC V6Y 2C1

DATE:

October 25, 2022

TO:

LIEC Board of Directors

FROM:

Alen Postolka, P.Eng, Manager, District Energy

Re:

Lulu Island Energy Company – 2023 Operating and Capital Budgets

Staff Recommendation

- 1. That the 2023 operating budget for Lulu Island Energy Company as presented in the staff report titled "Lulu Island Energy Company 2023 Operating and Capital Budgets", dated October 25, 2021 be approved.
- 2. That the 2023 capital budget for the Lulu Island Energy Company and funding as presented in the staff report titled "Lulu Island Energy Company 2023 Operating and Capital Budgets", dated October 25, 2021, totalling \$1,600,000 be approved.

Background

Lulu Island Energy Company (LIEC), a wholly-owned corporation of the City of Richmond (City), provides district energy services on behalf of the City. LIEC owns and operates the Alexandra District Energy Utility (ADEU) and the City Centre District Energy Utility (CCDEU). A summary of the District Energy Utility Services is detailed in Attachment 1.

On September 22, 2022, LIEC executed agreements (Project Agreement) with Corix Utilities Inc. (Corix) and Canada Infrastructure Bank (CIB) to design, build, finance, operate and maintain CCDEU Infrastructure providing heating and cooling services to new residential and mixed use commercial developments within the City Centre area. A special purpose entity wholly owned by Corix, the City Centre Energy Limited Partnership (Project Co), has been established to deliver the CCDEU project. The existing Oval Village District Energy Utility (OVDEU) infrastructure has been incorporated into the CCDEU project, and the OVDEU capital work and operations will now be executed by Project Co under the Project Agreement.

Under the Project Agreement, Project Co is responsible for submitting a five year CCDEU capital plan annually. All capital expenditures, operations and maintenance work within the CCDEU service must be approved by LIEC before work can proceed. On September 15, the board approved the 2023 CCDEU capital plan including operating expenditures.

The purpose of this report is to present the LIEC 2023 operating and capital budgets to the board for their approval. If approved by the board, staff will present LIEC's 2023 operating and capital budgets to City Council for information in order to follow the City's reporting process.

2023 Operating Budget

All capital and operating costs are recovered through revenues from metered billings, ensuring that the business is financially self-sustainable.

Even though LIEC's district energy utilities are at different stages of their operational life, they are still relatively new utilities. The actual utility (electricity and natural gas) operation and maintenance costs have been used for budgeting; however, some of these costs are still largely based on projections. Customers' energy use (building performance) is estimated based on historical metered energy consumption, average building performance in the region and energy modeling reports prepared by the buildings' designers where actual data is not available.

The 2023 operating budget incorporates estimated revenues and expenses from the ADEU and CCDEU based on the current projections, development activity and timing of connections for the year. The budgeted operating expenses also include the approved accrued amounts owing as part of CCDEU Project Agreement. The accrued amount owing is based on utility cost of service rate-setting principles in British Columbia utilizing forward test years.

LIEC is classified as a Government Business Enterprise (GBE). As a GBE, LIEC is required to apply International Financial Reporting Standards (IFRS) in the preparation of its financial statements.

Table 1: 2023 Operating Budget under IFRS

	2023 Budget	2022 Budget	\$ Changes	% Change
Revenues	Duaget	Duaget		
Metered Billings (Quarterly)	\$7,819,757	\$6,583,145	\$1,236,612	19%
Service fee	981,486	981,486	-	-%
	8,801,243	7,564,631	1,236,612	16%
Cost of Sales				
Contracts	1,830,377	1,400,550	429,827	31%
Utilities	1,975,414	1,620,699	354,715	22%
Amortization	1,951,433	1,791,047	160,386	9%
	5,757,224	4,812,296	944,928	20%
Gross margin	3,044,019	2,752,335	291,684	11%
General and Administration Exper	ıses			
Salaries and benefits	1,008,550	963,130	45,420	5%
Administration expenses	402,521	153,172	249,349	163%
Insurance	334,722	120,000	214,722	179%
Professional Fees	199,000	80,205	118,795	148%
	1,944,793	1,316,507	628,286	48%
Net income before other items	1,099,226	1,435,828	(336,602)	(23%)
Contributions and Financing exper	ıse			
Developer contributions	505,084	566,380	(61,296)	(11%)
Energy modeling review fee	27,000	48,000	(21,000)	(44%)
Other expense	-	(418,000)	(418,000)	(100%)
Net financing expense	(1,037,586)	(685,970)	(351,616)	51%
	(505,502)	(489,590)	(15,912)	3%
Net Income	\$593,724	\$946,238	(\$352,514)	(37%)
Earnings before interest, taxes and (EBITA)	amortization			
Net income per above	\$593,724	\$946,238	(\$352,514)	(37%)
Net financing expense	1,037,586	685,970	351,616	51%
Amortization expense	1,951,433	1,791,047	160,386	9%
EBITA	\$3,582,743	\$3,423,255	\$159,488	5%
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Revenues

The 2023 budgeted metered billings include a full year of service for two buildings, which were connected partway through 2022, and a portion of the year's energy sales for three new buildings, which staff anticipate will be connected in 2023. The budgeted revenues are based on the best estimate of building connections' timing and customers' energy usage. The metered billings are expected to increase in 2023 by \$1,236,612 to \$7,819,757 (2022 – \$6,583,145) due to:

- An increase of \$1,178,230 from additional energy use as a result of a full year of servicing three buildings that were connected in 2022 (Keltic Paramount, Fiorella, and ASPAC 13) and partial year connections of three new buildings in 2023 (Riva 4, ASPAC 17 and One Park); and
- An increase of \$58,382 because of the annual utility rate increase of 6.5% for CCDEU and ADEU commercial and 1% for ADEU residential, as approved by City Council. The rate increase is below the estimated blended Fortis BC and BC Hydro rate increase.

There is no requested increase in the annual service fee of \$981,486 (2022 - \$981,486), which is for LIEC services of advancing district energy opportunities in the City, which results in numerous benefits to the City and the Richmond community. With or without LIEC, the City would need to fund these costs in order to successfully implement district energy initiatives for the City and position itself at the forefront of tackling local and global environmental challenges. The City identified district energy utilities (DEUs) as a leading strategy to achieve the City's greenhouse gas (GHG) reduction goals. To date, it is estimated that LIEC's district energy system has resulted in a reduction of over 10,191 tonnes of GHG emissions.

The overall budgeted revenue is expected to increase by \$1,236,612 to \$8,801,243 (2022 – \$7,564,631).

Cost of Sales

The cost of sales is the accumulated total expenses attributable to the metered billing revenue, which includes contracts, utilities (electricity and natural gas), and amortization expenses. The total contracts expense, which includes maintenance expense, operating labour cost, and asset management expense, has increased by \$429,827 to \$1,830,377 (2022 - \$1,400,550). This increase is largely due to the additional operation and maintenance activities required to service additional buildings under the Project Agreement, existing OVDEU infrastructure, as well as the on-site low carbon energy plants (LCEP) previously contemplated under a standalone service contract.

Utility expenses are projected to increase by \$354,715 to \$1,975,414 (2022 – \$1,620,699). This increase is due to utility (electricity and natural gas) rate increases, and increased energy delivery to customers. The growth in energy demand – due to the addition of more buildings – and operation of the on-site LCEP, will result in higher use of electricity and natural gas to run distribution pumps, geo-exchange heat pumps, on-site air source heat pumps, auxiliary equipment and boilers, which are used to deliver energy to customers' buildings. The amortization expense is projected to increase due to capital asset additions that will be placed

into service. Overall, the cost of sales is expected to increase by \$944,928 to \$5,757,224 (2022 – \$4,812,296).

The gross margin as a percentage of revenue has slightly decreased to 35% (2022 - 36%) due to the initial operation and maintenance costs necessary to service additional on-site low carbon energy centres (Keltic, Fiorella and One Park) while the revenues collected from these buildings are expected to catch up as these buildings are fully phased in and occupied.

General and Administration Expenses

The general and administration expenses are expenditures that incur to support business activities, such as salaries and benefits, administration, professional fees, insurance, etc. This is the first year of implementation of the CCDEU Project Agreement. As it was with the ADEU and OVDEU projects, the CCDEU initial years' general and administration expenses are projected to increase in the relation to the revenue received from the customers. This is due to the initial project operation and administration setup costs necessary for the infrastructure expansion and operation for a project of this scale, as well as the costs required to administer low-interest financing from the CIB. As more customers are connected to the utility, the general and administration expenses in relation to the revenue will become insignificant when compared to the scale of the CCDEU project.

Table 2: General and Administration Expense Percentage of Revenue

	2023	2022
Percentage of Revenue		
Salaries and benefits	11.5%	12.7%
Administration expense	4.6%	2.1%
Insurance expense	3.8%	1.6%
Professional fees	2.3%	1.1%
Total General and Administration Expense percentage	22.1%	17.4%

The budgeted general and administration expenses are projected to increase by \$628,286 to \$1,944,793 (2022 - \$1,316,507) due to:

- Salaries and benefits The increase of \$45,420 to \$1,008,550 (2022 \$963,130) is due to staffing and estimated adjustments to existing salaries and fringe benefits based on the City's forecasted annual increases.
- Administration expense the administration expense has increased by \$249,349 to \$402,521 (2022 \$153,172) mainly due to Project Agreement administration expense which includes overhead costs to administer Project Co special purpose entity, LIEC reporting and CIB reporting and financing administration requirements. The administration expense also includes the LIEC administration expense, and overhead allocation paid to the City for the day-to-day support that LIEC receives from City staff, which is estimated to be \$56,936 in 2023 (2022 \$55,547).
- Insurance The increase of \$214,722 to \$334,722 (2022 \$120,000) is due to the additional capital assets being insured as well as insurance rates increase, and the additional insurance coverage (comprehensive environmental liability) and deductions required under the CCDEU Project Agreement.

Professional fees – the professional fees expense has increased by \$118,795 to \$199,000 (2022 – \$80,205) due to the audit, bank account, collateral agent and insurance trustee fees for the Project Co special purpose entity and one time fee for the development of engineering guidelines and specifications for developers. The LIEC audit expense is also projected to increase due to the additional audit work surrounding the CCDEU project and increase in the financial position.

Overall, general and administration expenses as a percentage of revenues are at 22.1% for 2023, versus 17.4% for 2022.

Contributions and Financing Costs

The contributions and financing costs represents other sources of revenue and financing for the business, which include:

- Developers' contributions This revenue refers to all the distribution piping systems, energy transfer stations and construction costs inside the development property line.
 These costs are paid by developers. LIEC owns these capital assets, and recognizes a contribution from developers for the amount reimbursed. The developer's contributions expense is projected to decrease for the next year due to adjustment to the actual vs. estimated value of contributions for the Keltic development.
- The current energy modeling review fee is based on 2% of building permit fees collected by the City. It is estimated, that an additional nine permits will be reviewed in 2023, which is lower than the 2022 projections.
- Other expense As reported in the 2020 financial statements, a leak was discovered in January 2021 in the ADEU service area as a result of a construction defect in the pipe. Spill clean up and remediation work is ongoing and will need to continue into 2023 in order to follow the legal standards within the *Provincial Contaminated Sites Regulations*; however, existing 2022 budget accruals are sufficient to cover these expenses.
- Net financing expense This represents the net amount of the financing costs for project agreement liabilities, offset by interest income and other recoveries. The financing costs are incurred by LIEC under the CCDEU Project Agreement with low interest debt funding from CIB and equity funding from Corix. This funding is used to finance the construction of LIEC capital assets, which will result in an increase in the total amount of fixed assets appearing on LIEC's balance sheet. The net financing cost is expected to increase by \$351,616 to \$1,037,586 (2022 \$685,970). The increase is due to the built out of the additional assets (\$16 million of infrastructure projects are budgeted in 2023 capital plan) under the Project Agreement in the CCDEU service area.

Net Income and Earnings Before Interest, Taxes and Amortization (EBITA)

Net income is expected to decrease in 2023 to \$593,724 (2022 – \$946,238) due to the initial operation and administration setup costs necessary for the CCDEU project infrastructure expansion and operation. This is expected and has been encountered in the past with the existing OVDEU and ADEU projects. As more customers are connected to the system, revenues and overall and net income will increase. EBITA, used to evaluate LIEC's financial performance, is expected to increase by \$159,488 to \$3,582,743 for the budgeted year due to the additional

building connections in the CCDEU service area. EBITA as a percentage of revenue is projected to be 41% for 2023 compared to 45% in 2022.

LIEC's financial sustainability and future growth must be taken into consideration when reviewing its EBITA and net income. LIEC is operating as a financially self-sustaining subsidiary, with the goal to expand operations without impacting City finances. LIEC's success is dependent upon developing in-house expertise and ensuring adequate capital is maintained to deliver continuous service, which includes future asset replacements as existing infrastructure components reach end of life. Future capital investments are expected to be financed either through existing cash on hand, partnership agreements or external borrowing. Other important factors are the planning of future projects, which includes research and development, and exploratory reviews of future technology and opportunities. Consistent with the corporation's financial plan objectives, any net income will be maintained in LIEC's equity in order to fund future capital replacements and to ensure long term rate stability for rate payers.

2023 Capital Budget

Richmond continues to see sustained growth through development activity; however, the rising interest rates and high inflation rate are signs of potential market slowdown that could result in the slow down of development activity. The LIEC team monitors development activity very carefully, and have established a "just in time" approach to infrastructure build out, where the new infrastructure is not built until the future customer connections are confirmed through the building permit process. This approach minimizes the risk of stranded infrastructure due to a development slowdown. Table 3 below represents anticipated development timelines in the LIEC service areas over the next five years.

Table 3: Estimated Development Timing for Future Connections (floor area in ft²):

Square Footage	2023	2024	2025	2026	2027
Current Service Areas					
Alexandra DEU (ft²)	182,920	132,000	357,600	250,000	250,000
City Centre DEU (ft²)	894,749	2,200,870	4,572,606	2,336,092	1,278,956
Total (ft ²)	1,077,669	2,332,870	4,930,206	2,586,092	1,528,956
Cumulative (ft ²)	7,343,235	9,676,105	14,606,311	17,192,403	18,721,359

By 2027, it is estimated that LIEC will be servicing 18,721,359 square feet of additional floor area if development proceeds as planned. This figure is up 284% from the area currently serviced in 2022. In established service areas, this growth requires expansion of the existing district energy infrastructure in order to service new developments. Continuous, ongoing investment in the optimization of the existing infrastructure is required to maintain service levels and protect the assets. This growth also requires advanced planning of new district energy networks. Investment in advanced planning allows LIEC to look at, and take advantage of, new technologies and practices to improve operational efficiencies and accrue additional financial

and environmental benefits. LIEC's capital budget ensures that appropriate funding is secured to deliver this work.

LIEC 2023 Capital Projects

Alexandra DEU

There are currently 13 buildings connected to the system (see Attachment 2). There is one new connection planned for 2023. Some of the work related to this new connection will be carried over into 2024. Some system improvements and new connections included in the 2022 Capital Budget are still in progress and work will be carried over into 2023.

New Connections

In 2023, the design and construction of an Energy Transfer Station (ETS) for one new development (9080 Odlin Road) within the ADEU service area is required. The estimated cost for this project is \$650,000, which will be funded from the ETS and Service Connection Installation Fee contributed by the developer. Initial funding will come from LIEC's provision account and will be repaid after the contribution from the developer is received.

Minor Capital Upgrades

Minor upgrades include updating the programmable logic controllers (PLCs) at the main plant which have reached end of life and connecting the main plant to the City's fiber network to increase system resiliency and reliability. The estimated cost for this project is \$150,000.

City Centre DEU

On September 22, 2022, LIEC, City Center Energy Limited Partnership ("Project Co") and Canada Infrastructure Bank ("CIB") executed the Project Agreement and Credit Agreement for the City Center District Energy Utility Expansion Plan. As part of the Project Agreement, Project Co submitted a five-year capital plan to LIEC for capital expenditures, operations and maintenance work within the CCDEU and OVDEU service areas (see Attachment 3 and 4). This capital plan reflected up-to-date development timelines and related capital projects, maintenance and operations activities. The Q4 2022 and 2023 CCDEU capital plan was approved by LIEC board on September 15, 2022. The total estimated cost of new capital projects under the approved plan is \$82 million. These capital projects will be financed by low interest debt funding from CIB and equity funding from Corix..

In addition to the approved capital projects which will be designed, built, financed, operated and maintained by Project Co, staff will need to coordinate, oversee and manage Project Co delivery of the capital projects and operations, administer the Project Agreement, and coordinate with the developers and their design teams connections to the system.

Minor Capital

This capital project involves minor capital work:

- LIEC's staff time is required for the oversight and administration of the CCDEU Project Agreement with Project Co, CCDEU projects coordination (including sewer heat recovery permanent energy centre), as well as working with the developments within the CCDEU service area to ensure their connection to the system.
- Professional fees to support implementation of contracts to deliver district energy services in the City Centre area.
- Professional fees to perform capital cost estimate checks and forward projections of cost escalations.

The estimated cost of this work in 2023 is \$525,000.

LIEC Advanced Design

Due to the continued fast pace of development in the City Centre area, advanced design activities are required in 2023 to support development and the execution of plans to provide district energy services throughout the City Centre area. The scope of work includes, but is not limited to:

- Advanced design for new and upcoming developments including DEU corridors and servicing plans;
- Professional fees to support new business development and expansion beyond the existing CCDEU service area; and
- Professional fees to evaluate new technologies and practices to ensure existing and future systems are optimized.

The cost for the above work will require \$275,000 to be approved as part of the capital budget.

The following funding sources are recommended to finance the 2023 Capital Projects:

Developer Contributions

Within the DEU service areas, developers are responsible to fund the design and construction of on site low-carbon energy plant (if applicable), ETS and piping infrastructure, which is located within their property.

LIEC

Staff have completed a five year financial analysis of the projected cash flow. The analysis shows that LIEC can fund the 2023 capital projects internally.

The summary of the 2023 LIEC Capital Projects are presented in Table 4 below.

Table 4: 2023 Capital Projects and Funding Summary

	Total Capital Budget	LIEC	Developer Contribution
Alexandra DEU			
New Connection			
• 9080 Odlin Road	\$650,000	-	\$650,000
Minor Capital Upgrades	\$150,000	\$150,000	-
City Centre DEU			
Minor Capital	\$525,000	\$525,000	-
LIEC Advanced Design	\$275,000	\$275,000	-
Total	\$1,600,000	\$950,000	\$650,000

Conclusion

The 2023 Operating and Capital Budgets are based on staff's best estimates and assumptions available at the time of writing. The recommended capital budget for 2023 is \$1,600,000. Staff recommend that the 2023 Operating and Capital Budgets be approved.

Glenn Sakamoto, P.Eng, PMP

Project Manager 778-873-5804

Helen Zhao, CPA, CA, MEL Controller

604-276-4053

- Att. 1: District Energy Utility Services
- Att. 2: Alexandra Neighbourhood and ADEU Service Area Informational Map
- Att. 3: Oval Village Neighbourhood and OVDEU Service Area Informational Map
- Att. 4: City Centre Area and CCDEU Service Area Informational Map

District Energy Utility Services

The City of Richmond incorporated Lulu Island Energy Company Ltd. (LIEC) in 2013 for the purposes of carrying out the City's district energy initiatives. LIEC owns and operates the Alexandra District Energy (ADEU) and City Centre District Energy Utilities (CCDEU). Table 1 below provides a summary of the developments connected under the DEU service areas to-date.

Table 1 – District Energy Utility Service Areas

	Buildings To-Date	Residential Units To-Date	Floor Area	
			To-Date	Build-out
Alexandra District Energy Utility	13	2,200	2.4M ft ²	4.4M ft ²
City Centre District Energy Utility ⁽¹⁾	14	3,268	4.1M ft ²	54.4M ft ²
	Total Con	nected Floor Area	6.5M ft ²	58.8M ft ²

⁽¹⁾ OVDEU service area has been incorporated into the CCDEU service area per the executed Project Agreement

Alexandra District Energy Utility (ADEU)

ADEU provides heating and cooling services to nine residential buildings in the ADEU service area, the large commercial development at "Central at Garden City", the Richmond Jamatkhana temple and Fire Hall No. 3, comprising over 2,195 residential units and over 2.4 million square feet of floor area (see Attachment 2). While some electricity is consumed for pumping and equipment operations, most of this energy is currently produced locally from the geo-exchange fields in the greenway corridor and West Cambie Park, and highly efficient air source heat pumps.

The following table represents anticipated development connection timelines for the next three years:

Table 2: Development Timing in ADEU Service Area

	Anticipated Occupancy
Primstone Gardens (4008 Stolberg)	2024
9300/9320 Cambie Road	2024
9291 Alexandra Road	2025
9080 Odlin Rd	2025

City Centre District Energy Utility (CCDEU)

LIEC executed agreements with Corix Utilities Inc. and Canada Infrastructure Bank to design, build, finance, operate and maintain CCDEU infrastructure providing heating and cooling services to over 170 new residential and mixed-use commercial developments by 2050. The first development in the CCDEU service area comprising of approximately 630,000 square feet and over 550 residential units was connected in January 2022. The project is expected to reduce GHG emissions by one million tonnes by 2050.

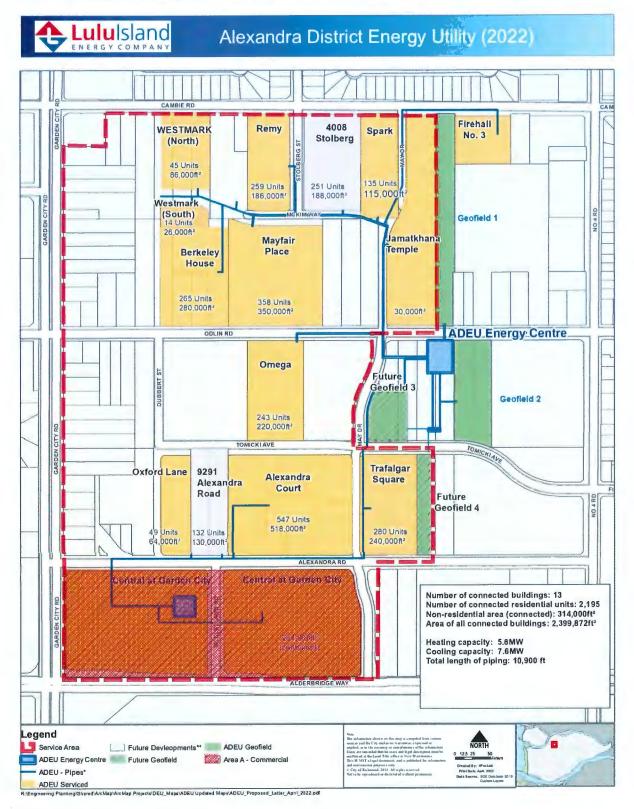
In connection with the transactions contemplated by the Project Agreement, the existing OVDEU utility is incorporated into the CCDEU project. As part of this roll-over, the existing OVDEU operations will be covered under the CCDEU utility project.

The following table represents anticipated development connection timelines for the next three years:

Table 4: Development Timing in CCDEU Service Area

	Anticipated Occupancy
Onni Riva 4 – 7771 Alderbridge Way	2023
ASPAC Lot 17 – 6811 Pearson Way	2023
One Park (Park & Buswell) – 8091 Park Road	2023
Richmond Centre Phase 1a – 6551 No. 3 Road	2024
New Continental – 8320-8440 Bridgeport Road	2024
& 8311-8351 Sea Island Way	2024
3380 Sexsmith Road	2024
8091 Capstan Way	2024
Onni Riva 5 – 7811 Alderbridge Way	2024
Townline – 5671 No. 3 Road	2024
Onni Riva 6 – 7811 Alderbridge Way	2025
Bene (Lion's Tower) – 4700 No.3 Road	2025
Headwaters Market Rental – 5500 No. 3 Road	2025
Richmond Centre Phase 1b – 6551 No. 3 Road	2025
Bene (Times Square) – 6700 No. 3 Road	2025
8740 Charles Street	2025
Hyatt Hotel – 8871–8971 Douglas Street	2025
7880 River Road	2025
3380 Sexsmith Road	2025
3600 Sexsmith Road	2025
8451 West Road	2025
5800 Minoru Boulevard	2025
6871 Elmbridge Way	2025
Pathways – 5491 No 2 Road	2025
South Street – 7960 Alderbridge Way	2025

Alexandra Neighbourhood and ADEU Service Area Informational Map



Codemore Transport Part 1 232,000 ft 1 232,0

Interim Energy Centre 2 Boilers (3MW total)

Oval Village Neighbourhood and OVDEU Service Area Informational Map

Number of connected developments: 11 Number of connected residential units: 2,548 Area of all connected buildings: 2,928,617ft²

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Heating Capacity: 11MW Total length of piping: 5,900ft

City Centre Area and CCDEU Service Area Informational Map

