AK2

lonsdale energy corp.

T 604.983.7312 F 604.985.9417 E info@LonsdaleEnergy.ca
141 West 14th Street, North Vancouver BC V7M 1H9

REPORT

To: Mayor Darrell Mussatto and Members of Council

From: Ben Themens, Director, LEC

SUBJECT: LONSDALE ENERGY CORP. – AMOUNT DUE TO THE CITY – FINANCING OPTIONS

Date: December 11, 2013

RECOMMENDATION:

PURSUANT to the report of the Director of Lonsdale Energy Corp., dated December 11, 2013 entitled "Lonsdale Energy Corp. – Amount Due to the City – Financing Options":

THAT the amounts currently due by Lonsdale Energy Corp. (LEC) to City of North Vancouver be converted in a 5-year loan earning interest at a rate of 0.3%;

THAT additional funding be made available to LEC under this loan as per the following conditions:

1) The total amount of the principal of the loan is not to exceed $12 million;
2) With the exception of an amount of $500,000 to be provided to LEC for cash flow reserve purposes, funding received under the loan is to be used for the sole purpose of building LEC's distribution network;

AND THAT Lonsdale Energy Corp. provides an annual report on the balance and payments of principal and interest of the loan as well as on construction activities impacting borrowing and loan repayment.

ATTACHMENTS

1. Report from the Director of LEC dated July 16, 2013 and entitled "Lonsdale Energy Corp. – Rate Review and Bylaw Amendment"

2. Partnering Agreement between CNV and LEC dated August 10, 2010
3. City of North Vancouver Public Notice entitled "Notice of Amendment to Lonsdale Energy Corp. Partnering Agreement"
4. Modelling Option 1 – Cease System Expansion Immediately
5. Modelling Option 2 – Proceed with 2014-15 Construction Program
6. LEC System Map dated December 3, 2013

PURPOSE

This report provides an overview of the financial state of LEC and presents, for Council's consideration, various options for the repayment of amount payable by LEC to the City of North Vancouver (CNV). The recommended option is to convert the current amount receivable by the City into a formal loan amount, with a set interest rate and annual reporting by LEC. The report further suggests that the amount of the loan be set to provide LEC with sufficient funding to continue expanding its system and that LEC review the need to increase its rates on an on-going basis so that they are in line with other energy providers and provide an equitable return to City residents.

BACKGROUND

The City of North Vancouver (CNV) owned district energy utility, Lonsdale Energy Corp. (LEC), has been in operation since 2004 following the enactment of Bylaw 7575, creating the energy service. Since inception, several buildings have been connected to the LEC system and currently LEC has 45 customers which include more than 3 million sq. ft. of properties made up of commercial and institutional premises as well as more than 2,500 households.

Assumptions

It is important to note that to simplify the review of the options, this report examines only the cash flow requirements of LEC and that non-cash items considered in financial statements preparation have been excluded in the analysis.

LEC's financial performance including its profitability was discussed in a July 16, 2013 report (attachment 1). The report was presented and further discussed in a Public Meeting on September 23, 2013. As mentioned in that report, including non-cash expenditures such as depreciation, LEC has been profitable since 2009. However, profitability was lower in 2012 and is expected to decrease in 2013 and 2014 as LEC is expanding and re-organizing some of its operations. Profitability is expected to increase again after 2014. More details regarding the LEC profitability forecast are provided in the July 16th report.

In addition to considering only cash items, this report does not consider the revenue and expenses related to the purchase of gas. The cost of gas is recovered from LEC's customers through its Commodity Charge. This charge fluctuates with the cost of natural gas. It is designed to recover the cost of natural gas and not meant to provide any significant additional revenue. The analysis also excludes revenue generated by the connection fees that aim to ensure that developers contribute to the cost of the installations and which are used to fund part of the capital cost of connecting a building. Timing of this revenue is uncertain and is usually matched with various capital expenditures.

Based on these assumptions, LEC is expected to generate revenue of $1.35 million in 2014 from its meter and capacity charge. Those two charges aim at recovering the costs related to maintenance and operation of the system, to fund further system expansion and/or to reimburse debt, and to eventually generate dividends to the shareholder.

Customer Rates

The report "Lonsdale Energy Corp. – Rate Review and Bylaw Amendment" dated July 16, 2013 (attachment 1) discusses LEC rates in great detail and has provided the information that has led to Council's approval of two Capacity Charge increases scheduled in October 2013 and July 2014.

As discussed in the report and as shown in the following table, LEC has the lowest service charge of all the Lower Mainland hot water based district energy providers reviewed in the analysis. For users, LEC rates are more economical than using baseboard electric heat. Even with the increases approved by Council, the forecasted 2013 and 2014 rates will remain extremely competitive. Assuming a fixed natural gas cost, the proposed net increases translate into average annual energy costs of $71.91 as of October 2013 and $73.67 as of July 2014 for LEC customers. Both amounts are still much lower than the cost of other alternatives.

In 2003, when LEC was first created, it was envisioned that the utility would aim to provide heat at a rate that would not exceed the cost of electricity by more than 15%. Electric baseboard heating is one of the cheapest alternatives in terms of construction costs and is therefore often preferred by developers. Using an estimate for the cost of electricity of $90.21 / MW.hr, a 15% target would translate in rates averaging $104 / MW.hr for LEC, considerably higher than what has been approved. This is without even considering a 15.6% rate increase in each of 2014 and 2015 recently announced by BC Hydro.

While LEC has not been contemplating raising its rates by such an extent, the amount is substantial and demonstrates that LEC has significant latitude to provide a higher rate of return to CNV. LEC endeavors to have rates that are fair to both LEC users and to City residents, as CNV invested in LEC and is funding some of the initial system costs.

As will be discussed in one of the options below, LEC could further increase its capacity charge to provide a higher return to CNV.

Table - Comparison of LEC rate with other providers

Energy Provider	Type of Service	Year of rate	Rate ($ / MW.hr)	Difference with LEC
LEC	Hot Water	2012	$70.22	-
BC Hydro	Electricity	2013	$90.51	29%
Fortis BC	Stand-alone NG Boiler	2012	$84	20%
River District Energy (East Fraserlands)	Hot Water	2013	$96	37%
South East False Creek (SEFC)	Hot Water	2013	$94	34%
SFU UniverCity Energy	Hot Water	2013	$146	108%

Notes:
LEC cost based on 2012 revenue and heat deliveries.
BC Hydro cost based on purchase of 50% residential step 1 and 50% residential step 2 electricity price as of April 1, 2013 and a 5% rate rider.
Cost of Fortis BC, River District Energy, SECF and SFU UniverCity taken from CoV report dated November 19, 2012.
Central Heat Distribution Ltd. has been omitted due to the fact that the system is steam based.

DISCUSSION

Amount Due to CNV

As of December 31, 2012, LEC owed the City $6,664,000, net of a $2 million CNV equity investment in LEC and a $2 million loan from a Green Municipal Fund of the Federation of Canadian Municipalities (FCM) provided through BC Municipal Finance Authority (MFA). LEC owes this loan to the City, which in turn owes it to GMIF, in effect, this is a flow-through for the City. LEC is paying all of the interest and principal on this loan.

The GMIF loan flows through CNV because of the fact that it is provided under a 2005 loan agreement between CNV and FCM. The conditions of the loan included the requirement for CNV or LEC to have completed work totaling $8 million in eligible costs. This condition was satisfied by LEC in June 2012 and the loan was received at that time. As all costs associated with the work supporting the loan have been recognized in LEC's statements, the loan was transferred by the City to LEC. At this time, LEC has paid interest and the first of ten principal reimbursement payments on the loan and is planning to reimburse the full amount of the loan including interest over the term of the loan.

In conclusion, as of December 31, 2012, $6,664,000 of the amount receivable by the City from LEC is funded from CNV funds. The amount currently owed, as of September 30, 2013, is of $8,782,522. The amount of the receivable as of December 31, 2013 is forecasted at between $9.2 and $9.5 million.

Costs Included in the Amount Due to CNV

LEC hires CNV to build the underground distribution system of LEC. In turn CNV invoices LEC for all construction and engineering costs, including excavation, supply and installation of the piping, trench filling, compaction, and repaving. LEC has reimbursed those costs to CNV for the first 6 years of its operations (2003 to 2008). More specifically, the amount that is owed to CNV by LEC is for the construction of the underground distribution system since 2009. Until the end of 2011, it was estimated that LEC would reimbursed the costs to CNV within one or two years. During 2012 it became apparent that repayment might possibly be delayed, however, timely repayment was still expected. However, the rate of construction and expansion of LEC's distribution system in the city in 2012 and 2013 has exceeded LEC's expectations, and additional expansion opportunities continue to arise. Therefore, LEC is now requesting that this funding be made available for a longer term.

This being said, it should be noted that LEC, out of its own resources, has continually met all of its financial obligations for the construction and operation of its 7 mini-plants including the supply and installation of boilers, solar panels, heat pumps, control and instrumentation, as well as the supply and installation of heat exchangers and meters at each of its customer location. LEC reimburses CNV for expenditures (including staff and supplies) that are unrelated to the construction of the distribution system and until 2009, LEC fully paid for the construction of the distribution network.

LEC is requesting this loan from the City not because it is in financial difficulty – with a proven business model, strong cash flow, and expanding customer base, LEC is very successful financially. LEC is asking for a loan because it has been extraordinarily successful. The LEC service area has expanded far more quickly than was originally predicted, and will soon cover almost all the areas of the City where district heating can reasonably be provided, making this sustainable heating and cooling service readily available to new development. LEC has more than met the mandate given to it, and is suggesting that its extraordinary growth is worthy of additional support.

Construction Program

Construction of the LEC system has progressed beyond expectations in the past two years. While LEC connected an average of 3 to 4 buildings per year during its first eight years of operations, 8 and 9 buildings have been connected respectively in 2012 and 2013. In addition to work that is in progress at 6 locations scheduled for connection in the next 6 months, several other projects are at various stages of design and it is

expected that the connection of new buildings will continue at an accelerated rate for a number of years.

Construction of the network to satisfy demand has been significant.

In 2012 and 2013, the following sections of the distribution have been completed:

1) Harbourside / Marine Drive: Distribution system on the New City Works Yard property
2) Central Lonsdale: Section between Queen Mary School and the intersection of 13th Street and Chesterfield
3) Lower Lonsdale: Section on 3rd Street from 160 W 3rd Street to 127 E 3rd Street
4) Harbourside / Marine Drive: Section on Fell Avenue and Marine Drive from 1st Street to 700 Marine Drive including Mosquito Creek crossings at both Marine Drive and 3rd Street.
5) Central Lonsdale: Section on East 13th Street from St. Georges Avenue to St. Andrews Avenue (to connect future HOpe building).
6) Central Lonsdale: Section from 1415 Chesterfield to 150 West 15th Street
7) Central Lonsdale: Section on Lonsdale Ave. from 17th Street to 22nd Street to link MP-6 to the Central Lonsdale network.

Since late 2011, construction activities have exceeded LEC's most optimistic forecasts. Not only has the rate of construction of new projects increased, but two significant additional components of LEC's system have been developed in the past two years.

The Harbourside / Marine Drive area has required a significant amount of investment. While this service area was established by Council in April 2008 through the adoption of bylaw 7926, activity had been limited and work in this service area was anticipated to progress very slowly. However, the construction of the new City works yard created the opportunity to construct the first mini-plant in this area. The opportunity is significant as LEC will provide heat not only to the new yard but to The Shore project scheduled for construction on the lands of the former works yard.

Furthermore, the level of activity on Marine Drive was also unanticipated by LEC. LEC identified the construction of the link on Fell Avenue to connect 700 Marine Drive as a future project and had planned to provide heat at this building with a temporary boiler until completion of a permanent link between the plant at the new City works yard and 700 Marine Drive. (LEC is already providing heat to 850 Marine Drive with a temporary boiler.) The project was advanced as other projects on Marine Drive started to be identified (730 Marine Drive, 725 Marine Drive, 1621 Hamilton Avenue and The Shore accessible from Fell Avenue at 3rd Street) and it was becoming evident that it would make little sense to provide heat to all these projects using temporary boilers.

It is also important to note that the Fell Avenue and Marine Drive project built to date will eventually play an important role in connecting the service area with the Lonsdale service areas. The inter-connection of these service areas will ultimately be essential to

allow the efficient use of additional alternative energy sources when they become available. For instance, the Harbourside / Marine Drive service area is located at relatively close proximity of the site of the future wastewater treatment plant, which could play a future role in supplying heat to the community.

On its own, the connection of 700 Marine Drive to the new works yard mini-plant makes little sense, but when one considers the future growth in the area and the role that this section of the distribution system is expected to play, the connection is justified.

A second significant component that has been built in recent years is the link on Lonsdale Avenue between 13th and 22nd Street. While there is only one significant building (at 17th and Lonsdale) on this section of the distribution system at this time, the potential to connect future projects on this important street is considerable. More importantly, LEC has constructed a mini-plant at 22nd Street and Lonsdale which explains the decision to proceed with this connection. It was important to connect this plant to the area around City Hall for two reasons:

1) Due to the high rate of growth in the area, the plant at City Hall is operating at full capacity. A future plant is to be built at the Onni project but it will take a few years to complete. Hence, it was necessary to use the 22nd Street mini-plant to provide additional capacity for the current heating season.
2) The 22nd Street mini-plant provides cooling as well as heating. It is equipped with a geo-exchange field and heat pumps that allow the recovery of heat in cooling mode. The heat generated by the heat pumps can directly be sent in the LEC heating network instead of the geo-exchange loop (or in the case of conventional buildings to the atmosphere through a cooling tower). Last summer, the heat generated by the plant was such that it could not all be absorbed by the neighbourhood. Therefore, the connection of the plant to the City Hall area means that more heat will be utilized during the next heating season instead of being sent to the soil.

Authority of LEC and disclosure of the information

LEC feels that there has been significant disclosure of the amount owed to the City, and of the construction activities for which this amount was expended.

For instance, LEC has taken significant steps to better inform members of the public as well as its customers during this past summer. LEC provided a significant amount of information at a Public Meeting that was held by CNV on September 23, 2013 to discuss an LEC rate increase application. LEC has made great efforts to inform its customers and the residents of the City of North Vancouver of the opportunity to comment on the application. The date of the Public Meeting was communicated in letters and invoices sent to LEC customers. The meeting was also advertised on the City of North Vancouver and LEC websites as well as in the North Shore News editions of Sunday September 15 and Wednesday September 18, 2013.

Among other things, during the meeting, LEC clearly disclosed that it estimated that the balance of the amount owed to CNV would reach between $9 and $10 million, and discussed the construction activities to be funded. The need to have a funding agreement between LEC and CNV was mentioned as one of the next steps to the meeting.

More importantly, the work done by LEC is in line with CNV Hydronic Energy Service Bylaw 7575 and the partnering agreement dated August 10, 2010 (attachment 2). Public Notice (attachment 3) was published in the North Shore News on July 7 and July 11, 2010 and included the following wording: "Under the agreement, Lonsdale Energy Corp. is to provide the service of hydronic energy in accordance with "City of North Vancouver Hydronic Energy Service Bylaw, 2004, No. 7575" as amended. The partnering agreement authorizes the City to provide assistance to Lonsdale Energy Corp., including tax exemptions, grants, loans and other funding, to allow Lonsdale Energy Corp. to provide the service."

In addition to the above-mentioned documents, the amount owed to the City is included the Financial Statements of CNV each year. As mentioned at the September 23, 2013 public meeting, LEC is presenting this report with various formal financing options including a commitment to CNV for interest on amounts advanced, and a formal reporting process, as LEC has now identified the need for financing to be extended over a number of years.

Financing Option Assumptions

Financial Modeling
A simple 20-year financial model has been prepared to model the various options that are being proposed. Attachment 5 provides a copy of the model for the option recommended by staff. It is important to note that all amounts in this report and in the model are the amounts that will be received each year. To simplify the analysis, no Net Present Value calculations have been made at this time.

Revenue
As mentioned above, LEC is expected to generate revenue of $1.35 million in 2014 from its meter and capacity charge. With the exception of natural gas purchases, the two charges aim at providing for the maintenance and operation of the system as well as for its expansion. The charges are to also be used to reimburse any debt that is contracted for capital works as well as to eventually provide dividends to the shareholder. The following options assume that the October 2013 and July 2014 rate increases approved by Council in September 2013 are to remain unchanged. The options also discuss the impact of various rate increase scenarios in the following years.

Note that in the July 16, 2013 report that accompanied LEC's rate increase application, LEC commented that "further work is required in the coming weeks/months to evaluate the cash flow requirements of the organization and evaluate various financing

scenarios. Once more information is available in this regard, the rate structure may be re-evaluated to confirm its appropriateness." Consequently, the rate increase could be revisited if Council wishes to accelerate the repayment to CNV.

For the years following 2014, the 20-year model assumes that the Capacity and Meter Charges will increase by 5% a year while the Commodity Charge will increase to follow the price of natural gas which has been assumed to increase at 2.5% per year. The increase of the Commodity Charge does not impact the model as it is not considered in the revenue and expense analysis. It is used solely to compare the LEC rate with BC Hydro rate for information purposes. BC Hydro costs are assumed to increase during the first five years as per the rates that were announced in late November and by 2.5% per year during the remaining 15 years. This is considered to be a conservative estimate. Under such a scenario, LEC rate remains significantly lower than the BC Hydro rate. Both rates are shown for each year at the bottom of the summary sheet of each option.

It is important to note that at this time, this report is not recommending an increase of 5% per year of the Capacity and Meter charge over the next 20-years. The model simply tries to estimate the revenue if such an increase was to be implemented. LEC recommends that rate increases be reviewed annually or every second year and that the decision consider the financial competitiveness of LEC so that it does not impose undue costs to its customers, as well as, the return that should be provided to its shareholder, CNV, so that City residents receive an adequate return.

Expenses

The estimate of LEC operating expenses is increased at different rates in the various options reviewed. Attachment 4 and 5 provides a list of the expenses for the recommended options.

Options Considered

Option 1 *– Cease system expansion immediately (not recommended)*
This option is based on ceasing all significant distribution system construction activities as of December 31, 2013. The scenario aims at assessing the payments that would be made to CNV if LEC was to 1) cease adding customers as of 2014, connecting only the customers for which work is in progress, and 2) limit its operations to providing heat to existing customers only. Basically, option 1 aims at demonstrating that LEC is in good financial standing and would be able to reimburse CNV all moneys advanced to date in a timely manner. Attachment 4 provides the modeling results for the option.

Based on these assumptions, LEC would repay the amount owed to the City by the end of 2024 and would be able to provide an additional $18.3 million in returns to the City. A sensitivity analysis was completed and showed that if the Capacity and Meter Charge

were to increase by only 3% per year over the next 20 years, the payment of the loan would be completed by 2026 and CNV would receive $9.9 million in return.

The modeling also considered that interest on the amount outstanding would be paid be LEC at a rate of 0.3% until 2022 and at a rate of 2.5% for the remaining years. (The reason for this assumption is discussed later in the report.) If the rate of return on the loan is set at 2.5% from 2014 to 2022, the loan would be repaid by the end of 2026.

This option confirms the soundness of LEC's financial position. The results are even more impressive, if one considers that the CNV funding was used for the sole purpose of building a distribution system that is very conservatively depreciated over a period of 40 years. That is, CNV is providing funding for a period of ten years while the asset is expected to last several decades. Furthermore, the model does not consider the addition of customers over the next 20 years. The distribution system in place at this time could serve several more customers located in the vicinity of the system for a very reasonable cost. The potential for additional revenue is extremely likely and the financial results would be further enhanced if such revenue was considered in the model. Therefore, on that basis, the funding advanced by CNV is not in jeopardy of not being repaid in the future and the loan to LEC is to be considered a good investment.

It should be noted that as per the recent sale of Vancouver's Central Heat Distribution Ltd. (for an undisclosed amount), district energy systems are viewed as being valuable assets by investors and that there seems to be significant interest to invest in such systems at the moment. District energy systems are good targets for investors not only for the value of their assets but for their future revenues which are expected to remain relatively constant and long-term. To assume that LEC has no value and that its debt will remain unpaid is unrealistic.

Option 1 is not recommended for two reasons:

1) As per the analysis in option 2, LEC should continue to expand and connect new customers. LEC is to be considered as a business with a sound business model in addition to having great potential to contribute to the City's GHG reduction ambitions.
2) At the very least, the City should continue funding LEC's expansion program for another year as some of the buildings that are expected to be connected in 2014 and 2015 have started/completed their design under the assumption that they would connect to LEC. A change in LEC's construction program could have a financial impact on some of the developers.

Option 2 *– Proceed with 2014-15 construction program and formalize the amount payable to CNV with a loan (recommended)*

This option is based on LEC completing the 2014-15 construction program to serve customers that have buildings in the design or construction phase and that have planned to connect to LEC. The following is a list of the significant projects that are scheduled for completion in the next two years:

Projects scheduled for early 2014:

1) Harbourside / Marine Drive: Construction of a link under/over the CN right of way at the Fell Street railroad overpass. (150 m)
2) Harbourside / Marine Drive: Completion of distribution system on Fell Avenue and 15th Street from the intersection of Fell Avenue and Marine to connect 850 Marine Drive (260 m)

Projects scheduled for late 2014 or later:

1) Harbourside / Marine Drive: Construction of link from 850 Marine Drive to 1621 Hamilton Avenue. (338 m)
2) Lower Lonsdale: 200 block of West 1st Avenue (60 m section)
3) Central Lonsdale: St Georges from 1033 St Georges to 161-165 East Keith Road. (415 m)

LEC is providing heat to 850 Marine Drive and to 3 properties on Copping Street using temporary boilers owned and operated by LEC. The first two sections mentioned above are to connect these buildings to the network. The last three sections are to connect projects that are planned for completion in 2014 or 2015.

Attachment 5 provides the financial modelling for option 2. The option assumes among other things, that LEC's customer base will grow by 5% annually over the next 20-years. With approximately 50 buildings connected over a period of 10 years, a growth rate of 5% represents the addition of between 2 to 3 buildings per year and compounded, LEC would be serving 126 by 2033. This is fairly conservative if one considers that LEC has connected an average of 5 buildings per year over the past 10 years. The connection of those buildings is assumed to be made without having to add long new sections to the system. This 5% growth increase is matched with a 2% increase of the expenses that are related to the growth. This is based on the fact that currently 40% of the revenue is used to pay for LEC's operating costs.

Under this scenario, the amount owed to CNV at the end of 2014 (assuming that all the projects are completed that year) would be $11.8 million. Assuming that LEC was to cease constructing significant sections of the distribution system after 2014, the amount outstanding could be repaid by the end of 2025 and LEC could generate returns totaling $37 million over the next 20 years. A sensitivity analysis that considered increasing the Capacity and Meter Charges by 3% instead of 5% indicated that the amount outstanding would be repaid by 2026 and that returns would total $21.4 million over the following years.

Consequently, LEC recommends that CNV proceed with providing a loan of $12 million to LEC, which would include conversion of the existing receivable to loan status, and allow some funding for future expansion. The financial model demonstrates that LEC would be capable of reimbursing this loan over a period of ten years. Under the recommendation included in this report, LEC would report on the status of the loan on

an annual basis and would present Council with various funding scenarios and construction programs.

Option 3 *– Increase the Capacity and Meter Charge to match BC Hydro rates and increase repayments to the City (not recommended)*

While both options considered Capacity and Meter Charge increases of 5% per year over the next 20 years, Council could instruct staff to revise LEC's rate structure to be aligned with the average BC Hydro rates. In the options 1 and 2, the model indicates that LEC rates are substantially lower than the average BC Hydro rate and a financial model could be completed based on matching LEC's rates with those of BC Hydro to allow a more rapid reimbursement of the amount due to the City.

Staff is not recommending this option. The recent rate revision aimed to ensure that rate increases would be reasonable. A target aiming at matching LEC rates to BC Hydro rates could be implemented over time. LEC recommends that the rate be adjusted to be reasonable and predictable for LEC users. Furthermore, part of the reason for the lower rates is due to the fact that natural gas prices have been very low in the past few years. The present rate structure provides some room in the event of an unforeseen large gas price increase.

Option 4 *– Use other funding mechanisms than a loan to provide funding to LEC (not recommended)*

The amount that is owed by the City is currently considered as an amount payable/receivable by the two organizations. One option could be to continue funding the amount on this basis. Another option could be that the amount be converted in an equity investment in LEC. These options have not been considered by staff. Both options would defer the payment of a return to the City which would receive dividends once the amount outstanding would be repaid. LEC is in a position that allows the recognition and future repayment of interest. Furthermore, staff believes that the recommended approach of converting the amount outstanding into a loan is enhancing the transparency of the transaction.

Loan – Rate of Return and Reporting Requirements

Staff is recommending a five-year loan with a rate of interest of 0.3%. There are purposely no terms of repayment to provide some flexibility by allowing the repayment of the principal to be deferred if LEC's construction program requires it.

The rate of interest of 0.3% is based on the rate that is being paid by LEC on the FCM loan. It is below market and aims at encouraging the construction of energy efficient systems. The modeling is based on CNV providing a loan at a similar rate until 2022 which is the year when LEC is scheduled to make a final payment on the FCM loan. After that, the model assumes a rate of 2.5% on the CNV loan. The recommended rate

would match the rate provided to LEC by senior governments until 2022 as well as would delay the recognition of additional interest on the amount due to CNV until complete repayment of the FCM loan which will provide additional funding availability to LEC.

LEC has considered other options with regard to the loan interest rate. The loan could be set to request an interest rate of 2.1%. This is based on the average rate of re-investment interest earned on the investments made by CNV from 2010 to 2013. MFA's rate could also be considered. MFA's 5-year (short-term) lending rate is currently 1.72%.

As per the recommended resolution, the loan will require that LEC provides annually a report on the balance and payments of principal and interest of the loan as well as on construction activities impacting borrowing and loan repayment. Such reporting would be reviewed by Council who would have the opportunity to request increases or deferral of the repayments in function of LEC's construction schedule. LEC would then adapt its construction program to comply with Council's instructions.

SUMMARY:

In 2007, LEC mentioned the following in a report that recommended a significant decrease of the Capacity and Meter Charges:

> "LEC is owned by the City and ultimately the City benefits from profits made by LEC. However LEC's main objective is not to generate excessive or extraordinary profits, but rather to ensure that the community heating system achieves an appropriate balance of environmental, social, and economically sustainable benefits to the City."

LEC has always conveyed the message that it aimed to be cost neutral to both system users and city residents. Since the start of its operations, LEC has tried to compare its rates with those of BC Hydro to ensure that the amount paid by its customers would not exceed the cost of using electric baseboard by more than 15%. Similarly, one could consider that if rates were significantly lower than the cost of using electric baseboards, LEC customers would be benefiting at the expense of the community. The income generated by LEC should be used to provide CNV with a return on investment or to further diversify LEC's heating sources to include alternative energy which will benefit the whole community. Such a diversification requires the development of a solid customer base which has been one of LEC's main goals over the past decade. LEC believes that the current system will provide CNV with a significant advantage to address global energy issues in the future.

On that basis, LEC staff consider that the proposed funding option is fair and reasonable to both LEC customers and CNV residents.

FINANCIAL IMPLICATIONS:

The financial implications are addressed throughout the report.

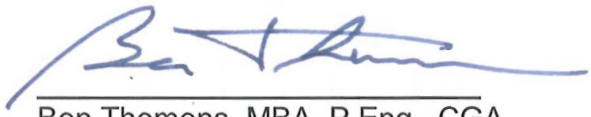
INTER-DEPARTMENTAL IMPLICATIONS:

This report and its recommendation have been reviewed by CNV's Finance Department.

STRATEGIC PLAN IMPLICATIONS:

The community energy system implemented by LEC is consistent with the goals of the City Strategic Plan concerning the enhancement of the natural and built environment.

RESPECTFULLY SUBMITTED BY:



Ben Themens, MBA, P.Eng., CGA
Director, LEC

REVIEWED BY:

A.K. Tollstam, B.Comm, CA
President, LEC

Attachment No. 1

lonsdale energy corp.
t 604.983.7305 f 604.985.1573 e info@cnv.org
141 West 14th Street, North Vancouver BC V7M 1H9

REPORT

To: Mayor Darrell Mussatto and Members of Council

From: Ben Themens, Director, LEC

SUBJECT: LONSDALE ENERGY CORP. – RATE REVIEW AND BYLAW AMENDMENT

Date: July 16, 2013

RECOMMENDATION

PURSUANT to the report of the Director of Lonsdale Energy Corp., dated July 16, 2013 entitled "Lonsdale Energy Corp. – Rate Review and Bylaw Amendment":

THAT this report and proposed amendments to "City of North Vancouver Hydronic Heat Energy Service Bylaw, 2004, No. 7575, Amendment Bylaw, 2013, No. 8321" be forwarded to LEC customers for information and comment;

AND THAT "City of North Vancouver Hydronic Heat Energy Service Bylaw, 2004, No. 7575, Amendment Bylaw, 2013, No. 8321" be considered and referred to a Public Meeting on September 23, 2013, to receive input from LEC customers and the public.

ATTACHMENTS

1. City of North Vancouver Hydronic Heat Energy Service Bylaw, 2004, No. 7575, Amendment Bylaw, 2013, No. 8321
2. Letter to LEC customers from the Director of LEC dated December 14, 2012 entitled "LEC Potential 2013 Rate Increase and Impact of the Re-introduction of the PST"
3. Summary of LEC revenue and expenses 2004 – 2012

4. Report of the Deputy City Engineer and Deputy Director of Finance entitled "Lonsdale Energy Corp. – Rate Review and Bylaw Amendment" dated January 17, 2007
5. City of North Vancouver Consolidated Hydronic Heat Energy Service Bylaw, 2004, No. 7575

PURPOSE

This report provides an overview of the rate setting work that was done in the past, explains how LEC has managed to maintain its current rates for almost 10 years and provides the rationale for recommending that the Capacity Charge be increased by 5% in fall 2013 as well as a further 5% in summer 2014. The report also provides a pricing comparison with other Lower Mainland district energy providers.

BACKGROUND

The City of North Vancouver (CNV) owned district energy utility, Lonsdale Energy Corp. (LEC), has been in operation since 2004 following the signing of an operating agreement with Terasen Utility Services (now known as Corix Utilities), the acquisition of external funding from FCM, and the enactment of Bylaw 7575, creating the energy service.

Since inception, several buildings have been connected to the LEC system and currently LEC has over 40 customers which include approximately 2,500 households or 2.9 million sq. ft. of properties including commercial and institutional premises.

Early Customer Rates

The original (2003) rate structure was deemed too high and during the first couple of years of operations staff and strata representatives of the early adopters formed a customer focus group to facilitate open communication between system users and the energy utility.

The issues raised by the customer group concerned the cost of the service, the quality of the service, and the issue of financial equity for those 'early adopters' onto the system where the positive future financial impact of more system users was not recognized in the current rate structure. Issues regarding the quality of service seem to have been resolved and the present report discusses the cost of service.

In 2007 Council adopted bylaw 7843 that reduced customer costs. The new rates were applied retroactively to when each developer-built building transferred control to the building's strata corporation. Consequently, the rates adopted in 2007 can be

considered as the cost that has been charged to LEC's customers since LEC's started operations in 2004. Those rates are provided in the following table:

Charge	Description	Original Bylaw 7575 adopted in 2004	Bylaw 7843 adopted in 2007	Increase (Decrease)
Meter Charge	Monthly charge for each Service Connection serving the Premises	$491.00 / month	$299.34 / month	-39.0%
Capacity Charge	Monthly charge per kilowatt multiplied by the energy capacity of the Premises in kilowatts	$3.920 / Kw	$2.930 / Kw	-25.3%
Commodity Charge	Charge per kilowatt hour of Hydronic Energy provided to the Premises	$0.0430 / Kw hr	$0.0458 / Kw hr *	6.5%

* The commodity charge is adjusted to follow Fortis BC gas pricing fluctuation

With the exception of pricing adjustments to follow Fortis BC gas prices, the capacity and commodity charge have remained unchanged since the adoption of bylaw 7843. The meter charge was further reduced in December 2009 (bylaw 8059) to $150 / month. The decrease aimed at enhancing LEC's competitiveness to connect smaller buildings to its network.

Developers' Cost / Service Connection Installation Fee

Initially, the amount charged to developers for a service connection fee was set at only $500. At the outset, the development community viewed LEC or its concept with either reluctance or apprehension. LEC came through an initial implementation period with a track record of meeting builder's needs for service and the service connection fee was soon deemed insufficient compared against the financial, operational, and marketing advantages that the LEC system offers to the development community.

Furthermore, LEC's early customers believed that the developers were not paying their fair share of the service and that too much of the initial capital cost was recovered from them through monthly charges. Some customers mentioned that when purchasing a new high-end apartment, it would be reasonable to expect that at least some of the hydronic heating capital cost was included in the purchase price set by the developer as it would be the case if the building came equipped with an in-building stand-alone hydronic heating system.

Bylaw 7843 significantly increased the service connection fee to $20,000 per service connection plus $30/Kw of required capacity. Subsequent bylaws adjusted this rate to $60/Kw of required capacity. The abolishment of the fix cost component was to further encourage developers to build energy efficient buildings and to reduce the impact on smaller buildings connecting to the LEC. A 50% reduction is also available to building areas that are set aside for rental purposes or that have had a certificate of occupancy for more than 5 years.

This translate into a service connection fee of $50,000 to $100,000 per residential high-rise multi-unit building of 100 suites or more, but in most cases, it still translates into savings to the developers who do not have to spend in excess of $100,000 for a full-service boiler room in new buildings.

DISCUSSION

Rationale for the proposed rate increase

The January 17, 2007 report that recommended the above-mentioned rate adjustment also stipulated that LEC would continue to monitor the financial and operating performance of its system in order to determine needed rate modifications in the future. It also stated that the 2007 financial model considered that the applicable rates would increase with inflation.

Fortunately, LEC has been able to delay rate increases until now. Good and efficient management and operation practices have kept costs under control. For instance, LEC constantly monitors and adjusts the performance of its system. In 2007, using the information available from 2 years of data, LEC was able to determine that buildings could be heated with less LEC equipment than originally presumed. This knowledge provided savings to LEC customers. Since then, LEC has continued to monitor system performance and has been able to defer some of its capital purchases by further reducing its estimate of the amount of equipment required to heat buildings. In addition to this, LEC has taken advantage of the fact that mini-plants are inter-connected and serviced by distinct gas meters. LEC can arrange to purchase gas from different sources at each of the mini-plants and use in priority the sources that provide the best pricing opportunity. Finally, LEC has reduced the use of third party project management and financing in the Central Lonsdale and Marine Drive service areas, which has also provided some savings.

Part of the savings was passed to customers under the form of a reduction of the monthly Meter Charge. The charge was reduced from $299.34 to $150 as of December 2009. Based on the fact that $55,400 was collected under the Meter Charge in 2012 and that the charge was reduced by 50%, the total saving provided by this reduction in 2012 was $55,400. While no increase of the Capacity Charge was recommended at the time of the Meter Charge decrease, the December 2009 report suggested that the possibility of increasing the Capacity Charge be reviewed in mid-2010. Such an increase has yet to occur.

By now, it is becoming evident that those opportunities have been exploited as much as possible. Equipment to meet increasing demand now needs to be added to the system. In 2012, it also became obvious that LEC's staffing needs could no longer be satisfied by assigning CNV staff on a part-time basis to LEC. Given the volume of its operation

and the opportunities that were increasingly being identified to incorporate renewable energy to its system, LEC hired two full-time staff members in 2012. LEC anticipates hiring a third staff member in the coming months. This being said, the cost of these hiring is somewhat offset by decreasing the amounts paid in consulting fees and various external service providers.

While LEC is still profitable, the 2012 year-end return was lower than 2011. Several reasons explain this decrease:

1) As it is the case in every other sector, capital costs of equipment and construction have increased over the past 10 years while LEC's rates have remained constant.
2) As mentioned previously, LEC has hired permanent staff, the cost of which will be somewhat offset by reducing the need to hire external service providers. As some of the services are provided under long-term contracts that are in place until 2013, part of the offset will be available only in 2014.
3) LEC has started operating in a third, less dense, service area (Marine Drive/Fell Avenue) where several future development projects have been identified and which will, by its location, facilitate the access to energy at the future Metro Vancouver North Shore waste water treatment plant. The depreciation of the distribution system is over a period of 40 years and the expense is reasonable. However, some of the anticipated density will take a few years to be completed and revenue at this location may be lagging for a few years.
4) LEC is increasingly diversifying its energy sources to include environmentally-friendly alternative energy. For instance, LEC is now using a geo-exchange system at the new School District office building. LEC has also been using solar energy since 2009 in its system. Those sources are more expensive to use than conventional natural gas boiler technology.
5) LEC has used several senior government grants and contributions to fund some of its equipment and network. Those sources are currently unavailable. LEC will continue to apply for funding whenever it identifies an opportunity to access such funding, particularly to fund alternative technologies. In the meantime, LEC is fully funding the cost of its distribution network and energy generation equipment.

In recognition of the fact that some of the above issues are deemed to be temporary, LEC is not suggesting to recover the full cost of the above increases through an immediate rate increase. However, LEC recommends that only the Capacity Charge be increased at this time by 5% to $3.077 per kilowatt of capacity nominated by each building. The Meter Charge and Commodity Charge adequately cover the cost associated with energy metering and gas purchases. Furthermore, an increase of the Meter Charge which is a fix monthly fee per building would adversely affect smaller buildings. It should be noted that the Capacity Charge represents slightly less than 50% of the total amount invoiced to customers and that consequently, while LEC recognizes that part of the customer charge may also fluctuate with the price of natural gas, this increase still translates into a 2.5% increase of the total amount invoiced to customers.

In term of net amount, the increase being recommended translates in approximately $40,350 per year based on the fact that $807,000 was invoiced under the Capacity Charge for the year ending December 31, 2012. This is still less than the saving of $55,400 provided by the 2009 reduction of the Meter Charge discussed above.

To be clear, the proposed rate structure, would translate in the following:

Charge	Description	Current Rates	Proposed Bylaw	Increase (Decrease)
Meter Charge	Monthly charge for each Service Connection serving the Premises	$150 / month	$150 / month	0.0%
Capacity Charge	Monthly charge per kilowatt multiplied by the energy capacity of the Premises in kilowatts	$2.930 / Kw	$3.077 / Kw	5.0%
Commodity Charge	Charge per kilowatt hour of Hydronic Energy provided to the Premises	$0.03832 / Kw hr *	$0.03832 / Kw hr *	0.0%

* Commodity Charge as of July 1st, 2013 is adjusted to follow Fortis BC gas pricing fluctuation.

Cost of Service

The following table provides a comparison of the cost of service of other Lower Mainland district energy providers as well as the equivalent cost of natural gas or electricity used for heating purposes. In 2012, LEC has delivered 23,945,719 kWh of heat and invoiced $1,681,470.14. This translates in an average energy cost of $70.22 / MW.hr.

Table - Comparison of LEC rate with other providers

Energy Provider	Type of Service	Year of rate	Rate ($ / MW.hr)	Difference with LEC
LEC	Hot Water	2012	$70.22	-
BC Hydro	Electricity	2013	$90.51	29%
Fortis BC	Stand-alone NG Boiler	2012	$84	20%
River District Energy (East Fraserlands)	Hot Water	2013	$96	37%
South East False Creek (SEFC)	Hot Water	2013	$94	34%
SFU UniverCity Energy	Hot Water	2013	$146	108%

Notes:
LEC cost based on 2012 revenue and heat deliveries.
BC Hydro cost based on purchase of 50% residential step 1 and 50% residential step 2 electricity price as of April 1, 2013 and a 5% rate rider.
Cost of Fortis BC, River District Energy, SECF and SFU UniverCity taken from CoV report dated November 19, 2012.
Central Heat Distribution Ltd. has been omitted due to the fact that the system is steam based.

As per the table, LEC is the most competitive, hot water based, district energy provider in the Lower Mainland. For users, LEC rates are more economical than using baseboard electric heat. The bylaw and recommendation accompanying this report aims at providing an immediate 5% increase of the Capacity Charge and further recommends that a second similar increase be implemented mid-2014. Assuming a fix natural gas cost, the proposed net increases of 2.5% would translate into an average energy cost of $71.98 as of October 2013 and $73.75 as of July 2014. Both amounts are still much lower than the cost of other alternatives.

In 2003, when LEC was first created, it was envisioned that the utility would aim at providing heat at a rate that would not exceed the cost of electricity by more than 15%. Electric baseboard heating is one of the cheapest alternatives in terms of construction costs and is often preferred by developers. The cost of electricity being estimated at $90.21 / MW.hr, a 15% target would translate in rates averaging $104 / MW.hr for LEC.

While LEC is certainly not contemplating to raise its rates by such an extent, the amount is significant and demonstrates that LEC has some latitude to provide a return to CNV or to finance and implement carbon neutral technologies. LEC endeavor to have rates that are fair to both, LEC users as well as City residents as CNV invested in LEC and is funding some of the initial system costs. LEC is also constantly reviewing the implementation of greener technologies and is targeting diversifying its heat sources in a way that will provide reasonable rate increases to its customers.

Impact on Customers

In a letter dated December 14, 2012 (attachment 2), LEC informed its customers that it would apply to its regulator, CNV, for a rate increase to the amount recommended in this report. Property managers were invited to include a provision for the increase in their 2013 budget. Considering that the letter forecasted for the increase to be in place as early as April 1st, 2013 and that the current request would see the increase implemented only in October 2013, building owners are expected to have budgeted an amount to cover the increase. Furthermore, the inclusion of the 2014 increase in the bylaw will provide building owners with additional certainty when preparing their 2014 budgets.

Financial Modeling

The 2007 rate adjustment was based on a 20-year financial model. The model covered the Lower Lonsdale service area only. Considering the fact that the model was based on information and knowledge accumulated during only the first two years of operation, it has proven to be extremely accurate and reliable for the planning of LEC. The model provided sufficient information to support the decision to expand in Central Lonsdale. While the expansion and development significantly differed from the original

assumptions, the model and rate structure proved to be sufficiently robust to provide fair and predictable rates to LEC customers.

At this time, given the uncertainty concerning the future rate of real estate development in the city as well as the rate of implementation and cost of alternative energy generation technology, staff consider that it would be futile to try to generate a 20-year model. The current rate structure seems sufficiently fair, reasonable and accurate to support increasing the Capacity Charge assuming that LEC continues providing heating service predominantly using natural gas boiler technology.

The recommendation to increase the capacity charge is based on past performance, a decrease of LEC's net income as well as the fact that the current rate structure is significantly lower than any other alternatives. LEC needs to generate more revenue to reimburse outstanding amounts to CNV and/or to implement alternative energy sources.

In the immediate, staff suggest that planning and decision-making be based on comparing alternatives and opportunities with the business-as-usual scenario that considers heat generation using natural gas boiler technology.

In 2014, LEC will undertake a review of its system and potential alternative energy options. LEC will be reporting on alternative energy source opportunities and assess their impact on the financial planning of the organization. The need and benefit of building a long-term financial model will be assessed at that time.

British Columbia Utility Commission

During the last municipal election, some residents and consultants have suggested that LEC submit itself to the review of the British Columbia Utility Commission (BCUC). At the time, LEC raised the issue that such a review would be costly for all LEC's customers, as the LEC would need to hire staffing and/or consultants to prepare a submission to the BCUC. Furthermore, LEC could be required to compensate the BCUC for the review.

The BC Utilities Commission Act stipulates that the following is not included in the definition of a public utility: "a municipality or regional district in respect of services provided by the municipality or regional district within its own boundaries". As such, to date, CNV has been the regulator of LEC and staff recommends that it continues to act as such.

As a matter of fact, a request for BCUC to be the regulator of LEC would go against BCUC's attempt to reduce regulations with regard to Thermal Energy Systems. On December 27, 2013, BCUC issued its Report on the Inquiry into the Offering of Products and Services in Alternative Energy Solutions and Other New Initiatives (AES Report) available in the Orders and Decisions listing on the BCUC website. In that report the Commission found that Thermal Energy Systems (TES) are regulated under the Utilities

Commission Act but that the market conditions and monopoly characteristics of some of these systems warrant "light-handed" forms of regulation such as exemptions, regulation by complaint or market-based pricing.

In fact, the AES Report went as far as stipulating that the least amount of regulation to protect the ratepayer should be used for Thermal Energy Systems (TES). Specifically the Commission stated:

> "The Commission Panel has serious reservations about the applicability of the regulated cost of service model across the entire regulated TES market and reiterates the comments of the Commission in the Delta School District Decision that full cost of service regulation is the "method of last resort"...The presence of market-based pricing or the protection of consumer interests through the execution of long-term contracts may result in a better alignment and balance of risks and incentives between ratepayers and the thermal provider. Regulation by complaint may also provide the appropriate level of consumer protection."(AES Report, page 77)

The AES Report went on to task BCUC staff with conducting consultation on a "scaled regulatory framework", which is to establish the form of regulation required for TES. LEC staff has been invited to collaborate in the review of the BCUC proposal aimed at initiating stakeholder consultation for the form of regulation required for TES.

Other adjustments

The current bylaw does not provide a rate for cases where LEC provides monthly meter reading/invoicing services for meters that are paid in full and maintained by customers. The proposed bylaw includes a monthly fee of $25 per meter to cover the cost of the service.

Future Work

The rate increase contained in this report is based on a review of the revenue and expenses contained in LEC's income statements including depreciation. Depreciation is deemed to be representing fairly the use of capital assets over time. As such, the review is considered to be done on an accrual-basis rather than a cash-basis form of accounting. That is, this information does not consider when cash disbursements occur. Further work is required in the coming weeks/months to evaluate the cash flow requirements of the organization and evaluate various financing scenarios. Once more information is available in this regard, the rate structure may be re-evaluated to confirm its appropriateness.

SUMMARY

As mentioned in the 2007 report:

> "LEC is owned by the City and ultimately the City benefits from profits made by LEC. However LEC's main objective is not to generate excessive or extraordinary profits, but rather to ensure that the community heating system achieves an appropriate balance of environmental, social, and economically sustainable benefits to the City."

LEC has always conveyed the message that it aimed to be cost neutral to both system users and city residents. Since the start of its operations, LEC has tried to compare its rates with those of BC Hydro to ensure that the amount paid by its customers would not exceed the cost of using electric baseboard by more than 15%. Similarly, one could consider that if rates were significantly lower than the cost of using electric baseboards, LEC customers would be benefiting at the expense of the community. The income generated by LEC should be used to provide CNV with a return on investment or to further diversify LEC's heating sources to include alternative energy which will benefit the whole community.

On that basis, LEC staff consider that the proposed rate increase is fair and reasonable to both LEC customers and CNV residents.

FINANCIAL IMPLICATIONS

The financial implications are addressed throughout the report.

STRATEGIC PLAN IMPLICATIONS

The community energy system implemented by LEC is consistent with the goals of the City Strategic Plan concerning the enhancement of the natural and built environment.

RESPECTFULLY SUBMITTED BY:

Ben Themens, MBA, P.Eng., CGA
Director, LEC

REVIEWED BY:

FOR A.K. Tollstam, B.Comm, CA
President, LEC

Attachment No. 2

Partnering Agreement

This Agreement, made as of the 10th day of August, 2010

BETWEEN:

THE CORPORATION OF THE CITY OF NORTH VANCOUVER, a municipality incorporated pursuant to the *Local Government Act* and having its offices at 141 West 14th Street, North Vancouver, British Columbia, V7M 1H9

(the "City")

AND:

LONSDALE ENERGY CORPORATION, a company incorporated pursuant to the *Company Act* and having its registered and records office at 3000 – 1055 West Georgia Street, Vancouver, British Columbia, V6E 3R3

("LEC")

WITNESSES THAT WHEREAS

1. The City has established the service of providing hydronic energy to certain properties in the City (the "Service") through adoption of the City of North Vancouver Hydronic Energy Service Bylaw 2004, No. 7575 (the "Bylaw");

2. The City incorporated LEC for the purpose of carrying out various operations of the Service;

3. The City has applied for and obtained certain grants and loans to assist in establishing the Service;

4. The *Community Charter* authorizes a municipality to provide a service through a partnering agreement with any person or public authority, and to give assistance for this purpose;

5. The City and LEC wish to execute a partnering agreement to authorize LEC to perform the Service functions on behalf of the City and to permit the City to lend or give assistance to the LEC for the purpose of the Service;

NOW THEREFORE in consideration of the mutual promises and obligations contained herein, and the payment of ten ($10) dollars by each party to the other, the receipt and sufficiency of which is hereby acknowledged by each party, the parties agree as follows:

SERVICE

1. LEC will provide the Service for and on behalf of the City during the Term of this Agreement in accordance with the Bylaw, excluding those functions that have been reserved to the City.

FUNDING

2. The City may, from time to time, provide grants, loans or other funding to LEC to allow LEC to carry out the Service as contemplated on behalf of the City. Such loans, grants or other funding will be on such terms and conditions as may be agreed from time to time.

TAX EXEMPTIONS

3. The City may, but will not be obliged to, consider granting a permissive tax exemption for any lands or improvements owned by LEC and used in providing the service. Any tax exemption will be subject to the requirements of the *Community Charter* and approval by City Council.

TERM

4. This Agreement will have a term of five (5) years, commencing on August 10, 2010 and expiring on August 10, 2015 (the "Term"). Nothing in this Agreement confers on either party the right to renew or extend this Agreement.

MODIFICATION

5. This Agreement may only be amended by written agreement of the parties.

TERMINATION

6. The City may terminate this Agreement for any reason by providing thirty (30) days notice to LEC.

INDEMNIFICATION

7. LEC hereby releases, indemnifies and saves harmless the City, its officials, officers, employees, servants, agents and those for whom the City is in law responsible ("City Indemnified Parties"), from and against any and all liabilities, damages, losses, costs, expenses (including lawyer's fees and litigation expenses), actions, causes of action, claims, suits and judgments which the City Indemnified Parties may incur or suffer or be put to by reason of or in connection with or arising from:

   (a) any breach, violation or non-performance by LEC of any obligation contained in this Agreement to be observed or performed by LEC;

(b) any wrongful act or negligent act of LEC, its employees, agents and independent contractors, in respect of the Service; and

(c) any loss of or damage to property or any loss or injury to any person, including death resulting at any time therefrom, arising out of (a) or (b).

APPLICABLE LAW

8. This Agreement will be subject to the laws of British Columbia and Canada, as applicable, and the parties attorn to the jurisdiction of the courts of British Columbia.

NO ASSIGNMENT

9. LEC will not assign any of its rights or obligations under this Agreement without the prior written consent of the City, and such consent may be unreasonably withheld.

NOTICES

10. Any notice which a party to this Agreement must deliver to the other will be delivered by hand or registered mail to the receiving party.

DISPUTE RESOLUTION

11. If at any time the parties are unable to reach agreement on any issue, then each party will appoint a representative to negotiate a resolution in good faith however, if no resolution is reached within 45 days of the notice of dispute being delivered to either party, then the dispute will be resolved by a single arbitrator appointed pursuant to the *Commercial Arbitration Act* of British Columbia.

SEVERABILITY

12. If any provision of this Agreement is determined to be invalid or unenforceable by a court of competent jurisdiction, it will be severed from the Agreement and will not affect the enforceability or validity of the remaining provisions.

IN WITNESS WHEREOF the parties have executed this Agreement effective as of the date first written above.

THE CORPORATION OF THE
CITY OF NORTH VANCOUVER

Mayor Darrell R. Mussatto-Mayor

City Clerk
Kelly Kenney - Deputy City Clerk

LONSDALE ENERGY CORPORATION

Director

Director

/1203979.02

Attachment No. 3

publicnotice

the city of north vancouver

Notice of Amendment to Lonsdale Energy Corp. Partnering Agreement

The City of North Vancouver, in accordance with Section 24 of the Community Charter, gives notice that it intends to amend its partnering agreement with Lonsdale Energy Corp., a wholly owned corporation of the City, for a term of five years. The amendment is to add cooling services to the list of services offered by Lonsdale Energy Corp.

Under the agreement, Lonsdale Energy Corp. is to provide the service of hydronic energy in accordance with "City of North Vancouver Hydronic Energy Service Bylaw, 2004, No. 7575" as amended. The partnering agreement authorizes the City to provide assistance to Lonsdale Energy Corp., including tax exemptions, grants, loans and other funding, to allow Lonsdale Energy Corp. to provide the service.

141 West 14th Street, North Vancouver BC V7M 1H9 | Tel: 604-985-7761 | Fax: 604-985-9417 www.cnv.org

Attachment No. 4

Optioon 1 - Cease System Expansion Immediately

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Assumptions regarding annual adjustements																					
Revenue - Rate Increase		5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Revenue - Addition to Customer Base		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Expense increase - inflation		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Expense increase - Groth in customer base		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Revenue																					
Capacity and Meter Charge	$ 1,346,000	$ 1,413,300	$ 1,483,965	$ 1,558,163	$ 1,636,071	$ 1,717,875	$ 1,803,769	$ 1,893,957	$ 1,988,655	$ 2,088,088	$ 2,192,492	$ 2,302,117	$ 2,417,223	$ 2,538,084	$ 2,664,988	$ 2,798,237	$ 2,938,149	$ 3,085,057	$ 3,239,309	$ 3,401,275	
Expenses																					
General Admin	$ 125,000	$ 127,500	$ 130,050	$ 132,651	$ 135,304	$ 138,010	$ 140,770	$ 143,586	$ 146,457	$ 149,387	$ 152,374	$ 155,422	$ 158,530	$ 161,701	$ 164,935	$ 168,234	$ 171,598	$ 175,030	$ 178,531	$ 182,101	
CNV Payment (Admin & Oper Costs)	$ 290,000	$ 295,800	$ 301,716	$ 307,750	$ 313,905	$ 320,183	$ 326,587	$ 333,119	$ 339,781	$ 346,577	$ 353,508	$ 360,579	$ 367,790	$ 375,146	$ 382,649	$ 390,302	$ 398,108	$ 406,070	$ 414,191	$ 422,475	
Utilities	$ 60,000	$ 61,200	$ 62,424	$ 63,672	$ 64,946	$ 66,245	$ 67,570	$ 68,921	$ 70,300	$ 71,706	$ 73,140	$ 74,602	$ 76,095	$ 77,616	$ 79,169	$ 80,752	$ 82,367	$ 84,014	$ 85,695	$ 87,409	
Plant Operation & Maintenance	$ 60,000	$ 61,200	$ 62,424	$ 63,672	$ 64,946	$ 66,245	$ 67,570	$ 68,921	$ 70,300	$ 71,706	$ 73,140	$ 74,602	$ 76,095	$ 77,616	$ 79,169	$ 80,752	$ 82,367	$ 84,014	$ 85,695	$ 87,409	
Stabilization reserve - Upgrades & Contingencies	$ 50,000	$ 51,000	$ 52,020	$ 53,060	$ 54,122	$ 55,204	$ 56,308	$ 57,434	$ 58,583	$ 59,755	$ 60,950	$ 62,169	$ 63,412	$ 64,680	$ 65,974	$ 67,293	$ 68,639	$ 70,012	$ 71,412	$ 72,841	
FCM Loan (Principal and Interest)	$ 172,582	$ 172,582	$ 172,582	$ 172,582	$ 172,582	$ 172,582	$ 172,582	$ 172,582	$ 169,582												
Cash Flow Avaialable b/f Capital Works	$ 588,418	$ 644,018	$ 702,749	$ 764,775	$ 830,267	$ 899,406	$ 972,382	$ 1,049,394	$ 1,133,652	$ 1,388,959	$ 1,479,380	$ 1,574,743	$ 1,675,301	$ 1,781,324	$ 1,893,093	$ 2,010,904	$ 2,135,070	$ 2,265,915	$ 2,403,785	$ 2,549,040	
Capital Works	$ 600,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Cash Available (Shorthfall)	$ (11,582)	$ 644,018	$ 702,749	$ 764,775	$ 830,267	$ 899,406	$ 972,382	$ 1,049,394	$ 1,133,652	$ 1,388,959	$ 1,479,380	$ 1,574,743	$ 1,675,301	$ 1,781,324	$ 1,893,093	$ 2,010,904	$ 2,135,070	$ 2,265,915	$ 2,403,785	$ 2,549,040	
Loan reimbursement and return to CNV																					
Interest Rate	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	
Opening Balance	$ 9,500,000	$ 9,540,082	$ 8,924,684	$ 8,248,709	$ 7,508,680	$ 6,700,940	$ 5,821,637	$ 4,866,720	$ 3,831,926	$ 2,709,769	$ 1,388,555	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Interest	$ 28,500	$ 28,620	$ 26,774	$ 24,746	$ 22,526	$ 20,103	$ 17,465	$ 14,600	$ 11,496	$ 67,744	$ 34,714	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Payment to City (Borrowing)	$ (11,582)	$ 644,018	$ 702,749	$ 764,775	$ 830,267	$ 899,406	$ 972,382	$ 1,049,394	$ 1,133,652	$ 1,388,959	$ (56,112)	$ (1,574,743)	$ (1,675,301)	$ (1,781,324)	$ (1,893,093)	$ (2,010,904)	$ (2,135,070)	$ (2,265,915)	$ (2,403,785)	$ (2,549,040)	
Closing Balance	$ 9,540,082	$ 8,924,684	$ 8,248,709	$ 7,508,680	$ 6,700,940	$ 5,821,637	$ 4,866,720	$ 3,831,926	$ 2,709,769	$ 1,388,555	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Amounts paid to City after full loan repayment	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 56,112	$ 1,574,743	$ 1,675,301	$ 1,781,324	$ 1,893,093	$ 2,010,904	$ 2,135,070	$ 2,265,915	$ 2,403,785	$ 2,549,040	Total $ 18,345,288
Impact on LEC Customers																					
Assumption gas price increase	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	
Assumption BC Hydro rate increase	9.0%	6.0%	4.0%	3.5%	3.0%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	
LEC Rate assuming 2.5% gas price increase	$ 0.0755	$ 0.0784	$ 0.0813	$ 0.0844	$ 0.0875	$ 0.0908	$ 0.0942	$ 0.0977	$ 0.1014	$ 0.1052	$ 0.1092	$ 0.1133	$ 0.1175	$ 0.1219	$ 0.1265	$ 0.1312	$ 0.1361	$ 0.1413	$ 0.1465	$ 0.1520	
BC Hydro Rate (50% step 1 + 50% step 2)	$ 0.0905	$ 0.0986	$ 0.1046	$ 0.1087	$ 0.1126	$ 0.1159	$ 0.1188	$ 0.1218	$ 0.1248	$ 0.1280	$ 0.1312	$ 0.1344	$ 0.1378	$ 0.1412	$ 0.1448	$ 0.1484	$ 0.1521	$ 0.1559	$ 0.1598	$ 0.1638	
Difference between LEC and BC Hydro	19.8%	25.9%	28.6%	28.9%	28.6%	27.7%	26.1%	24.6%	23.1%	21.6%	20.2%	18.7%	17.3%	15.9%	14.5%	13.1%	11.7%	10.4%	9.0%	7.7%	

Attachment No. 5

Option 2 - Proceed with 2014-15 Construction Program

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Assumptions regarding annual adjustements																					
Revenue - Rate Increase		5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Revenue - Addition to Customer Base		5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Expense increase - inflation		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Expense increase - Groth in customer base		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Revenue																					
Capacity and Meter Charge	$ 1,346,000	$ 1,480,600	$ 1,628,660	$ 1,791,526	$ 1,970,679	$ 2,167,746	$ 2,384,521	$ 2,622,973	$ 2,885,271	$ 3,173,798	$ 3,491,177	$ 3,840,295	$ 4,224,325	$ 4,646,757	$ 5,111,433	$ 5,622,576	$ 6,184,834	$ 6,803,317	$ 7,483,649	$ 8,232,014	
Expenses																					
General Admin	$ 150,000	$ 156,000	$ 162,240	$ 168,730	$ 175,479	$ 182,498	$ 189,798	$ 197,390	$ 205,285	$ 213,497	$ 222,037	$ 230,918	$ 240,155	$ 249,761	$ 259,751	$ 270,142	$ 280,947	$ 292,185	$ 303,872	$ 316,027	
CNV Payment (Admin & Oper Costs)	$ 390,000	$ 405,600	$ 421,824	$ 438,697	$ 456,245	$ 474,495	$ 493,474	$ 513,213	$ 533,742	$ 555,092	$ 577,295	$ 600,387	$ 624,403	$ 649,379	$ 675,354	$ 702,368	$ 730,463	$ 759,681	$ 790,068	$ 821,671	
Utilities	$ 80,000	$ 83,200	$ 86,528	$ 89,989	$ 93,589	$ 97,332	$ 101,226	$ 105,275	$ 109,486	$ 113,865	$ 118,420	$ 123,156	$ 128,083	$ 133,206	$ 138,534	$ 144,075	$ 149,838	$ 155,832	$ 162,065	$ 168,548	
Plant Operation & Maintenance	$ 100,000	$ 104,000	$ 108,160	$ 112,486	$ 116,986	$ 121,665	$ 126,532	$ 131,593	$ 136,857	$ 142,331	$ 148,024	$ 153,945	$ 160,103	$ 166,507	$ 173,168	$ 180,094	$ 187,298	$ 194,790	$ 202,582	$ 210,685	
Stabilization reserve - Upgrades & Contingencies	$ 150,000	$ 156,000	$ 162,240	$ 168,730	$ 175,479	$ 182,498	$ 189,798	$ 197,390	$ 205,285	$ 213,497	$ 222,037	$ 230,918	$ 240,155	$ 249,761	$ 259,751	$ 270,142	$ 280,947	$ 292,185	$ 303,872	$ 316,027	
FCM Loan (Principal and Interest)	$ 172,582	$ 172,582	$ 172,582	$ 172,582	$ 172,582	$ 172,582	$ 172,582	$ 172,582	$ 169,582												
Cash Flow Avaialable b/f Capital Works	$ 303,418	$ 403,218	$ 515,086	$ 640,312	$ 780,320	$ 936,677	$ 1,111,112	$ 1,305,531	$ 1,525,034	$ 1,935,516	$ 2,203,365	$ 2,500,970	$ 2,831,427	$ 3,198,143	$ 3,604,874	$ 4,055,755	$ 4,555,340	$ 5,108,644	$ 5,721,188	$ 6,399,055	
Capital Works	$ 2,600,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Cash Available (Shorthfall)	$ (2,296,582)	$ 403,218	$ 515,086	$ 640,312	$ 780,320	$ 936,677	$ 1,111,112	$ 1,305,531	$ 1,525,034	$ 1,935,516	$ 2,203,365	$ 2,500,970	$ 2,831,427	$ 3,198,143	$ 3,604,874	$ 4,055,755	$ 4,555,340	$ 5,108,644	$ 5,721,188	$ 6,399,055	
Loan reimbursement and return to CNV																					
Interest Rate	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	
Opening Balance	$ 9,500,000	$ 11,825,082	$ 11,457,339	$ 10,976,625	$ 10,369,242	$ 9,620,030	$ 8,712,214	$ 7,627,239	$ 6,344,590	$ 4,838,590	$ 3,024,038	$ 896,274	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Interest	$ 28,500	$ 35,475	$ 34,372	$ 32,930	$ 31,108	$ 28,860	$ 26,137	$ 22,882	$ 19,034	$ 120,965	$ 75,601	$ 22,407	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Payment to City (Borrowing)	$ (2,296,582)	$ 403,218	$ 515,086	$ 640,312	$ 780,320	$ 936,677	$ 1,111,112	$ 1,305,531	$ 1,525,034	$ 1,935,516	$ 2,203,365	$ (1,582,289)	$ (2,831,427)	$ (3,198,143)	$ (3,604,874)	$ (4,055,755)	$ (4,555,340)	$ (5,108,644)	$ (5,721,188)	$ (6,399,055)	
Closing Balance	$ 11,825,082	$ 11,457,339	$ 10,976,625	$ 10,369,242	$ 9,620,030	$ 8,712,214	$ 7,627,239	$ 6,344,590	$ 4,838,590	$ 3,024,038	$ 896,274	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
																					Total
Amounts paid to City after full loan repayment	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,582,289	$ 2,831,427	$ 3,198,143	$ 3,604,874	$ 4,055,755	$ 4,555,340	$ 5,108,644	$ 5,721,188	$ 6,399,055	$ 37,056,715
Impact on LEC Customers																					
Assumption gas price increase	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	
Assumption BC Hydro rate increase	9.0%	6.0%	4.0%	3.5%	3.0%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	
LEC Rate assuming 2.5% gas price increase	$ 0.0755	$ 0.0784	$ 0.0813	$ 0.0844	$ 0.0875	$ 0.0908	$ 0.0942	$ 0.0977	$ 0.1014	$ 0.1052	$ 0.1092	$ 0.1133	$ 0.1175	$ 0.1219	$ 0.1265	$ 0.1312	$ 0.1361	$ 0.1413	$ 0.1465	$ 0.1520	
BC Hydro Rate (50% step 1 + 50% step 2)	$ 0.0905	$ 0.0986	$ 0.1046	$ 0.1087	$ 0.1126	$ 0.1159	$ 0.1188	$ 0.1218	$ 0.1248	$ 0.1280	$ 0.1312	$ 0.1344	$ 0.1378	$ 0.1412	$ 0.1448	$ 0.1484	$ 0.1521	$ 0.1559	$ 0.1598	$ 0.1638	
Difference between LEC and BC Hydro	19.8%	25.9%	28.6%	28.9%	28.6%	27.7%	26.1%	24.6%	23.1%	21.6%	20.2%	18.7%	17.3%	15.9%	14.5%	13.1%	11.7%	10.4%	9.0%	7.7%	

Attachment No. 5

Option 2 - Proceed with 2014-15 Construction Program

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Assumptions regarding annual adjustements																					
Revenue - Rate Increase		5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Revenue - Addition to Customer Base		5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Expense increase - inflation		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Expense increase - Groth in customer base		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Revenue																					
Capacity and Meter Charge	$ 1,346,000	$ 1,480,600	$ 1,628,660	$ 1,791,526	$ 1,970,679	$ 2,167,746	$ 2,384,521	$ 2,622,973	$ 2,885,271	$ 3,173,798	$ 3,491,177	$ 3,840,295	$ 4,224,325	$ 4,646,757	$ 5,111,433	$ 5,622,576	$ 6,184,834	$ 6,803,317	$ 7,483,649	$ 8,232,014	
Expenses																					
General Admin	$ 150,000	$ 156,000	$ 162,240	$ 168,730	$ 175,479	$ 182,498	$ 189,798	$ 197,390	$ 205,285	$ 213,497	$ 222,037	$ 230,918	$ 240,155	$ 249,761	$ 259,751	$ 270,142	$ 280,947	$ 292,185	$ 303,872	$ 316,027	
CNV Payment (Admin & Oper Costs)	$ 390,000	$ 405,600	$ 421,824	$ 438,697	$ 456,245	$ 474,495	$ 493,474	$ 513,213	$ 533,742	$ 555,092	$ 577,295	$ 600,387	$ 624,403	$ 649,379	$ 675,354	$ 702,368	$ 730,463	$ 759,681	$ 790,068	$ 821,671	
Utilities	$ 80,000	$ 83,200	$ 86,528	$ 89,989	$ 93,589	$ 97,332	$ 101,226	$ 105,275	$ 109,486	$ 113,865	$ 118,420	$ 123,156	$ 128,083	$ 133,206	$ 138,534	$ 144,075	$ 149,838	$ 155,832	$ 162,065	$ 168,548	
Plant Operation & Maintenance	$ 100,000	$ 104,000	$ 108,160	$ 112,486	$ 116,986	$ 121,665	$ 126,532	$ 131,593	$ 136,857	$ 142,331	$ 148,024	$ 153,945	$ 160,103	$ 166,507	$ 173,168	$ 180,094	$ 187,298	$ 194,790	$ 202,582	$ 210,685	
Stabilization reserve - Upgrades & Contingencies	$ 150,000	$ 156,000	$ 162,240	$ 168,730	$ 175,479	$ 182,498	$ 189,798	$ 197,390	$ 205,285	$ 213,497	$ 222,037	$ 230,918	$ 240,155	$ 249,761	$ 259,751	$ 270,142	$ 280,947	$ 292,185	$ 303,872	$ 316,027	
FCM Loan (Principal and Interest)	$ 172,582	$ 172,582	$ 172,582	$ 172,582	$ 172,582	$ 172,582	$ 172,582	$ 172,582	$ 169,582												
Cash Flow Avaialable b/f Capital Works	$ 303,418	$ 403,218	$ 515,086	$ 640,312	$ 780,320	$ 936,677	$ 1,111,112	$ 1,305,531	$ 1,525,034	$ 1,935,516	$ 2,203,365	$ 2,500,970	$ 2,831,427	$ 3,198,143	$ 3,604,874	$ 4,055,755	$ 4,555,340	$ 5,108,644	$ 5,721,188	$ 6,399,055	
Capital Works	$ 2,600,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Cash Available (Shorthfall)	$ (2,296,582)	$ 403,218	$ 515,086	$ 640,312	$ 780,320	$ 936,677	$ 1,111,112	$ 1,305,531	$ 1,525,034	$ 1,935,516	$ 2,203,365	$ 2,500,970	$ 2,831,427	$ 3,198,143	$ 3,604,874	$ 4,055,755	$ 4,555,340	$ 5,108,644	$ 5,721,188	$ 6,399,055	
Loan reimbursement and return to CNV																					
Interest Rate	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	
Opening Balance	$ 9,500,000	$ 11,825,082	$ 11,457,339	$ 10,976,625	$ 10,369,242	$ 9,620,030	$ 8,712,214	$ 7,627,239	$ 6,344,590	$ 4,838,590	$ 3,024,038	$ 896,274	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Interest	$ 28,500	$ 35,475	$ 34,372	$ 32,930	$ 31,108	$ 28,860	$ 26,137	$ 22,882	$ 19,034	$ 120,965	$ 75,601	$ 22,407	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Payment to City (Borrowing)	$ (2,296,582)	$ 403,218	$ 515,086	$ 640,312	$ 780,320	$ 936,677	$ 1,111,112	$ 1,305,531	$ 1,525,034	$ 1,935,516	$ 2,203,365	$ (1,582,289)	$ (2,831,427)	$ (3,198,143)	$ (3,604,874)	$ (4,055,755)	$ (4,555,340)	$ (5,108,644)	$ (5,721,188)	$ (6,399,055)	
Closing Balance	$ 11,825,082	$ 11,457,339	$ 10,976,625	$ 10,369,242	$ 9,620,030	$ 8,712,214	$ 7,627,239	$ 6,344,590	$ 4,838,590	$ 3,024,038	$ 896,274	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
																					Total
Amounts paid to City after full loan repayment	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,582,289	$ 2,831,427	$ 3,198,143	$ 3,604,874	$ 4,055,755	$ 4,555,340	$ 5,108,644	$ 5,721,188	$ 6,399,055	$ 37,056,715
Impact on LEC Customers																					
Assumption gas price increase	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	
Assumption BC Hydro rate increase	9.0%	6.0%	4.0%	3.5%	3.0%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	
LEC Rate assuming 2.5% gas price increase	$ 0.0755	$ 0.0784	$ 0.0813	$ 0.0844	$ 0.0875	$ 0.0908	$ 0.0942	$ 0.0977	$ 0.1014	$ 0.1052	$ 0.1092	$ 0.1133	$ 0.1175	$ 0.1219	$ 0.1265	$ 0.1312	$ 0.1361	$ 0.1413	$ 0.1465	$ 0.1520	
BC Hydro Rate (50% step 1 + 50% step 2)	$ 0.0905	$ 0.0986	$ 0.1046	$ 0.1087	$ 0.1126	$ 0.1159	$ 0.1188	$ 0.1218	$ 0.1248	$ 0.1280	$ 0.1312	$ 0.1344	$ 0.1378	$ 0.1412	$ 0.1448	$ 0.1484	$ 0.1521	$ 0.1559	$ 0.1598	$ 0.1638	
Difference between LEC and BC Hydro	19.8%	25.9%	28.6%	28.9%	28.6%	27.7%	26.1%	24.6%	23.1%	21.6%	20.2%	18.7%	17.3%	15.9%	14.5%	13.1%	11.7%	10.4%	9.0%	7.7%	

Attachment No. 6

Lonsdale Energy Coorperation		District Energy Service Areas
Drawn : C. Miles	Designed	Checked
Approved		Date
	Scale Hor. 1:5000	Last Issued : 2013-12-03

District Energy Key Plans
Service Area Boundries
Sheet Number 1 of 1