



REPORT | INFORMATION REPORT TO COUNCIL

PRESENTED: September 18, 2012

REPORT: 12-105

FROM: Infrastructure Services

FILE: 420.2

SUBJECT: 2011 CHEAKAMUS CROSSING DISTRICT ENERGY SYSTEM ANNUAL REPORT

COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

That the recommendation of the General Manager of Infrastructure Services be endorsed.

RECOMMENDATION

That Council receives Information Report No. 12-105 regarding the 2011 Cheakamus Crossing District Energy System Annual Report.

REFERENCES

Appendix A: "The Cheakamus Crossing District Energy System and its Ownership"

Appendix B: "Cheakamus Crossing District Energy System Service Events 2011/2012"

Appendix C: Administrative Report No. 10-092 "Cheakamus Crossing District Energy System Fee Bylaw"

Appendix D: Bylaw No. 1951, 2010 "Cheakamus Crossing District Energy System Fee Bylaw"

PURPOSE

In Administrative Report 10-092 (see Appendix "C") staff committed to conducting an annual review of Cheakamus Crossing District Energy System ("CC DES") fees vs. actual costs, and reporting to Council as to any recommended changes to fees. This report covers the year 2011, along with such information from 2012 as is available at this time.

DISCUSSION

Refer to Appendix "A" for a brief explanation of the overall characteristics and division of ownership of the CC DES.

2010 Plan

The fees established by By-Law 1951, 2010 (see Appendix "D") were based on a 2010 forecast of CC DES annual costs of \$195,000, of which \$70,000 was to be a transfer to a capital Replacement Reserve Fund.

Replacement Reserve Fund transfers were designed to provide 50% of full system cost over the design life of the plant equipment (30 years) and distribution system (50 years).

Fees were established at \$4.58 per square metre interior space per year based on Phase I build-out area of 42,600 m².

This 2010 plan was approved by Council and became the approved 2011 budget.

2011

2011 can be regarded as the first full year of operating-to-design, although booked revenue was 7% below the 2010 plan, resulting in a small reduction in reserve contribution. The effective “first year” was 2011, not 2010, because:

- The CC DES was operated in a special, non-design, manner through the Olympic period
- In the months after the Olympics, most of the Phase I housing units weren’t occupied
- Most housing units in the the Cheakamus Crossing development area were substantially remodelled and occupied only toward the end of 2010, with the final few built units only occupied in the summer of 2012.
- Throughout 2011, the CC DES Heat Exchanger system was used as the primary heat source, with boilers used only as backup.

With the system operating in its normal design mode, various design, construction, and operating issues with the plant and distribution system came to light in 2011. Capital costs associated with correcting these issues in were handled through the operating, not capital budget (as no operating capital budget existed).

Unforeseen capital and operating expenses arose related to challenges maintaining the chemical characteristics of the loop heat transfer fluid. To ensure home owner heat exchanger warranties weren’t invalidated due to variations in loop heat exchange fluid chemistry, an automated chemical feed panel; chemical tanks; corrosion monitoring system; and revised piping, sensors, valves and controls were installed.

2012 to-date

Low heat exchanger flow-through rate was addressed with engineering design work completed in 2011 and capital work started in 2011 and completed at the end of Q1 2012.

Additionally, further revisions to interior plant piping were completed in 2011 and 2012 to reduce avoidable loop shutdowns, aid in keeping loop temperature within the design range, and improve operation of the plant.

ANNUAL OPERATING COSTS	2011 Budget	2011 Actual	2012 Budget
Electricity	\$40,000	\$1,100	\$1,200
Natural Gas	\$50,000	\$66,000	\$60,000
Operational Staff Costs	\$15,000	\$9,500	\$10,100
Operating Capital Work		\$40,000	\$30,000
Contingency	\$20,000	N/A	\$14,700
Other		\$6,400	\$9,000
Total Annual Operating Costs	\$125,000	\$123,000	\$125,000

ANNUAL CAPITAL COSTS

Replacement Reserve Fund	\$70,000	\$60,000	\$70,000
--------------------------	----------	----------	----------

TOTAL ANNUAL COST	\$195,000	\$183,000	\$195,000
USER FEES	\$195,000	\$183,000	\$195,000

Service Level

The CC DES plant has been a reliable provider of heat to the Cheakamus Crossing community, increasingly so as the plant and its support staff have progressed through the plant's break-in period.

To ensure minimum disruption to residents, planned shutdowns and major maintenance work are planned for the summer period whenever possible.

CC DES-related complaints and questions to the RMOW were quite common in late 2010 and early 2011. Stakeholder coordination and user town hall-style meetings were held by WDC and the RMOW in early 2011, and an improved communication system was implemented by RMOW staff with cooperation from the property managers.

RMOW now posts service notifications and basic instructions for residents on the RMOW website, and provides notification to the various Cheakamus Crossing property management companies of any service issues accompanied by detailed directions as to what steps homeowners should take. The property managers in turn email residents.

These measures, combined with user familiarization, have largely eliminated user complaints and questions to the RMOW.

In 2011 there were three service interruptions averaging 67 minutes duration, and two low temperature events averaging 25 hours duration. In 2012 there has been one 15 minute service interruption (see Appendix 'B' for dates, durations and details of these service events). In some of these instances, some homeowners had to manually shut down and restart their heat pumps. Residents who kept their backup electric heating system turned off may also have had to turn it back on.

Web Alert System

RMOW Staff are evaluating an internal recommendation that homeowners be able to self-manage texting and email notification subscriptions from the RMOW website, thus providing a direct and up-to-date channel of communication to DES users.

2013 B. C. Hydro DES Study

With the arrival of the first hydro bills for many of the homes early in 2011, questions arose from homeowners regarding the cost of using the heat pump system within their homes. There wasn't a repeat of this issue in early 2012.

To assist Council and residents in better understanding the financial and environmental impacts of the CC DES, the RMOW has agreed to participate in a province-wide B. C. Hydro DES monitoring and benchmarking assessment. This assessment (to be completed in 2013) will compare the CC DES to a number of other district energy systems in B. C. (and beyond). It will, among other

things, include separate heat pump power metering within homes and provide accurate differentiation between CC DES plant and WWTP power use. The benchmarking information provided to RMOW will include outcomes such as energy, GHG, and lifecycle cost performance versus electric baseboard heat, and versus other DES's. There is no cost to the RMOW or CC homeowners for participation in this study.

The BC Hydro study should enable users to better distinguish between heat pump use and other power uses in the home: in retrospect the high hydro bills experienced by some users in 2011 seem to have been a result of the delayed combined bills from Hydro; use of electric baseboards; and homes running on electric heat backup, without homeowners realising it, for prolonged periods.

2013 Budget Plans

Staff doesn't foresee proposing any change to 2013 fees in the 2013 budget. Staff will, however, propose a CC DES Annual Reconstruction Project in the 2013 budget, funded by a reduction in the CC DES operating budget.

Total costs and revenues have been, and are, very close to the original 2010 forecast, although the breakdown of costs has varied. Staff will provide a report to Council in 2013 with a recommendation for 2014 fees once 2012 full year costs and revenues are complete and final and the 2013 budget has been approved.

Future Plans

Phase II of the Cheakamus Crossing development may occur, potentially resulting in an approximate doubling in the number of CC DES connections. If so, the cost per connection will drop substantially, due to fixed costs being spread over many more homes.

Staff will continue to monitor CC DES cost, revenue and performance, and report annually to Council with any fee change recommendations.

WHISTLER 2020 ANALYSIS

W2020 Strategy	TOWARD Descriptions of success that resolution moves us toward	Comments
Resident Affordability	Income and innovative benefits help make it affordable to live in Whistler.	The DES provides annual energy savings to residents of Cheakamus Crossing. No increase in fees in 2012 and 2013 despite strongly increasing electricity and natural gas costs.
Water	Wastewater and bio-solids are readily assimilated in nature.	The use of waste heat from the Wastewater Treatment plant improves the health of the effluent-receiving stream.
Built Environment	The new and renovated built environment has transitioned towards sustainable management of energy and materials.	The DES uses a renewable energy resource which displaces conventional energy supply sources, and partially offsets the impact of the Wastewater Treatment Plant on the effluent receiving stream. Some deficiencies became apparent in the new DES plant, including premature failure of some components. These were addressed with new components and systems designed to minimize additional energy use; prevent problem reoccurrence; and improve overall plant efficiency beyond original design levels

Energy	Whistler's energy system is supplied by a mix of sources that are local and regional wherever possible.	The DES is an entirely local (neighborhood) energy source.
Energy	Whistler's energy system is transitioning to renewable energy sources.	The DES's primary energy source is renewable.

W2020 Strategy	AWAY FROM Descriptions of success that resolution moves away from	Mitigation Strategies and Comments

OTHER POLICY CONSIDERATIONS

None.

BUDGET CONSIDERATIONS

No change to 2012 budget.

COMMUNITY ENGAGEMENT AND CONSULTATION

As a result of homeowner complaints in late 2010/early 2011 townhall meetings were held with Cheakamus Crossing residents, and coordination meetings held with non-resident stakeholders. As a result robust how-to information was posted to the RMOW website, and an effective e-mail notification protocol established by staff with the cooperation of Cheakamus Crossing property managers.

Presentation to Council and associated publication of this annual report provides opportunity for interested community members to read about and understand Cheakamus Crossing District Energy System financial and operating performance.

SUMMARY

CC DES performance has been in line with initial expectations in both 2011 and 2012. During the 2013 budget planning process staff will be recommending that CC DES user fees remain unchanged in 2013. Staff will also recommend that a CC DES Annual Reconstruction project be established in 2013, with a corresponding reduction in operating budget.

Respectfully submitted,

Michael Day
Operations Manager
for
Joe Paul
GENERAL MANAGER, INFRASTRUCTURE SERVICES

APPENDIX A

The Cheakamus Crossing District Energy System and its Ownership

The CC DES plant provides low temperature (11 to 20°C) heat, via about 1 million m³ of heat transfer fluid, through a five kilometer loop of pipe with associated valves and controls, to approximately 166 service connections.

The CC DES plant is located on the grounds of the Whistler Waste Water Treatment Plant. It's function is to extract heat from treated effluent water and transfer it to the heat transfer fluid in the loop. The distribution piping and controls are partly on public land and partly on private land, however, both the plant and distribution system are entirely the property of the RMOW.

The CC DES service connections are associated with heat pumps in the various residential duplexes, row houses, hostel, high performance athlete centre, etc. The building heat pump, controls, valves and plumbing, etc. belong to the owner of the building they're in, not to the RMOW. The residential heat pumps only support heating, whereas some of the commercial heat pumps are believed to both heat and cool.

The residential heat pump system includes an electric heat backup circuit (for home heat) and a backup electric hot water heating circuit (for domestic hot water). In the event of any failure of loop flow or temperature, the heat pump will switch to backup electric heating automatically, then attempt to go back to heat pump mode. If it can't go back to heat pump, the heat pump will eventually shut down entirely, requiring the home owner to manually restart the heat pump once the DES loop is up and running again.

Controls and backup boilers at the CC DES Plant are setup to ensure that loop temperature is always maintained in the correct range, in order to prevent needless electric heating expense or damage to the various privately owned heat pumps.

The CC DES loop (or private connections to it) loses about 1 m³ of heat transfer fluid per day into the ground. This loss isn't harmful to the environment: the loop fluid is, notionally, potable water. The loss is made up by chemically treating regular drinking water to ensure it doesn't cause corrosion to heat pumps or cause growth of bacteria in the CC DES loop piping, adding fluorescent food-grade dye to help distinguish transfer fluid from other drinking water, then adding the resulting mix into the loop at the CC DES plant.

APPENDIX B

Cheakamus Crossing District Energy Service Events 2011/2012

Date	Event Duration	Notes
2011		
Jan 31, 2011	5 minute shutdown	Recirculation pumps shut down – heat exchanger work affected loop pressure causing pump shutdown; change in work procedure now prevents this from occurring
Feb 9, 2011	15 minute shutdown	Boiler shut down – debris in boiler recirculation pump strainer. Cleaning frequency increased to prevent recurrence.
April 7, 2011	75 min low temperature	Boiler shut down due to faulty solenoid valve. Loop temperature low but maintained by Heat Exchangers. Switched over to backup boiler, replaced solenoid.
Oct 6, 2011	3 hour shutdown	Plant shut down due to ruptured potable water pipe in DES mechanical room. Automated control equipment replaced, relocated to nearby room with no water supply. Operated system in manual until auto-control system was returned to service.
Dec 21, 2011	48 hours low temperature	Low Temperature in loop due to an error in boiler control system logic. Low temperature corrected after 48 hours of observation and correction to programming.
2012		
Feb 15, 2012	15 minute shutdown	Electrical problems in controls not identified as affected in the Oct 6 flood event. Equipment replaced.



WHISTLER

REPORT | ADMINISTRATIVE REPORT TO COUNCIL

PRESENTED: September 7, 2010 **REPORT:** 10 - 092
FROM: Environmental Services **FILE:** 481.6
SUBJECT: CHEAKAMUS CROSSING DISTRICT ENERGY SYSTEM FEE BYLAW

COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

That the recommendation of the General Manager of Environmental Services be endorsed.

RECOMMENDATION

That Council consider giving first, second, and third reading to Cheakamus Crossing District Energy System Fee Bylaw No. 1951, 2010.

PURPOSE OF REPORT

To seek Council's approval of the bylaw that will assign the quarterly fees to the properties within the Cheakamus Crossing neighbourhood for the District Energy System.

DISCUSSION

Background

The Comprehensive Sustainability Plan (CSP) combined with the award of the Games, were the primary instruments that resulted in the development of the new neighbourhood now known as Cheakamus Crossing. Even at the earliest conceptual stages of neighbourhood design, Council was committed to the development of a highly sustainable neighbourhood, which was to include a District Energy System (DES). Early concepts for the DES included both high-temperature configurations and ambient temperature systems, and a number of different distribution/collection system configurations. All early concepts involved the use of waste-heat recovery from the wastewater treatment plant, and other variations used landfill gas and/or a geoexchange system for supplementary heat. Studies finally allowed the decision-makers to settle upon an ambient temperature two-pipe system using waste heat recovery from the wastewater treatment plant, supplemented by natural gas boilers when needed.

Cost Recovery Revenue Model

The capital cost for the District Energy System has been paid. There is no further contribution towards any capital cost recovery for the installation. The DES does obviously cost money to operate. In addition to operating costs, it is reasonable practice to send monies to a reserve account in anticipation of eventual repairs and replacement. The fees contained within the bylaw referenced in this report, contain both of those elements, and they are discussed in more detail in the following sections.

Annual Cost Recovery Amount

The total amount to be recovered with the user fee is \$195,000 annually. It consists of two major components, discussed in the following two sections.

Operating Costs

The current operating cost projections are as follows:

Electricity	\$40,000
Natural Gas	\$50,000
Operational Staff Costs	\$15,000
Contingency	\$20,000
Total Annual Operating Costs	\$125,000

Replacement Reserve Fund

A \$70,000 annual contribution to the replacement reserve fund has been computed based upon a life expectancy for the distribution/collection system of 50 years, and for the heat exchange system of 30 years. Given the capital cost amounts for these systems, a contribution of \$70,000 per year will provide for 50% of the capital replacement cost when the equipment is to be replaced. The 50% value was selected because staff anticipate that government funding assistance will be available in the future. These monies will not be used for any other projects. This arrangement is being modelled after our statutory water and sewer utilities.

Annual Review and Fee Adjustment

The Operating Costs indicated above, represent staff's estimate of the total costs to operate the DES system, based upon a non-typical (Games and start-up complexities) first winter season. After the first "normal" operating year, staff will review the user fees collected versus the actual costs, and provide a report to Council. If the Operating Costs have been over or under-estimated, the User Fee amount may be reduced or increased as needed. Subsequent annual reviews are proposed, in order to ensure the amounts collected and the actual costs are well matched, into the future.

Built/Buildable Floor Area – Unit Rate Charge

As many of the structures at Cheakamus Crossing are now built, and some are stratified, a detailed inventory of floor space for many of the buildings is available. The DES rates and the eventual billing amounts are based upon the total amount of heated/habitable floor space that is benefiting from the DES, including common property areas. This billing philosophy, although somewhat more complex to administer, yields the most equitable arrangement for all users. Summary statistics and calculations are as follows:

Existing Billable Floor Area	=	42,600 m ²
<u>Annual Cost Recovery Amount</u>	=	<u>\$195,000</u>
Unit Area Charge	=	\$4.58 / sq.m./year

It is expected that as Phase 1 of Cheakamus Crossing builds out, the cost recovery amount will not significantly increase, but the Billable Floor Area will increase, thereby distributing the cost over a larger number of properties. As the build-out advances, downward adjustments to the Unit Area Charge can

be made. No differentiation is made in the bylaw for the characteristics of the uses. The single unit area charge will be applicable for any interior space that benefits from the DES.

Phase 2 Neighbourhood Expansion

The development plan for this neighbourhood allows for an eventual Phase 2 expansion. That expansion will necessitate a significant capital investment in the DES, in order to increase capacity. Since that expansion is likely well off into the future, staff have computed the initial DES rates excluding the Phase 2 expansion. When Phase 2 development becomes imminent, a revision to this User Fee Bylaw will be necessary. At that time, a capital cost recovery amount may be added to the fees and charges payable by the Phase2 improvements.

Projected Household Cost

Early in the concept phase of the District Energy System design process, it was recognized that the connection to a DES should be beneficial to the users, more so than the lowest cost alternative. The lowest cost alternative was identified to be simple baseboard heat from the BC Hydro supply. Based upon today's electrical energy costs, the unit area cost for electric baseboard heat and hot water supply is approximately \$9.60/ m²/year. This is the benchmark against-which the projected DES system costs will be compared. For simplicity, an average dwelling was determined to be a townhouse of 136 m² of habitable floor space.

Average Townhouse Fees and Charges – Immediate Future

There are two major components to be considered when determining what the Cheakamus Crossing homeowner is likely to pay in the immediate future. First, there is the user fee amount payable to the RMOW, and second, there is their own cost to spin their heat pump unit. These numbers are computed below for a typical townhouse unit of 136 m².

DES Charges	=	\$4.58 /m ² /year
Homeowner's Heat Pump Elec. Cost	=	\$3.48 /m ² /year
Total	=	\$8.06 /m²/year

In the immediate future, the homeowners will benefit by approximately \$1.54/m²/year (\$9.60/ m²/year - \$8.06 /m²/year), which for the average townhouse, will translate into a savings of \$209 per year, when compared to a conventional electric space heat and hot water system.

Average Townhouse Fees and Charges – Long Term Future

In a longer-term analysis, two additional variables enter the cost-comparison equation. First, there is the predicted significant increase in BC Hydro rates. Second, there is the eventual replacement cost of the homeowners' equipment in approximately 20 years. This longer-term analysis is presented below, also for the average townhouse unit with 136 m² of habitable space.

DES Charges	=	\$4.58 /m ² /year
Homeowner's Heat Pump Elec. Cost	=	\$3.48 /m ² /year
Homeowner's Replacement Cost	=	\$3.09 /m ² /year
Total	=	\$11.15 /m²/year

This total cost must be compared, not to the existing BC Hydro benchmark, but it must be compared to a longer-term “levelized” BC Hydro value. That levelized value captures a constant equivalent value that is intended to even out the lows in the present BC Hydro rates and the highs in the future. Over the next twenty years, the levelized BC Hydro cost for space heat and hot water dwellings is forecast at \$18.40 /m²/year. Even after considering the capital cost of replacing major components of their equipment, the homeowners at Cheakamus Crossing will theoretically benefit by \$7.25 /m²/year which translates into an annual savings of \$986 when considering a twenty year horizon.

Greenhouse Gas Emissions Avoided

The District Energy System, when compared to conventional technologies, is estimated to reduce Greenhouse Gas (GHG) emissions by up to 95%, or about 1,600 tonnes of CO₂e per year. For reference, 1,600 tonnes of CO₂e is the equivalent of about 350 gasoline-powered passenger cars not driven for a year (@14,000 km each); or about 3.5 million km driven in a large sport-utility vehicle. So for the typical townhouse dwelling of 136 m², over 5 tonnes of CO₂e is avoided annually.

WHISTLER 2020 ANALYSIS

W2020 Strategy	TOWARD Descriptions of success that resolution moves us toward	Comments
Built Environment	The new and renovated built environment has transitioned towards sustainable management of energy and materials	The DES uses a renewable energy resource, which displaces conventional energy supply sources, and partially offsets the impact of the Wastewater Treatment Plant on the effluent receiving stream.
Built Environment	Whistler is globally recognized as a centre of excellence in sustainable community development	The development of the DES has been recognised for numerous awards, and it has generated substantial interest from other communities and the consulting community.
Energy	Whistler’s energy system is supplied by a mix of sources that are local and regional wherever possible	The DES is an entirely local energy source.
Energy	Whistler’s energy system maximizes economic opportunities within the energy sector, and optimizes a balance between increasing energy efficiency and generating new supply	The DES serves to offset demand otherwise imposed upon the alternative energy suppliers.
Energy	The energy system is continuously moving towards a state whereby a build up of emissions and waste into air, land and water is eliminated	As mentioned in the Discussion section of this report, the DES avoids significant GHG emissions, when compared to the alternative energy supply configurations.
Energy	The energy system is continuously moving towards a state whereby the net physical impact to land and water ecosystems is eliminated	Removing thermal energy from Wastewater Treatment effluent, improves the health of the Cheakamus River receiving stream.
Energy	Whistler’s energy system is transitioning to renewable energy sources	The DES represents a renewable energy source.
Energy	Whistler’s actions will positively influence other communities’ and stakeholders’ movement toward sustainability	The DES has generated enormous interest from other communities, governments, and the consulting community.
Resident Affordability	Income and innovative benefits help make it affordable to live and play in Whistler	The DES represents a projected annual savings to the residents of Cheakamus Crossing.

Water	Wastewater and bio-solids are readily assimilated in nature	The use of the waste heat from the Wastewater Treatment plant improves the health of the effluent-receiving stream.
Water	Healthy streams, rivers, lakes and wetlands support thriving populations of fish, wildlife and aquatic invertebrate	The use of the waste heat from the Wastewater Treatment plant improves the health of the effluent-receiving stream.

W2020 Strategy	AWAY FROM Descriptions of success that resolution moves away from	Mitigation Strategies and Comments
None		

COMMUNICATIONS

Over the past 5 years, there have been frequent communications releases to the public regarding this project. In the near future, staff will develop a web page dedicated to the DES. This web page will provide current news and FAQs about the DES and, when needed, notices will be posted informing DES users of any operating issues.

BUDGET CONSIDERATIONS

As mentioned in the body of this report, the DES is structured as a complete cost-recovery utility. A portion of the fees collected will be held in a reserve account to fund 50% of the eventual replacement cost of the infrastructure. It is expected that government assistance will be available to contribute the remaining 50% of the replacement costs, in 30/50 years.

SUMMARY

Early in the planning stages of the Cheakamus Crossing neighbourhood, the concept of a District Energy System was developed. Through technical studies, a system was designed that would recover the waste heat from the Wastewater Treatment Plant for the space heat and hot water for the neighbourhood. The Cheakamus Crossing District Energy System Fee Bylaw is the instrument that will recover annual operating costs from the users of the system, along with a contribution towards a long-term replacement reserve fund.

Respectfully submitted,

Joseph Paul
MANAGER DEVELOPMENT SERVICES/
APPROVING OFFICER

For

Harry Kim
GENERAL MANAGER OF ENVIRONMENTAL SERVICES

RESORT MUNICIPALITY OF WHISTLER
CHEAKAMUS CROSSING DISTRICT ENERGY SYSTEM FEE BYLAW NO. 1951, 2010

A BYLAW TO IMPOSE A DISTRICT ENERGY SYSTEM FEE

WHEREAS section 3(1) of the Resort Municipality of Whistler Act provides that, subject to that Act, the Community Charter applies to the Municipality unless the Community Charter is inconsistent with the Resort Municipality of Whistler Act or regulations thereunder;

AND WHEREAS pursuant to section 8(3)(a) of the Community Charter, the Municipality may, by bylaw, regulate, prohibit and impose requirements in relation to its services;

AND WHEREAS pursuant to Section 194 of the Community Charter, the Municipality may impose fees payable in respect of all or part of a service of the Municipality and may, among other things, establish terms and conditions for payment, including discounts, interest and penalties;

NOW THEREFORE the Council of the Resort Municipality of Whistler, in open meeting assembled, ENACTS AS FOLLOWS:

1. This bylaw may be cited for all purposes as the “Cheakamus Crossing District Energy System Fee Bylaw No. 1951, 2010”.

2. In this bylaw:

“District Energy System” means the Municipality’s thermal energy supply system, comprised of infrastructure owned by the Municipality for the purpose of providing thermal energy to improvements within the Cheakamus Crossing neighbourhood.

“Cheakamus Crossing” means Block A and Block B, District Lot 8073, Group 1, New Westminster District, and any parcels into which Block A and Block B, District Lot 8073, Group 1, New Westminster District have been subdivided and are from time to time subdivided.

“Building Official” means the Manager of Building Services, building inspectors, plan checkers and plumbing inspectors designated by the Municipality.

“building permit” and “occupancy permit” mean, respectively, a building permit and occupancy permit under the Municipality’s Building and Plumbing Regulation Bylaw No. 1617, 2002.

“parcel” means any lot, block or other area in which land is held or into which it is subdivided, including a bare land strata lot or a building strata lot created by the deposit of a strata plan under the *Strata Property Act*.

“Due Date” means the date printed under the heading of “Due Date” on the Municipality’s billing notice to an owner respecting a fee imposed under this bylaw, which shall be no earlier than 30 days following the date the fee is imposed under this bylaw.

“improvement” means an improvement (as defined in the *Community Charter*), or part thereof, that is intended to be heated using the District Energy System and that is capable of being heated, directly or indirectly, by the District Energy System.

“interior floor area” means the floor area of an improvement calculated, if a strata plan has been registered at the Land Title Office for the parcel, by using the Habitable Area as indicated in the Schedule of Unit Entitlement registered on title of the parcel. If no strata plan has been deposited for an improvement, it means the area indicated on building permit plans, or the area as determined by the owner or his representative, and submitted in support of a building permit.

3. The District Energy System is a service of the Municipality.

4. On April 1, July 1, September 1, and December 31 of every calendar year, a quarterly fee is hereby imposed on the owner of every parcel containing an improvement that is connected, directly or indirectly, to the District Energy System, in the amount calculated in accordance with section 5 of this bylaw. For clarity, a separate quarterly fee is imposed under this section for each parcel containing an improvement that is connected directly or indirectly to the District Energy System.

5. The quarterly fee amount for a parcel shall be calculated by multiplying the interior floor area, in square metres, of all improvements located on or within the parcel on the date the quarterly fee is imposed by the unit area rate shown in Schedule ‘A’ of this bylaw and dividing that number by 4.

6. The fee payable for improvements located on or within common property shown on a strata plan under the *Strata Property Act* shall be imposed separately from the fees imposed with respect to other improvements located on or within the related strata lots and the notices for such common property improvement fees shall be sent to the applicable strata corporation or a strata property manager designated by the strata corporation.

7. With any building permit application within the Cheakamus Crossing area submitted to the Municipality, the owner of the parcel that is the subject of the application or their authorized representative shall submit to the Municipality, in a form satisfactory to the Building Official, a schedule setting out the floor areas for all proposed improvements.

8. With any application for an occupancy permit submitted to the Municipality, the owner of the parcel that is the subject of the application or their authorized representative shall submit to the Municipality as part of the application, in a form satisfactory to the Building Official, a schedule setting out the actual floor areas of all improvements included in the relevant building permit.

9. Each fee imposed under this bylaw is due and payable on the Due Date by the owner of the parcel to which the fee relates.

10. If all or part of a fee imposed on an owner under this bylaw respecting a parcel is due and payable and remains unpaid after the Due Date, the owner shall be subject to a penalty equal to 5% of the unpaid fee amount. For the purpose of calculating a penalty under this section, the unpaid fee amount shall include any fee amounts remaining unpaid by the owner respecting the

same parcel that were payable on or before a prior Due Date and any penalties imposed with respect to such prior non-payment.

12. Fee payments made respecting a parcel shall be credited firstly against unpaid fees and penalties imposed on the owner respecting the parcel for which the applicable Due Date has passed and secondly against fees imposed on the owner respecting the parcel for which the Due Date has not yet passed.

13. If all or part of any fee imposed on an owner under this bylaw that is due and payable before December 31 of a calendar year remains unpaid on December 31 of that calendar year, the outstanding amount is deemed to be taxes in arrear with respect to the parcel in respect of which the fee was imposed.

14. If any section or lesser portion of this bylaw is held to be invalid by a Court, the invalid portion shall be severed from this bylaw and such invalidity shall not affect the remaining portions of the bylaw.

GIVEN FIRST, SECOND and THIRD READINGS this 7th day of September, 2010.

ADOPTED by the Council this 21st day of September, 2010.

Ken Melamed,
Mayor

Laurie-Anne Schimek,
Acting Corporate Officer

I HEREBY CERTIFY that this is a true copy of "Cheakamus Crossing District Energy System Fee Bylaw No. 1951, 2010".

Laurie-Anne Schimek,
Acting Corporate Officer

Schedule 'A'

Unit Area Rate
\$4.58 / m ² /year