



To: General Purposes Committee

Date: November 15, 2012

From: John Irving, P.Eng. MPA
Director, Engineering

File:

Cecilia Achiam, MCIP, BCSLA
Interim Director, Sustainability and District Energy

Re: **Governance & Financing - Alexandra District Energy Utility**

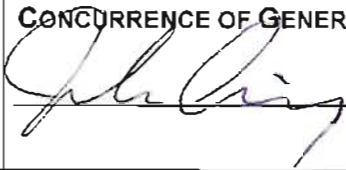



Staff Recommendation

That Council

1. Authorize staff to incorporate a wholly owned local government corporation including:
 - a) naming the corporation Lulu Island Energy Company (pending name availability) (LIEC) with the City of Richmond as the sole share holder to own and operate the Alexandra District Energy Utility (ADEU);
 - b) authorizing the Chief Administrative Officer and the General Manager, Engineering and Public Works to execute legal agreements and documentation related to the incorporation.
2. Authorize staff to explore the merits of external borrowing of up to \$6M to finance phase 3 of the ADEU and report to Council through Committee on the budget impacts to future capital projects.
3. Re-classify the District Energy Manager position from Temporary Full Time (TFT) to Regular Full Time (RFT); and
4. Approve the creation of a Position Control Complement (PCC) for the District Energy Manager position.

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REPORT CONCURRENCE			
ROUTED TO: Budgets Law	CONCURRENCE <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	CONCURRENCE OF GENERAL MANAGER 	
REVIEWED BY SMT SUBCOMMITTEE	INITIALS: 	REVIEWED BY CAO 	INITIALS: 

Staff Report

Origin

At the Council meeting of January 10, 2011, Council supported the Alexandra District Energy Utility (ADEU) and adopted the following motions:

- 1. the Alexandra District Energy Utility Bylaw No. 8641 Amendment Bylaw No. 8688 be introduced and given first, second and third reading,*
- 2. subsequent to the adoption of the Amendment Bylaw No. 8688 staff bring forward to Council and amendment to the West Cambie Area Plan that would allow for the density bonus structure outlined in Attachment 3; and*
- 3. that by the Spring of 2011, staff report back with information related to a governance model, an explanation of financing options, and the incremental implementation of the District Utility Energy.*

The purpose of this report is to provide response to item #3. As a result of the fire at the Remy project in May, 2011, the commissioning of phases 1 and 2 of the ADEU was rescheduled. Staff used this additional time to analyse and identify efficiencies and improvements to the system design and implementation review. The official opening of the ADEU occurred on September 6, 2012.

Background

Phases 1 and 2 of the ADEU have been created in partnership with Oris Geo Energy Ltd. The partnering agreement envisioned heating and cooling services being provided (mainly through ground source geothermal systems at the outset) to Oris Developments' two projects, Alexandra Gate and Remy, comprising of 453 residential units in total (see ADEU Map in **Attachment 1**).

Council adopted the Alexandra District Energy Utility Bylaw No. 8641 Amendment Bylaw No. 8688 on January 24, 2011 which expanded the service area of the ADEU to include most of the Alexandra neighbourhood. This gives the ADEU the potential to encompass 3100 units and 1.1 million sq. ft. of commercial space at build out over an estimated 10 to 15 year period.

To date Council has approved \$6M of borrowing from the City's Water Utility Reserve to fund the design and construction of ADEU Phases 1 and 2. These funds will be repaid with interest from service fee revenue in accordance to the attached estimated timeline for development and funding requirements through to build-out of the ADEU (**Attachment 2**).

The rescheduling of the ADEU commissioning and the servicing of a non-Oris building (Mayfair) prior to servicing of the two Oris projects (Remy and Alexandra Gate) was not envisioned in the partnering agreement. There are no identified risks to the ADEU or the City as a result of these changes at this time, however staff will be completing full reviews with external legal counsel and will report back to council for consideration of any options for City action in this area.

Analysis

Renewable energy based District Energy Utilities are a relatively new concept in the Lower Mainland. The governance and regulatory models vary across jurisdictions. Traditionally, City utilities, such as water and sewer, are administered by City departments within the municipal services. The establishment of ADEU provides an opportunity to evaluate other models. Governance is a key issue for consideration for expansion of the ADEU as it will influence decisions on ownership, financing, and the operational structure.

The ADEU was established on the basis that all capital and operating costs will ultimately be recovered through revenues from user fees, making the ADEU financially self-sustaining over the long term. Expansion of the ADEU as endorsed by Council creates additional resource demands and triggers the need for additional staff and operational funding that would be supported through the increased ADEU revenue. The challenge is finding the most suitable interim financing mechanism to support the development of the utility during the initial capital intensive phases.

Generally, the City has provided financing for additional utility infrastructure from City reserves. Based on ADEU's ability to service debt, Council authorized external borrowing through the Municipal Finance Authority or other financial agencies to finance future expansion of the ADEU is also a viable alternative. The Alternative Approval Process under Part 4, Division 2 of the Community Charter will need to be followed if the City were to borrow externally. The findings of this report indicate that a corporation does not have to follow this process. However, depending on the worth of the corporate asset, the City, as the sole owner of the corporation, may need to act as loan guarantor.

Evaluation of governance and financing alternatives requires consideration of several criteria both from the ADEU and City perspectives. The most substantial criteria that require consideration in evaluating the governance alternatives are described below and formed the bases of the analysis completed for this report:

- Risk – Evaluation of financial risk exposure and liability
- Governance– Evaluation of the implication of the governance models on the City's ability to influence ADEU business decisions.
- Maintaining Competitive Utility Rates – Ability to maintain utility rates close to or less than conventional system energy costs based on the same level of service.
- Long Term Financial Commitment – Evaluation of the on-going long term financial commitment required from the City and the ADEU.
- Capital Investment – Evaluation of the capital investment requirement from the City and the ADEU.
- Green House Gases Reduction Benefits – Review of the ability to offset City's GHG targets.
- Grant or Alternative Funding Sources – Ability to access senior government grant funding.

- Implementation – Timing and associated costs.
- Operating Costs – Relative comparison of operating costs including estimated staffing implications.
- Customer Service – Ability for the ADEU to meet customer service levels and standards.
- Ability to Sell Utility – Ease of exit considerations should the City wish to divest itself of the ADEU.

An ownership model evaluation matrix (**Attachment 3**) summarizes the advantages and disadvantages of the three ownership models discussed in this section.

Governance

Governance alternatives that are to be considered relevant to the ADEU expansion must align with the key benefits that the City set out to achieve through the utility without substantially increasing risk. The selection of a specific governance model needs to take into consideration:

- City control to ensure accountability;
- Financing flexibility in relationship to impact on other core municipal services;
- Ability to adapt to new and appropriate technologies as the district energy system matures and service building area grows; and
- Need to be adaptable/responsive to market conditions – ability to adjust rates and service levels to meet market conditions and changing needs of the utility customers.

A matrix comparing the ownership model, governance and regulatory characteristics of four local District Energy Utilities including South East False Creek in Vancouver, Lower Lonsdale in North Vancouver, Dockside Green in Victoria and the proposed Surrey Civic Centre is provided in **Attachment 4**.

Regionally, arrangements range from municipally owned and operated on one end (e.g. South East False Creek) to wholly privately owned and operated (e.g. Dockside Green) at the other end. There are essentially three common governance models for a district energy utility that could be applied to ADEU:

Model	Ownership	Operation
1. City Direct Ownership and Operation	City	City departments (Engineering, Finance, Facilities, etc.), or contracting specific functions requiring external expertise
2. Wholly City Owned Corporation	Private corporation owned by the City	Private corporation wholly owned by the City
3. Private Ownership and Operation	Private	Private

The Ownership Model Evaluation Matrix in **Attachment 3** provides comparison/comments on a variety of issues related to these ownership models including: risk (financial risk and operational liability), governance, utility rates, long term financial commitment, capital investment, and green house gas emission, while the following pages discuss each model in detail.

1. City Direct Ownership and Operation (*Current model- ADEU first development phase*)

In this model the City owns the entire ADEU infrastructure and operational demands are met with City staff resources. The City may, from time to time, utilize consultants and contractors for specialized areas of expertise while operating within the City's existing administrative and governance structure. This would be similar to the City's existing water and sanitary utilities.

The City of Vancouver has used a City Direct Ownership/Operation model to establish and operate the Southeast False Creek Neighbourhood Energy Utility. The City of Surrey is following a similar model with the Surrey Civic Centre District Energy Utility currently under development.

Pros	Cons
Direct City control over the project.	City assumes all risks.
Lower cost of capital.	City must borrow from reserves or take on debt to finance capital requirements (may require referendum or Alternate Approval Process (APP) and/or approval of Inspector of Municipalities).
Council sets utility rates (Not BC Utilities Commission).	City must build and maintain in-house expertise (although many functions can be contracted).
Flexibility and synergies with existing City operations.	

2. Wholly City Owned Corporation (Recommended)

Under this option, the City will establish a separate corporation to operate the utility with corporate and City staffing resources, and consultants and contractors, as required. This would be similar to the Richmond Olympic Oval Corporation.

Section 185 of the Community Charter provides the Inspector of Municipalities the authority to approve a wholly owned local government corporation. Under this model the City would create a wholly owned corporation, similar to the Richmond Olympic Oval Corporation (ROOC), where the ADEU is structured as a corporation with the City as its sole shareholder.

A corporation has its legal rights and liability as an entity separate from its owners (the shareholders) and is owned by shareholders who have the right to elect the Board of Directors as the governing body of the entity. The directors owe their fiduciary duty to the corporation. The City, as sole shareholder, has the right to vote for or remove the directors, change the constating documents, and approve the financial statement and annual report of the corporation.

Should Council select this option, it is suggested that the corporation be named Lulu Island Energy Company (LIEC) to preserve maximum flexibility for future expansion of district energy utilities in the City. A Partnering Agreement between the City and LIEC will define the City's expectations and the corporation's obligations and parameters of performance. Council, acting as the decision-maker on behalf of the sole shareholder (the City) appoints the LIEC board. It is also within Council's prerogative to delegate the selection of directors to nominating entities.

Under this arrangement, the LIEC board would report to Council on a regular basis as prescribed in the constating documents to provide updates on progress. The board will be responsible for overseeing the business of running a district energy utility.

The City of North Vancouver (CNV) has used this model to establish the Lonsdale Energy Corporation, which is a municipally-owned DEU. CNV has chosen to appoint only City staff members to Lonsdale Energy Corporation's Board of Directors. A similar approach may be suitable for LIEC given that the service delivered (thermal energy) is technical, well defined and unchanging over time.

Pros	Cons
City control over the project.	Provincial approval required to create the corporation. Province will also establish some operational conditions.
Low risk of liability for the City.	Some minor additional costs and time for Board, administration, financial reporting, compliance with the Business Corporations Act, etc.
Corporation can borrow and take on debt independent of the City's finances. ¹ Borrowing is not limited to MFA but includes the general capital markets. Borrowing will be subject to controls in the corporation's Articles, such as shareholder approval for amounts beyond a specified threshold.	The City may be required to follow the Alternative Approval Process (APP) to take on debt to finance capital requirements ().
Council resolution may wish to include guaranteeing the borrowing of the corporation.	The Inspector of Municipalities has in the past requested that borrowing capabilities of municipal wholly-owned corporations include financial limits such that, if the corporation wishes to borrow or incur liabilities in excess of that amount, approval by the shareholder (City) is required and the City guaranteeing the borrowing may be an option
Council can set utility rates (Not BC Utilities Commission).	

¹ If the City is required to directly or indirectly act as a guarantor of the debt (which may be requested by financial institutions knowing that the City owns 100% of the entity), it will be the same as the City acquiring external financing, thus the borrowing will still be subject to the City's municipal limit and also will require elector's approval (or the equivalent) as if the City directly borrows itself.

Can act as a private corporation with greater operational freedom, not limited by local government statutes.

City, as sole shareholder, can sell ADEU as an established corporation in future.

Corporation's financial management is distinct from the City's.

If the services to be offered by LIEC are being provided within City boundaries, and the City owns not less than 90% of the corporation, income tax will not be payable.

Property tax exemptions may be available for a corporation under a partnering agreement with the City.

Unique to this option is the transfer of risk away from the City combined with full City control and avoidance of statutory limitations applicable to local governments. For these key reasons the creation of a wholly owned City corporation is the recommended option.

Should Council select this option, staff would bring forward a report outlining alternatives and making recommendations on board membership, and financing future phases with external borrowing.

3. Private Ownership and Operation

Under this option, the City would license a private entity to operate within its rights-of-way or otherwise sell the ADEU assets to a third party. The City's role may be limited to licensing the use of City rights-of-way. This would more closely match the model of existing energy utilities like BC Hydro and Fortis BC (formerly Terasen).

Should Council select this option, the City would have no continuing involvement with the ADEU, other than the first phase. An example of this model is Central Heat Distribution Ltd, which provides heating services in Vancouver's downtown core.

Pros	Cons
All risks transferred to the private entity.	No City control over operations. Rates set by BC Utilities Commission.
Capital can be raised privately.	City revenue reduced to a licensing fee.
Private resources and expertise can be applied.	
Potential profit to the City through the sale of an established or existing DEU.	

Private utility companies (such as BC Hydro and Fortis) have the right to establish utility infrastructure in City rights-of-way independently and the private sector could establish a DEU without any City support. This largely hasn't occurred to date as utility companies have not been able to secure customers on a scale that would support the capital allocation. The City has the ability to create a customer base through regulation and therefore has a critical role to play in DEU establishment.

Proposed Corporate Structure for LIEC

1. Board of Directors

Conceptually given the current size of the ADEU at this time, the governance structure is primarily that of a management committee to take care of technical and business interests. It is not anticipated that an external board with broader representation from the community and other business interests will be required to oversee the operation. The City is the sole shareholder of the corporation. Once the incorporation is completed, it is recommended that a board comprised of senior City staff with the necessary technical and business skills be put forward and that the CAO be appointed as the Chair of the founding board to carry through the necessary incorporation processes.

At this initial stage of the district energy utility, there is sufficient expertise within the City to populate the proposed board. The benefits of this approach include:

- No additional cost to the City for separate management staff from outside; and
- No single staff member is burdened with the entire responsibility of running and operating the district energy utility

As the operation of a district energy utility is largely technical in nature, the CAO would prefer to nominate the General Manager, Engineering and Public Works as the Chair of the proposed board once the initial board is in place. The board composition will undoubtedly be revised from time to time to ensure that the appropriate technical and business expertise are present to address the needs of the corporation. The membership of the board would be reviewed annually by the Council as the sole share holder of the corporation going forward.

Furthermore, the CAO has identified three additional staff with the appropriate technical and business skills to sit as board members on the propose board to administer the district energy for consideration by the share holder. The board composition may change in the future at the discretion of the CAO depending on the operational need of the district energy utility. Any changes will be included in the annual report to the share holder. The proposed first directors of the corporation are as follows:

George Duncan, CEO (on founding board to oversee the incorporation process)
 Robert Gonzalez, GM, Engineering and Public Works (Chair)
 John Irving, Director, Engineering
 Jerry Chong, Director, Finance
 Cecilia Achiam, Interim Director, Sustainability and District Energy

Council will receive formal annual report(s) on the financials, the appointment of directors for the following term and appointment of auditor, as well as updates via memorandum as appropriate.

2. Daily Operation

The City is able to manage most of the daily operation for the district energy utility at this time. The District Energy Manager function is currently being staffed as a temporary position (TFT). The billing is being handled by the Finance Department as the ADEU provides bills to individual buildings rather than each unit within the buildings. Initially, three to four additional billing accounts will be managed since billing will be done on building-by-building basis rather than to each dwelling unit as in the case of conventional utilities. It is estimated that 25% of a full time equivalent (FTE) position will be required for accounting and billing, and approximately 50% of the time of the District Energy Manager, TFT (Temp for 1 year), will be required to manage the ADEU in the start up phase.

Costs for operational personnel resources, including the District Energy Manager, accounts billing services and operation maintenance, have been built into the financial model. The costs are estimated at approximately \$50k in 2012 and \$70k in 2013, all of which would be funded ultimately from ADEU revenue. As with other elements of the financial model these amounts are dependent on the pace of development and system growth. It is estimated that at build-out the operational staff requirement would be approximately 2 to 3 FTE, which again would be fully funded from ADEU revenue.

Intermittent demand for technical support will be met initially through the use of consultants and contractors as is done for existing City facilities. The operation and serving of the equipments are contracted out to Corix Utility Inc. through a competitive bidding process. This company was selected based on their expertise, ability to work collaborative with staff and favourable pricing for the service. The ADEU Financial Analysis Model (**Attachment 6**) had accounted for the costs for all operational costs.

Incremental Implementation of the ADEU

Given that the sequencing of development and the energy needs of each development are not predetermined, the governance and funding approach must be flexible. For example, while two residential developments may have the same total square footage, the energy usage may differ by 100% depending on the building and heating, ventilation and air conditioning (HVAC) system design. Each infrastructure expansion phase will require consideration of the most efficient and prudent capital expenditure approach from the ADEU perspective in response to the proposed developments.

Depending on actual well-field performance, the \$6M Phase 1 and 2 capital investment will likely service more than the Remy and Mayfair developments, supporting the Omega development or Alexandra Gate as well. Additional capital requirements for Phase 3 will be triggered by the SmartCentres development in 2013, but could also be triggered by additional residential developments in that year.

As the demand for heating and cooling services grows in the Alexandra area, capital expenditures will be offset by additional revenues over time generating a positive rate of return. From sequencing perspective capital funds will be required in advance in order to design and construct the infrastructure so that the development can connect to the heating/cooling service. It is currently estimated that build-out of the ADEU to service approximately 3.18 million square feet of buildings would cost approximately \$18.3M beyond the currently allocated \$6M, for a total capital cost of \$24.3M in 2011 dollars (see **Attachment 5**). This assumes expansion based on the same geo-exchange technology on additional park land as used in the first phase. At the current pace of development, build-out would occur in approximately 10 years.

The projected schedule to reach project build-out and the associated capital and financial mechanism is summarized below:

Project Phase	Capital Investment	Anticipated Construction Time	Financing Option
1 and 2	\$4.5 M	Completed in 2012	City Reserve
3	\$1.5 M (from the existing approved funding) \$6.0 M (new funding)	2013	City Reserve External Borrowing
4	\$2.44 M	2016	External Borrowing
5	\$2.44 M	2017	External Borrowing
6	\$2.44 M	2018	External Borrowing
7	\$2.44 M	2019	External Borrowing
8	\$2.44 M	2020	External Borrowing
TOTAL CAPITAL COST	\$24.2 M		

Financing Alternatives:

There are inherent business and financial risks with the ADEU investment model that uses advanced capital financing. These risks may in part be mitigated through collaborating with reputable developers, establishment of operating models, and setting utility rates that encompass both capital and operational components.

In the long term, the ADEU is financially self sustaining. Rather than competing with other municipal projects, the City can take advantage of the ability of this utility to self finance by borrowing from an external source, such as the Federation of Canadian Municipalities (FCM) Fund, thus not impacting City Reserves for other high priority civic projects.

Based on currently estimated development project timelines and assuming all capital is funded by borrowing, staff estimate that the peak debt load the ADEU would be approximately \$23.8M

(capital requirements by year is shown in the table immediately above, and the cumulative debt loads are shown in **Attachments 2 and 5**). Infrastructure capital financed through tax revenues can rely on predictable and steady funding, whereas income from a corporation is dependent on market conditions.

The peak debt load is a direct function of the construction schedule through to build-out. Any extension of the build-out period beyond the 10-year timeframe would lower the peak debt load as capital requirements would be spread over a greater period. The business model results show a 6.5% internal rate of return over a 30 year period² (**Attachment 6**). The City engaged KPMG to conduct a review of the ADEU financial model and have provided feedback on the model estimates and assumptions (**Attachment 7**).

The financing mechanisms available are largely determined by the governance model selected. The table below summarizes these options.

Available Financing Mechanisms	Governance Model		
	1. City Direct Ownership	2. Wholly City Owned Corporation	3. Private Ownership and Operation
Borrowing from City Reserves	Yes	Yes	No
External Borrowing	Yes	Yes	Yes
Partnering with Third Party	Optional	Yes	Yes
Government Grants	Yes	Limited*	No
Liability	City	Corporation	Corporation

*Some grants are available only to government projects.

A wholly City owned corporation offers the maximum administration, operation and financial flexibility while maintaining Council oversight. The key advantage is that a corporation limits the City's liability and holds the corporation accountable to its administrative and fiscal accountability. Depending on the governance model Council selects, staff will bring back a report detailing the financing and payback options for Council consideration.

Personnel Consideration

During the start up phase of the ADEU, there is significant demand on staff time and resources to oversee consultant work, negotiating business agreements, prepare bylaws, conduct consultation, and serve customer needs. Once the ADEU is established, the on going management of the operation becomes much more customer service oriented. In addition to managing the ADEU, this position is responsible for identifying and exploring other district energy opportunities

² The projections are based on prospective results based on assumptions about future conditions and courses of action.

within the city, granting opportunities, as well as interfacing with the contract operator, developers and the public on district energy.

In 2011, Council approved a one-year temporary full time (TFT) position of Manager, District Energy expiring December 2012 to facilitate the development of the ADEU. As the ADEU grows, the need for a dedicated staff person to deal with technical issues and customer service also is also growing. The development of district energy utility in Richmond has matured to a point where a regular full time District Energy Manager (RFT) position is warranted. Based on the financial model projections, staff anticipate that additional revenues from future phases of ADEU would be available to further offset the cost of the City's DEU Manager. Council has also approved \$200,000 for Infrastructure Advanced Design to explore district energy for City Centre in the 2013 Capital Budget. Furthermore, other operational efficiencies have been identified that can support this position. Together, these funding sources are able to support converting the DEU Manager to a regular full time without any budgetary impact to the City.

Financial Impact

The recommended alternative establishment of a wholly owned corporation is estimated to cost \$50k. Funding for this can be provided from the General Contingency Account.

Conclusion

Staff recommend the establishment of a wholly City owned corporation named the Lulu Island Energy Company to own and operate the ADEU. Analysis indicates that this option provides the best combination of flexibility, control, risk management, financing and accountability for the ADEU.



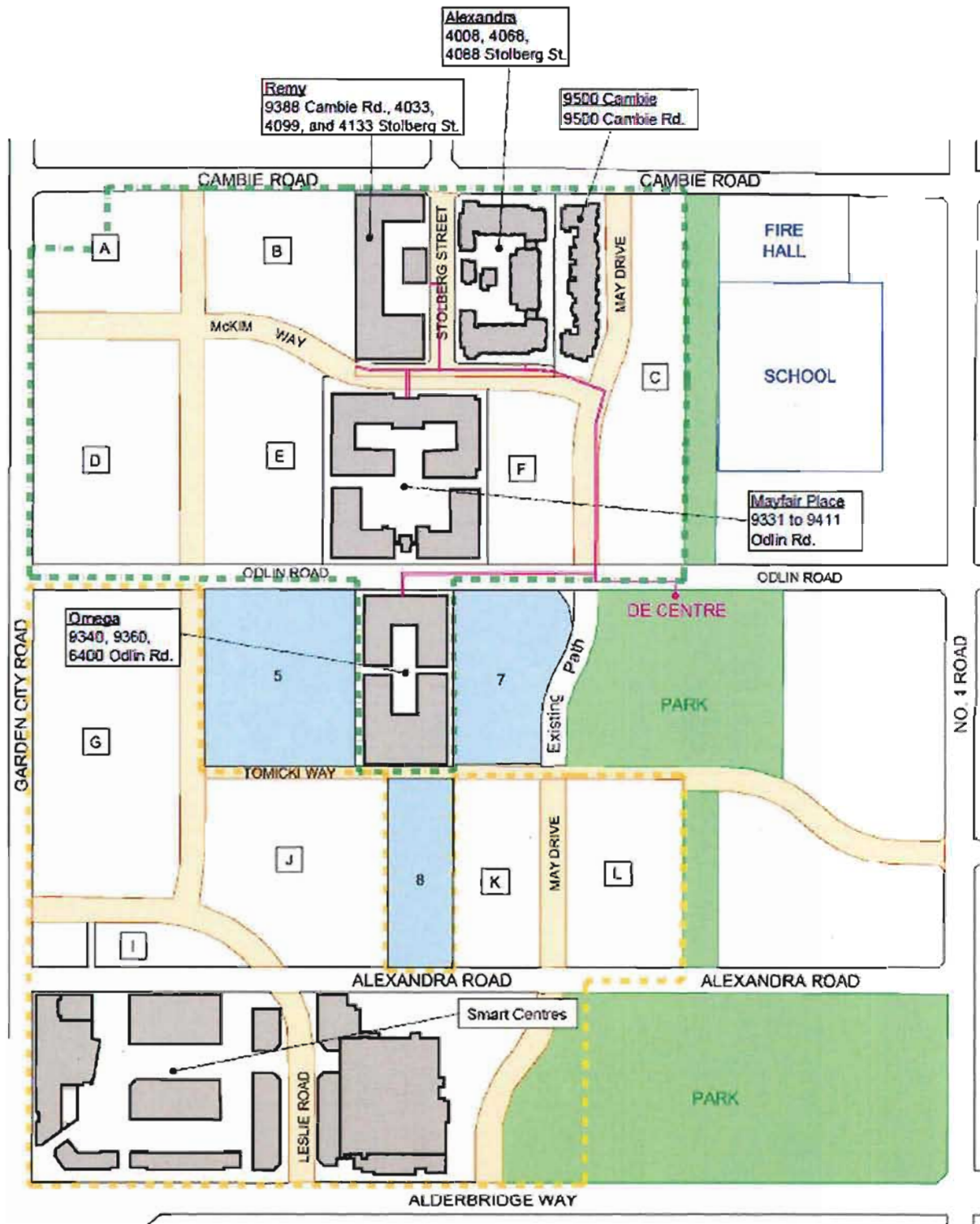
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Attachment 1	ADEU Map	REDMS# 3649164
Attachment 2	Estimated Timeline for Development and Funding Requirements	REDMS# 3649153
Attachment 3	Ownership Model Evaluation Matrix	REDMS# 3649159
Attachment 4	Local District Energy Utilities Comparison	REDMS# 3649156
Attachment 5	Cumulative Debt Load and Projected Net Income	REDMS# 3649154
Attachment 6	ADEU Financial Analysis Model (to build-out)	REDMS# 3649160
Attachment 7	KPMG Feedback Summary	REDMS# 3649162

ADEU Map



Estimated Timeline for Development and Funding Requirements

Calendar Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Project Year	1	2	3	4	5	6	7	8	9	10
Estimated Buildings Serviced (millions sqft)										
Oris - Remy			0.15	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Oris - Alexandra Gate				0.19	0.19	0.19	0.19	0.19	0.19	0.19
Oris Total			0.15	0.38	0.38	0.38	0.38	0.38	0.38	0.38
In-Stream - Polygon		0.07	0.35	0.36	0.36	0.36	0.36	0.36	0.36	0.36
In-Stream - Omega				0.11	0.22	0.22	0.22	0.22	0.22	0.22
In-Stream - Smart Centres				0.18	0.26	0.26	0.26	0.26	0.26	0.26
In-Stream - Others				0.11	0.11	0.11	0.11	0.11	0.11	0.11
Future Development						0.37	0.74	1.11	1.48	1.85
Total Buildings Serviced (millions sqft)		0.07	0.50	1.14	1.33	1.70	2.07	2.44	2.81	3.18
Estimated Capital Requirement (\$Millions)*										
Phase 1 - internal debt	\$2.30	\$0.80								
Phase 2 - internal debt		\$0.90	\$0.50							
Phase 3 - internal debt			\$1.50							
Phase 3 - other funding			\$6.04							
Phase 4+ - other funding						\$2.44	\$2.44	\$2.44	\$2.44	\$2.44
Total Capital Requirement (\$Millions)*	\$2.30	\$1.70	\$8.04**			\$2.44	\$2.44	\$2.44	\$2.44	\$2.44
Total Cumulative Capital Requirement (\$Millions)*										\$24.27

*All amounts in 2011 dollars.

**Only \$6.04M needed from the external borrowing as the \$2.0M is already allocated from the \$6.0M internal borrowing. This work will most likely spread over the period of 2-3 years.

Ownership Model Evaluation Matrix

Criteria	1. City Direct Ownership and Operation <i>(Current model for the first development phase)</i>	2. Wholly City Owned Corporation <i>(Recommended)</i>	3. Private Ownership and Operation
Financial Risk and Operating Liability	<p>Financial risk and operating liability lies solely with the City.</p> <p>Little ability to limit liability should a dispute arise.</p>	<p>Lower liability and risk than Option 1. Provided risk is properly controlled, the City is protected from financial risk and operating liability to the extent permitted by the British Columbia <i>Business Corporations Act</i>.</p> <p>However, vicarious or even direct liability may arise in relation to direct control by the City of the services performed by the corporation. It may be important for the corporation's management to have the ability to act without perceived undue interference from the City. Control mechanisms can be implemented in the constating documents of the corporation.</p> <p>Operating/Partnership Agreement with private operator can be used to contractually limit City's risk for such items as: equipment repair and replacement costs; employee wages & benefits; health & safety insurance costs; property loss or personal injury.</p>	<p>Financial and operating risks lie entirely with private operator.</p> <p>In this situation all the risks and benefits of total ownership lie with the private entity. Accordingly the City's concerns are more likely to be with rate control issues.</p> <p>The City has no control on user rates and choice of technology in the long term. However, residents will still hold the City accountable.</p>
Control	Direct local government control	Direct or indirect local government control through structure and governance mechanisms, and control of Board of Directors.	Least direct local government control of the four models

Criteria	1. City Direct Ownership and Operation (Current model for the first development phase)	2. Wholly City Owned Corporation (Recommended)	3. Private Ownership and Operation
Governance Issues	<p>Council approval of utility rates, policies, practices similar to water and sewer utilities.</p> <p>The City has full control over the expansion of the utility and technology decisions.</p> <p>A familiar governance model. DEU will be administered as part of an existing department or a new department within the existing corporate structure.</p> <p>The City is subject to Community Charter/Local Government Act (e.g. obtaining elector approval for certain decisions, public hearing, etc.)</p>	<p>Provincial approval required to create the corporation. Province will also establish some operational conditions</p> <p>Council approval of utility rates, policies, practices similar to water and sewer utilities. Reporting to Council on regular basis as directed by Council.</p> <p>Council would appoint a Board to administer daily operations and make business decisions within established parameters. Conflicts of interest need to be considered when selecting board members.</p> <p>More complex governance model than City Direct Ownership/ Operation. Separate incorporation and operating agreements (similar to Richmond Olympic Oval) will be required.</p> <p>The Subsidiary would not be subject to Community Charter/Local Government Act (e.g. obtaining elector approval for certain decisions, public hearing, etc.) unless specified in the operating agreement.</p>	<p>BC Utilities Commission (BCUC) would regulate utility including rates. Council would have little ability to influence business decisions other than through access agreement.</p> <p>Any expansion will require approval by BCUC.</p> <p>Least complex governance model for the City since the City is not involved in the ownership, operation or utility rate determination.</p>
Operational Obligations	<p>The City must build and maintain in-house expertise (although some functions can be contracted).</p>	<p>As the sole shareholder, Council has full control of board appointment and can ensure operational standards using operation agreement.</p> <p>There may be less flexibility and synergies with existing City operations.</p>	

Criteria	1. City Direct Ownership and Operation <i>(Current model for the first development phase)</i>	2. Wholly City Owned Corporation <i>(Recommended)</i>	3. Private Ownership and Operation
Utility Rates	<p>City sets rates.</p> <p>Maximum flexibility for setting rate structure and rate adjustment to maintain competitiveness.</p> <p>Council sets utility rates (Not BC Utilities Commission)</p>	<p>Rates would be set by City according to City's policy.</p> <p>Council sets utility rates (Not BC Utilities Commission)</p>	<p>British Columbia Utility Commission (BCUC) sets the rates. The City has no input.</p>
Long Term Financial Commitment	<p>Options 1 and 2 have similar financial costs to the City.</p> <p>Revenue/loss accrue to the City</p>	<p>Options 1 and 2 have similar financial costs to the City.</p> <p>There may be some additional costs for Board, administration, financial reporting, etc.</p> <p>The City can determine the extent of revenue/loss transfer from the corporation.</p> <p>Provided services are within the City's municipal boundaries, the corporation will have the same income tax and sales tax advantages as the City.</p> <p>As sole shareholder, the City can sell the utility in the future as desired.</p>	<p>None.</p>

Criteria	1. City Direct Ownership and Operation <i>(Current model for the first development phase)</i>	2. Wholly City Owned Corporation (Recommended)	3. Private Ownership and Operation
Capital Investment	<p>The City is responsible for the full burden of capital. The City must borrow from reserves which may delay or elimination of other capital projects.</p> <p>Alternatively, the City can take on debt to finance capital requirements (This may require referendum.) This may create lower borrowing rates available to local governments may result in lower capital cost.</p>	<p>The corporation will be responsible for the capital. There is no impact on the City's capital projects.</p> <p>The City will need to consider how much of a capital contribution it wishes to make as the sole shareholder.</p>	None

Criteria	1. City Direct Ownership and Operation <i>(Current model for the first development phase)</i>	2. Wholly City Owned Corporation <i>(Recommended)</i>	3. Private Ownership and Operation
Revenue	City has the full share of the revenue.	City has complete control of the distribution of revenue between the City and the corporation	City does not share in the revenue.
Green House Gas Reduction ¹	<p>Direct Council control on how to phase alternative green technologies to maximize GHG reduction.</p> <p>City has control on subscription to DEU and utility infrastructure extensions by Bylaw. This provides certainty on how much GHG reduction can be realized.</p> <p>City owns green rights.</p>	<p>Indirect Council control on how to phase alternative green technologies to maximize GHG reduction. (Decision will be made by Board of Directors who may be appointed by the City)</p> <p>City has control on subscription to DEU and utility infrastructure extensions by Bylaw.</p> <p>City may preserve ownership of green rights into the ownership model.</p> <p>Expansion of DEU dependent on the financial ability of the corporation. The City may be required to act as guarantor or provide interim financing to the corporation.</p>	<p>No City control over GHG reduction targets, DEU infrastructure extension, and utility rates/rate structures.</p> <p>City does not own green rights.</p>
Grant or Alternative Funding Sources	<p>The City can apply for some grants available only to governmental agencies</p> <p>The City generally has the option to borrow at a more favourable rates than that available to a corporation.</p>	<p>The City may be able to apply for some grants, but the opportunities may be more limited depending on the granting agencies' criteria.</p> <p>Corporation will have access to a broader range of financiers.</p>	None

¹ Council has committed to meeting the Provincial greenhouse gas reduction targets to reduce GHG by 33% by 2020, from 2007 levels and an 80% reduction by 2050. Council has also voluntarily committed to become carbon neutral by 2012 by signing the British Columbia Action Charter.

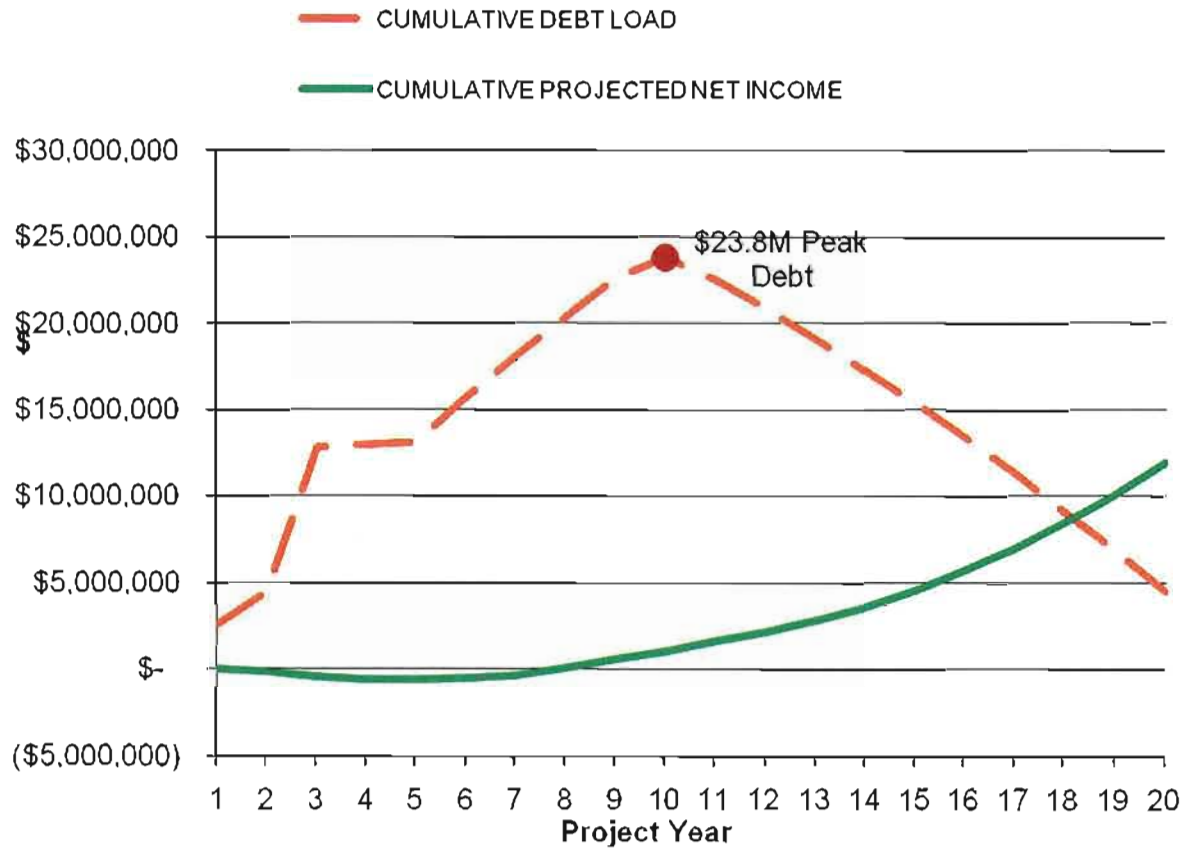
Criteria	1. City Direct Ownership and Operation <i>(Current model for the first development phase)</i>	2. Wholly City Owned Corporation <i>(Recommended)</i>	3. Private Ownership and Operation
Implementation	The City has full control of implementation schedule and associated costs.	The City has full control of implementation schedule and associated costs. The cost is slightly higher than Option 1 given the associated costs for incorporation and setting up the corporation and the establishment of a Board of Directors.	The City has no role in the implementation. The City is limited to regulatory and licensing roles.
Operating Costs	The operating costs are the sole responsibility of the City. The operating cost may or may not be lower than that of a subsidiary depending on whether new staff and specialized staff and systems need to be put in place.	The operating costs are the responsibility of the subsidiary corporation with oversight by the City.	The operating costs are the sole responsibility of the private owner. The City has no obligation.
Customer Service	The City has most control and the public has most certainty on utility rates and billings. The service level would be similar to other City utility for billing and servicing	The City has same control over rates and billings as Option 1. The public has similar certainty on utility rates and billings.	The City has no control over rates, billings or level of services.
Ability to Sell Utility	The City could sell the assets and operation of the utility to a private entity in future, if the City so chose. Elector approval may be required.	Lower liability exposure than Option 1. Liability is limited by the <i>BC Business Corporations Act</i> . Greater ease of exit. Corporation carries its own debt and assets making it easier to sell, without application of approvals and regulations applicable to City under the Community Charter and Local Government Act.	Not applicable since DEU is already owned and operated by a third party.

Local District Energy Utilities Comparison

City	Vancouver	North Vancouver	Victoria	Surrey
Service Area	South East False Creek	Lower Lonsdale	Dockside Green	Surrey Civic Centre*
Status	Operational	Operational	Operational	Under Development
Projected Build Out Serviced Floor Area	6,266,000 sf	600,000 sf	1,300,000 sf	920,000 sf
Capital Expenditures	\$43.2M	\$8M	\$20M	\$4.8M
Governance Model	Municipally owned and operated. Operational and financial responsibilities shared by the GM of Engineering Services and Director of Finance	Municipal owned but operated by a private company	Privately owned and operated	To be municipally owned and operated within the Engineering Department as a business unit
Management of Utility	Fully managed by staff as directed by Council	Utility managed by private sector with municipal oversight	Fully managed by private sector	To be fully managed by staff as directed by Council
Regulatory Framework	Self regulated-City controls and regulates	City sets energy rates with municipal oversight of operations	Regulated by BC Utilities Commission	To be self regulated-City controls and regulates with input from a supporting advisory committee
Funding Implications	Eligible for grants and low-interest loans from senior levels of government	Eligible for grants and low-interest loans from senior levels of government	Private sector is fully responsible	To be eligible for grants and low-interest loans from senior levels of government

City	Vancouver	North Vancouver	Victoria	Surrey
Service Area	South East False Creek	Lower Lonsdale	Dockside Green	Surrey Civic Centre*
Financial Consideration	<p>Unlike the private sector, profit generation is not the key objective; therefore, a lower Return on Investment (ROI) is required</p> <p>Lower cost of capital. The City has the option to borrow from reserves or access grants and low interest government loans</p>	<p>Capital risk lies with the City. Operating risk may be transferred to private operator depending on the contract stipulation.</p>	<p>A privately owned company is subject to income tax and risk premiums. It will also have a higher cost of financing resulting in a higher required ROI</p>	<p>Unlike the private section, profit generation is not the key objective; therefore, a lower Return on Investment (ROI) is required</p> <p>Lower cost of capital. The City has the option to borrow from reserves or access grants and low interest government loans</p>
Policy Used to Establish Market Demand	Connection to utility is mandated by by-law	Connection to utility is mandated by by-law	Connection mandated in the <i>Master Development Agreement</i> (rezoning approval)	Not yet determined- currently under review
			Property tax exemption granted through "Green Power Facility Bylaw"	
Partnership	No external partner	City of North Vancouver, Fortis/Corix	City of Victoria, Windmill, VanCity, Corix & Fortis	No external partner

Cumulative Debt Load and Projected Net Income



ADEU Financial Analysis Model (to build-out)

(Preliminary draft based on current assumptions. Financial Model is subject to change as these facts and assumptions change.)

(All dollar figures are expressed in thousands of dollars)

	Year 1 2011	Year 2 2012	Year 3 2013	Year 4 2014	Year 5 2015	Year 6 2016	Year 7 2017	Year 8 2018	Year 9 2019	Year 10 2020	Year 15 2025	Year 20 2030	Year 30 2040
TOTAL REVENUE	\$ -	\$ 66	\$ 497	\$ 1,180	\$ 1,425	\$ 1,896	\$ 2,401	\$ 2,945	\$ 3,527	\$ 4,152	\$ 5,052	\$ 6,146	\$ 9,098
TOTAL EXPENSES	\$ -	\$ 66	\$ 305	\$ 662	\$ 752	\$ 923	\$ 1,104	\$ 1,295	\$ 1,497	\$ 1,712	\$ 2,074	\$ 2,514	\$ 3,750
DEBT INTEREST EXPENSE	\$ -	\$ -	\$ 151	\$ 302	\$ 302	\$ 455	\$ 608	\$ 608	\$ 761	\$ 1,224	\$ 1,224	\$ 1,000	\$ -
PROJECTED OPERATION INCOME (LOSS) BEFORE AMORTIZATION	\$ -	(\$ 0)	\$ 41	\$ 216	\$ 371	\$ 517	\$ 690	\$ 1,042	\$ 1,270	\$ 1,217	\$ 1,754	\$ 2,632	\$ 5,348
Principal Repayment	\$ -	\$ -	\$ 0	\$ 203	\$ 203	\$ 203	\$ 508	\$ 508	\$ 508	\$ 1,251	\$ 1,624	\$ 1,848	\$ -
PROJECTED CASHFLOW	\$ -	(\$ 0)	\$ 41	\$ 13	\$ 168	\$ 314	\$ 181	\$ 534	\$ 761	(\$ 34)	\$ 130	\$ 785	\$ 5,348
Cumulative Project Cashflow	\$ -	(\$ 0)	\$ 41	\$ 54	\$ 221	\$ 536	\$ 717	\$ 1,251	\$ 2,012	\$ 1,978	\$ 1,886	\$ 4,448	\$ 44,814
Internal Rate of Return (IRR) over 30 years:													
CAPITAL INVESTMENT*	(\$ 2,300)	(\$ 1,703)	(\$ 8,042)	\$ -	\$ -	(\$ 2,445)	(\$ 2,445)	(\$ 2,445)	(\$ 2,445)	(\$ 2,445)	\$ -	\$ -	\$ 5,511
Annual Cash Inflow from Operation	\$ -	(\$ 0)	\$ 41	\$ 216	\$ 371	\$ 517	\$ 690	\$ 1,042	\$ 1,270	\$ 1,217	\$ 1,754	\$ 2,632	\$ 5,348
Net Annual Cashflow of Investment	(\$ 2,300)	(\$ 1,703)	(\$ 8,001)	\$ 216	\$ 371	(\$ 1,927)	(\$ 1,755)	(\$ 1,403)	(\$ 1,175)	(\$ 1,228)	\$ 1,754	\$ 2,632	\$ 10,860
CUMULATIVE DEBT LOAD	\$ 2,500	\$ 4,413	\$ 12,776	\$ 12,909	\$ 13,052	\$ 15,648	\$ 17,948	\$ 20,247	\$ 22,544	\$ 23,787	\$ 15,358	\$ 4,452	\$ 9,581
CUMULATIVE PROJECTED NET INCOME	(\$ 50)	(\$ 165)	(\$ 486)	(\$ 632)	(\$ 623)	(\$ 552)	(\$ 396)	\$ 28	\$ 594	\$ 1,021	\$ 4,524	\$ 11,908	
IRR: 6.54%													
NPV: \$ 1,352													
Payback Period: 21 years (time to recover original investment of \$24.267M from operation income)													

The projections are based on prospective results based on assumptions about future conditions and courses of action.

The current model assumes that an external borrowing of \$18.2 million is obtained from MFA for 20 years at an interest rate of 5%.

The estimated total interest cost over the life of the loan is approximately \$15.2 million.

*Includes an estimation of the remaining value of capital equipment.

KPMG Feedback Summary

The business model results show a 6.5% internal rate of return over a thirty year period. The City engaged KPMG to conduct a review of the ADEU financial model (summary in **Attachment 5**) and they have provided changes and feedback with respect to the costs and risks of the current model, including the following:

KPMG Feedback	Staff Response
Lack of incentives for each building to minimize peak capacity requirements and energy usage over time,	This comment was based on the old flat rate charge. As of May 14, 2012, a new rate structure was adopted by Council that encourages minimizing peak capacity and energy usage. The new rate consists of: <ul style="list-style-type: none"> - charge tied to building floor area, - charge tied to building peak heating load, and - charge tied to energy consumption.
Inequity perception as a flat rate structure departs from standard practice of having separate capacity and energy charges based on contract capacity and metered usage,	As above
Volatility of costs for buildings with high usage if there is a change to metered rates	Any recommended changes to the rate structure would be designed to avoid volatility.
Subjectivity in pricing decisions versus using automatic indexation,	Indexation to conventional commodity costs will always be used as one of several guides in developing recommended rate changes.
Understatement of overhead and administration costs,	These costs are split between the administrative and overhead line and the plant O&M line.
Overestimation of boilers and chillers assets lifespan.	This is currently offset by not including the remaining life asset value of the remaining components that will last well beyond 30 years.

Further refinement and development of the financial model will be ongoing as multiple technical options are explored for the 3rd Phase expansion.