



2013 | Annual Report



Clean, efficient energy,  
for now and the future.



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## ■ MESSAGE FROM THE BOARD CHAIR

This report provides an overview of the City's initial work to establish the Lulu Island Energy Company, which will manage district energy utilities in Richmond on behalf of the City. City Council has articulated the vision for Richmond to transition to a sustainable, low carbon community. The Lulu Island Energy Company will be an important contributor in achieving this vision, while providing quality energy services to customers at competitive prices.

The City of Richmond considered a range of options for how to best manage district energy utilities, and ultimately decided that an independent municipal corporation was the best approach. With Council's support, 2013 saw the incorporation of the new company of which the City of Richmond is the sole shareholder. Council will maintain its role in setting customer rates and defining service areas. This structure is important as energy utility decision-making processes must ensure transparency and accountability, especially for customer rates. The Board of Directors will further support accountability and transparency by reporting annually to its customers, City Council, and Richmond citizens. With leadership from Council, the dedication of our Board of Directors and staff, and with strong community support for creating a sustainable community, I look forward to overseeing the growth of district energy services in Richmond.

**George Duncan**

*Chair, Lulu Island Energy Company*

## ■ MESSAGE FROM THE CHIEF EXECUTIVE OFFICER

The City of Richmond has a long history of operating utilities and is continuously recognized for service and asset management excellence. Traditional utilities in Richmond, that provide water, sanitation and diking and drainage services to residents have operated to the highest industry standards for decades. With growing concern about climate change and interest in local clean energy development, Council directed staff to develop district energy utilities to supply efficient, low carbon energy to customers. Feasibility studies and business planning began in 2008, leading to the eventual launch of the City's first district energy utility, Alexandra District Energy Utility (ADEU) in 2012. In its first year of operations, ADEU was recognized for engineering and sustainability excellence, winning both provincial and national awards.

Launched initially as a City-owned utility and building on the success of other City business ventures, Council saw the opportunity to create the Lulu Island Energy Company as a wholly-owned corporation to manage district energy services in Richmond on behalf of the City. District energy utilities have an important role in providing energy services to defined groups of customers. In this context, LIEC will ensure the financial viability of operations.

Clean energy investments are key to supporting long term community sustainability. The Lulu Island Energy Company is Richmond's solution to providing "clean, efficient energy for now and the future". I am proud of the City's work to develop sustainable infrastructure that both serve customers' heat and hot water needs and reduces the overall environmental impact of the City. In 2014, I look forward to continuing our work under the Lulu Island Energy Company banner and working with our partners and customers to ensure success.



**Robert Gonzalez**

*CEO, Lulu Island Energy Company*

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MAYFAIR PLACE



## ■ ABOUT THE COMPANY AND DISTRICT ENERGY IN RICHMOND

The Lulu Island Energy Company (LIEC) is a wholly-owned municipal corporation, established to operate district energy utility (DE) systems in the City of Richmond on the City's behalf.

**The goals of the Lulu Island Energy Company are to:**

- establish a highly successful district energy network providing thermal and, in some cases cooling services to buildings at competitive rates;
- provide reliable, resilient local energy for the benefit of its customers;
- operate and maintain low carbon energy systems;
- position the City of Richmond to be a national and international leader in district energy utilities;
- develop and manage effective partnerships; and
- sustain long term financial viability.

LIEC was incorporated in August 2013. In 2013, LIEC did not have any district energy assets, revenues or expenses. The City of Richmond does however own and operate the Alexandra District Energy Utility (ADEU) and, pending City Council approval, intends to transfer these assets to LIEC in 2014/2015. More information about ADEU is provided in Appendix B.

This report includes more information about LIEC and future plans for district energy in the City of Richmond.



## ■ SPOTLIGHT ON 2013: PROGRESS REPORT

### Administrative Milestones

#### Incorporation

Under Richmond City Council's direction and following confirmation from the Inspector of Municipalities of British Columbia, the Lulu Island Energy Company Ltd (LIEC) was incorporated in August 2013 as a wholly-owned corporation of the City of Richmond.

#### Establishment of Board/Officers

Richmond City Council approved the appointment of the City's Chief Administrative Officer; General Manager, Engineering & Public Works; Director, Engineering; Director, Finance; and Director, Administration and Compliance to the LIEC Board. In its first and second Board of Directors meetings, Directors confirmed the Board roles. As of April 8, 2014, the Company has 5 Directors. The name and Province of Residence of each Director, as well as their principal occupation and the month they were appointed to the Board are indicated in the table below. The term of the office for full-time directors is two years.

Name & Residence	Principal Occupation	Director Since	Term
George Duncan, British Columbia, Canada	Chief Administrative Officer, City of Richmond	November 2013	2 years
Robert Gonzalez, British Columbia, Canada	General Manager, Engineering & Public Works, City of Richmond	November 2013	2 years
John Irving, British Columbia, Canada	Director, Engineering, City of Richmond	November 2013	2 years
Cecilia Achiam, British Columbia, Canada	Director, Administration and Compliance, City of Richmond	November 2013	2 years
Jerry Chong, British Columbia, Canada	Director, Finance, City of Richmond	November 2013	2 years



## LOOKING FORWARD IN 2014: WORK PLAN

### Anticipated Administrative Milestones

#### District Energy Utilities Agreement with the City of Richmond

Under the Community Charter, a local government in British Columbia may provide services that the City considers necessary or desirable through another public authority, person or organization. To do so, the Community Charter requires that local government enter into a “partnering agreement” with the organization that is intended to carry out those services. Through the City’s district energy investments, the City saw the opportunity to establish LIEC as a wholly-owned corporation to provide district energy services on its behalf. As such, the City and LIEC intend to enter into a District Energy Utilities Agreement to define the roles, responsibilities and accountability to each other and specify expectations, obligations and parameters of performance in the operation of district energy utilities. The agreement will enable LIEC to fulfill its intended roles and to make necessary and timely decisions related to the management and operation of district energy services that meet customer needs and expectations.

#### Concession Agreement with Corix Utilities Inc.

In April 2014, Council approved the terms for a concession agreement with Corix Utilities Inc. A concession agreement is a contract in which a private sector partner gets exclusive right from a government to operate, maintain and invest in a public utility for a given period of time. In a concession agreement, ownership is maintained with the government. Council’s endorsement of the terms will allow LIEC to work with Corix to design, build, finance and operate services in the first phase of DE in City Centre, located in the area surrounding the Richmond Olympic Oval. A completed agreement sets the stage for designing, engineering and constructing DE infrastructure and eventually, connecting buildings to DE services in 2015.

#### Communications to Customers and Richmond Residents

As a new company, LIEC will be distributing communication materials to residents of the City of Richmond and new customers to create awareness about the company, its goals and services. Buyers of new condominium apartments of townhouses to be serviced by LIEC (see page 11) in the Oval Village of City Centre can also expect to receive an information package about the company and its services. Pending the transfer of ADEU’s assets to LIEC, communications activities will involve informing current customers about the change in ownership and management, and the continuation of service excellence customers in the West Cambie neighbourhood have enjoyed to date.





## Infrastructure Plans

### Alexandra District Energy Utility Expansion

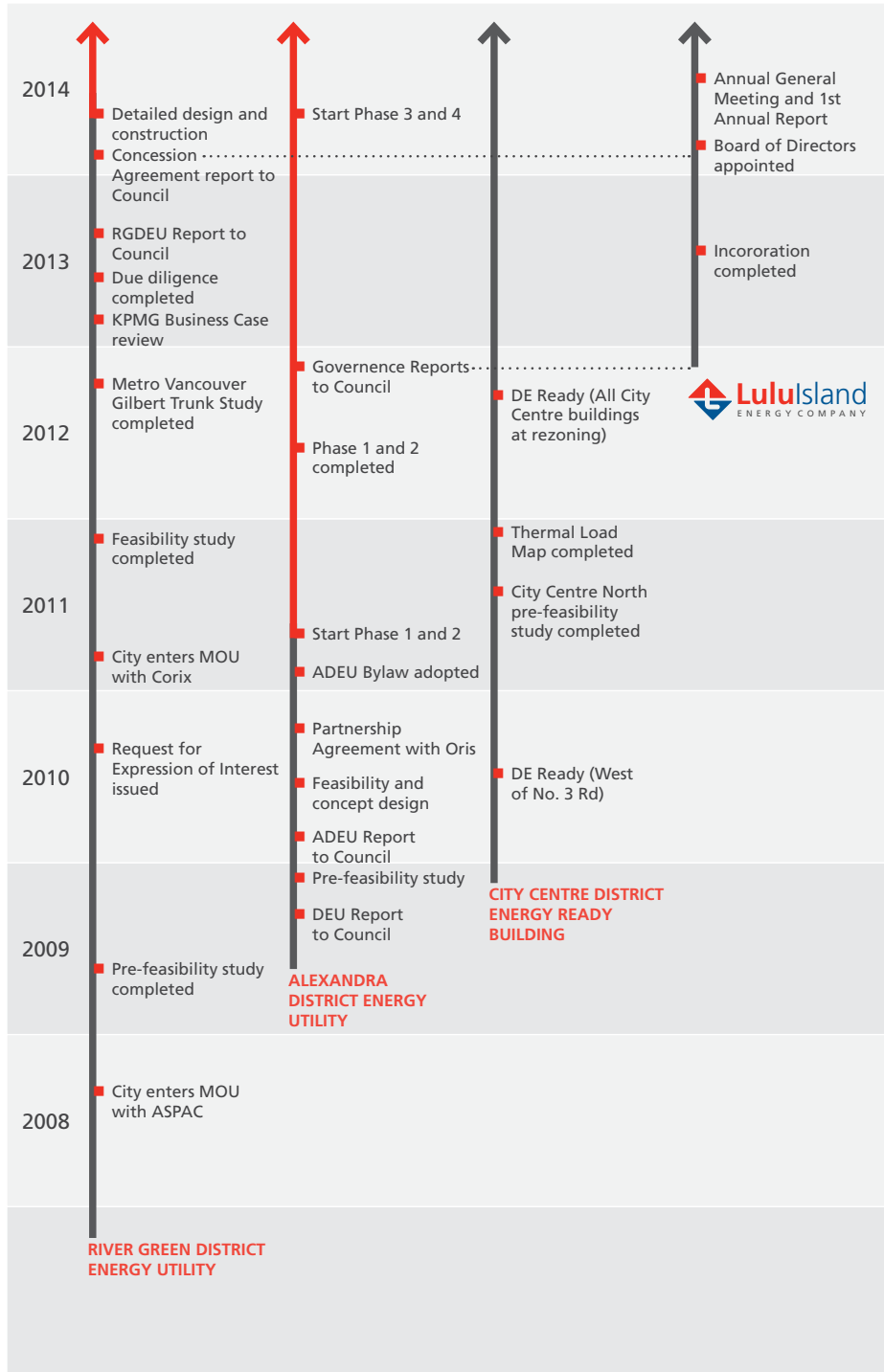
Anticipated to be an asset of LIEC, ADEU is undergoing planning for infrastructure and energy plant expansion in 2014. With ongoing growth and development in the West Cambie Neighbourhood, new buildings are being connected in 2014 and new connections are expected in 2015. This new growth will trigger a need to expand the energy plant (located in the City's new park on Odlin St.) and distribution network beginning in 2014. The energy plant will house new pumps and chillers to provide greater heating and cooling capacity, and the distribution pipes will extend south to new buildings. The geothermal field may also be expanded to ensure the system continues to use renewable energy.

### Establishment of a New District Energy Node in City Centre

In April 2014, Council approved the terms of a district energy services agreement with Corix Utilities Ltd that will enable LIEC to establish a new DE node in the Oval Village area of City Centre. The Oval Village area has considerable potential for DE expansion, and real estate development in the area represents an important opportunity for LIEC and the City.

The ultimate energy source for this area is intended to be heat recovered from the Gilbert Trunk sanitary forcemain sewer. Short-term centralized natural gas plants will be used until there are enough buildings connected to the DE system to justify the expenditure for the plant to switch to renewable energy. Various energy sources were evaluated as part of the planning process, including waste heat recovery from the Richmond Olympic Oval, biomass, geo-exchange, river heat recovery, and sewer heat recovery. During the planning stage, opportunities were created when Metro Vancouver began the upgrade project for their Gilbert Trunk Sewer No. 2 project. As such, LIEC and Metro Vancouver worked together to assess the viability of recovering waste heat from the forcemain. The analysis concluded that heat can be extracted from the sewer cost competitively to supply heat for the first phase of the service area. A similar technology is in operation today in the Gateway Theatre and Vancouver's Neighbourhood Energy Utility.

## APPENDIX A—HISTORY OF DISTRICT ENERGY IN RICHMOND







## ■ APPENDIX B—ALEXANDRA DISTRICT ENERGY UTILITY

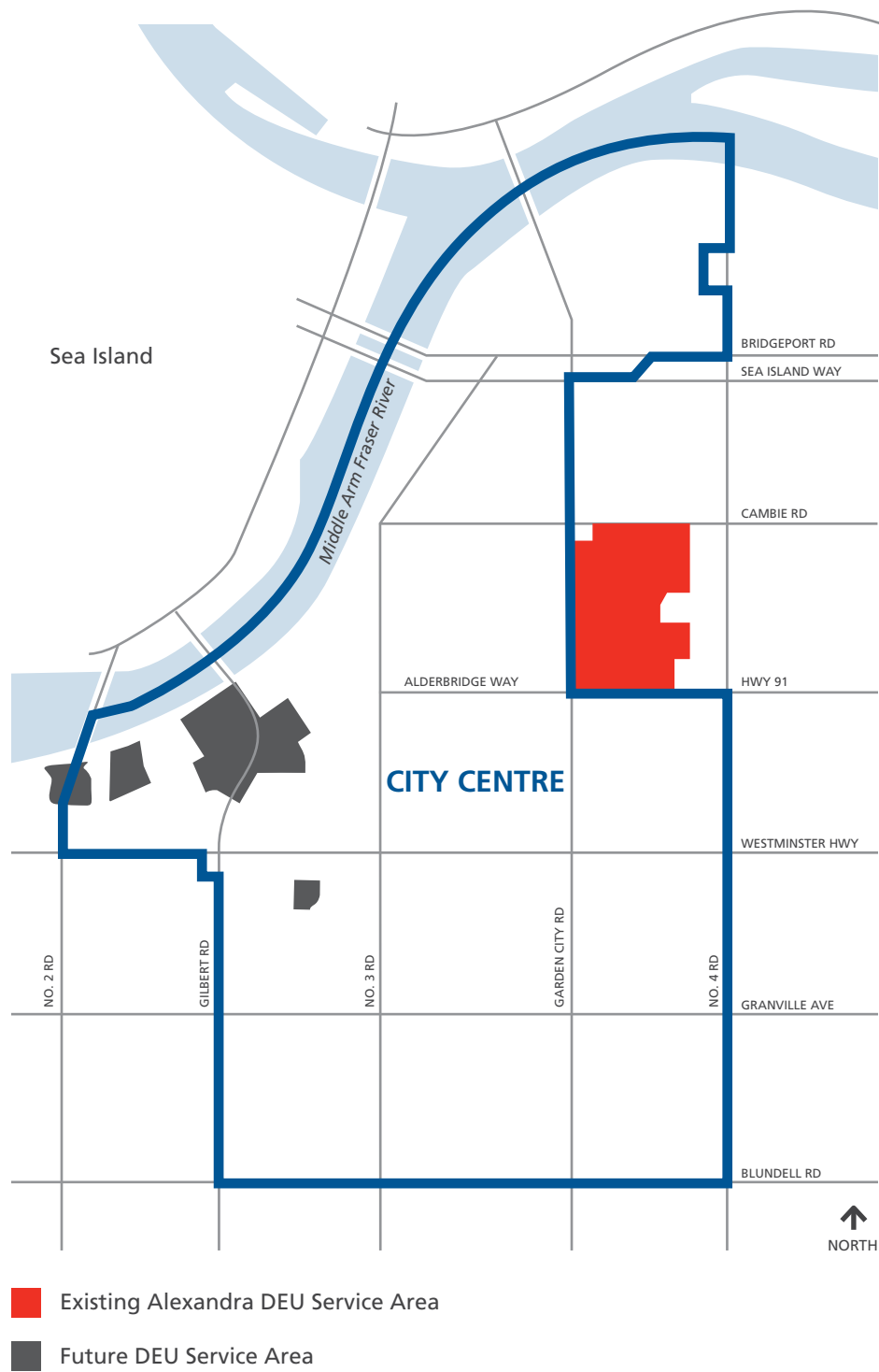
Alexandra District Energy Utility (ADEU) was established in 2012 to provide renewable energy for space heating and cooling as well as heat for domestic hot water in the West Cambie neighbourhood. While it is owned and operated by the City, the first phase of the project was developed in partnership with Oris Geo Energy Ltd. Oris had prior experience and expertise in the design, construction and operation of similar energy systems in Richmond and other communities. Going forward, the expansion of ADEU will be carried solely by the City, or LIEC if assets are transferred, in phases that are closely tied with the timing of new buildings in the service area.

### Infrastructure Overview

#### Alexandra District Energy Utility

<b>Energy Station</b>	9600 Odlin Road, Richmond, BC V6X 1C9
<b>Service</b>	Space heating, cooling and domestic hot water
<b>Technology</b>	<p>ADEU Phases 1 and 2 were commissioned in July 2012. The ADEU will potentially service up to 3100 residential units and 1.1 million sq. ft. of commercial uses at build out in approximately 10 to 15 years.</p> <p>Heating or cooling is provided to residential and commercial spaces through a hydronic (water) energy delivery system. In heating mode, ground source heat pump technology extracts heat (geothermal energy) from the ground via a network of vertical pipe loops. Built-in backup natural gas-fired boilers provide 100% back up in the event that the ground source heat pumps shut down or fail. This system cools buildings as well. During the summer months, the energy flow is reversed and heat is extracted from buildings and pumped into the ground. In this way, energy that was extracted from the ground for heating buildings is “recharged” allowing heat to be available for the next cold season.</p> <p>Individual buildings connected to the ADEU require smaller sized boilers for increasing the temperature of domestic hot water, reducing the overall cost of maintenance to buildings.</p> <p>The performance of the system is monitored continuously, providing a high level of reliability to customers.</p>
<b>Length of Distribution Network</b>	<p>640m (2,100 ft) of high-density polyethylene piping</p> <p>385 vertical closed-loop boreholes, each 250 feet deep</p>

## Service Areas





## Customers and Energy Rates

Customer energy rates are set in the City of Richmond Service Area Bylaws, which are enacted by City Council. This approach is true for ADEU and future LIEC service areas, and does not depend on the ownership of assets. This approach ensures transparency and accountability is maintained for all district energy projects in the City. The rate and bylaw provisions are reviewed and approved by Council on an annual basis.

Energy rates are set based on City Council's objective to provide customers with energy costs that are equal to or less than conventional system energy costs, based on the same level of service. In the absence of district energy services, a typical building would be built with electrical baseboard heaters for heating, gas fired make-up air units for common space heating and gas fired boilers for hot water heating. This is referred to as a "business as usual" (BAU) scenario and is the basis for comparing DEU energy rates costs with conventional utility, energy and maintenance costs. District energy customer rates in Richmond have met this requirement. As with other energy utilities, this rate includes utility costs related to infrastructure development, operation and maintenance, energy (e.g. electricity for pumps and natural gas) and other administrative costs such as staffing.

### 2013 Rate Structure

Each building includes one master meter. Strata corporations are billed on a quarterly basis, at a rate that is comprised of three charges:

- Capacity Charge: Charge based on the gross floor area of the building (\$0.078 per sq. ft.).
- Peak Charge: Charge based on the annual peak heating load supplied by ADEU to the building (\$1.04 per kW).
- Volumetric Charge: Charge based on the energy consumed by the building (\$3.328 per MWh).

### Buildings

Address	Use	Area (sq. ft.)
Remy [4099 Stolberg St]	Residential	186,000
Mayfair [9399 Odlin Road]	Residential	351,000
<b>Total:</b>		<b>537,000</b>

### Customer Service

The ADEU provides support 24 hours a day, 7 days a week. Customers can contact customer service via a telephone hotline (604.605.7898).



## Energy and Greenhouse Gas Emissions (GHGs)

The driving forces behind the establishment of district energy systems in Richmond were to reduce GHGs that cause climate change, develop renewable energy and support local green jobs.

<b>Amount of Energy Consumed in 2013</b>	2,200 MWh
<b>Greenhouse Gas Performance in 2013</b>	407 tonnes of CO <sub>2</sub> e avoided, equal to removing 126 cars from City of Richmond roads

## 2013 Financial Summary

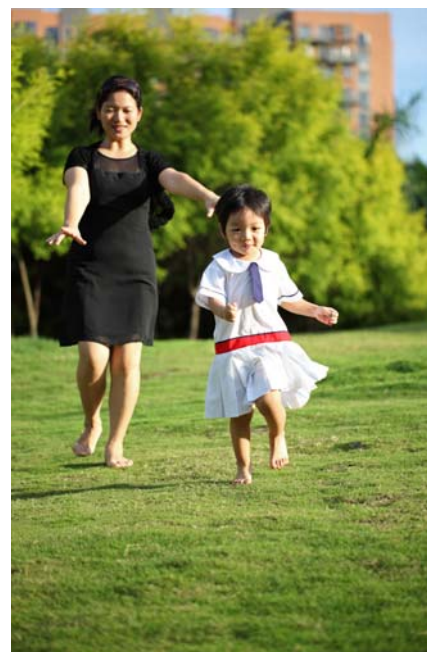
ADEU is currently not an asset of LIEC. This summary is provided as it relates to district energy activities in Richmond. The below figures were extracted from the City of Richmond's Financial Statements.

In 2013, Corix Utilities was engaged under contract as the system operator to perform system functional verification to ensure continuous operation. Incoming revenue from ADEU customers has been gradually increasing in pace with the occupancy of serviced buildings. Total revenue for 2013 was \$478,738. Total costs were \$121,510.

2013 revenue, when compared with the projected revenue in the ADEU financial model, is within acceptable ranges. Projected expenses were lower than expected due to the following reasons:

- **Equipment is Still Under Warranty:** Maintenance expenses are minimal due to new system components and one year warranty period.
- **Lower than Expected Utility Expenses:** Utility expenses (natural gas and electricity) are low due to phased development occupancy which resulted in a gradual increase in demand. The 2013 winter was also very mild and short.
- **Reduced Financing Costs for Expansion:** Financing expenses projected in the financial model for expansion planned for this year are zero since the capacity of the Phase 1 and 2 is adequate to service existing two developments plus a third development (Omega by Concord Pacific) that is scheduled for connection early next year.

Lower expenses resulted in a surplus of \$133,328 greater than originally budgeted, for a total of \$357,228. As per the financial model approved by Council, surpluses for up to ten years were planned to build a reserve fund for future capital replacement and to ensure the long-term financial sustainability of LIEC. For its 1st year of operations and in the context of a small customer base, ADEU financial, operational and environmental results show the expected outstanding performance of the DEU.





## ■ APPENDIX C—AWARDS & RECOGNITION

	Awarding Body	Award	Date	Comments
<b>Alexandra District Energy Utility</b>	Canadian Consulting Engineer Magazine & the Association of Consulting Engineering Companies—Canada	<b>Award of Excellence</b> (Natural Resources, Mining, Industry and Energy Category)	2013	This award is the most prestigious mark of recognition in Canadian engineering and is given to projects that exhibit a high quality of engineering, imagination and innovation.
	Public Works Association of British Columbia	<b>Project of the Year</b>	2013	This award is given to a municipality that constructs a major and complex public works or utilities project that meets specific criteria including innovative design with project benefits for the community and environment.
	International District Energy Association	<b>Certificate of Recognition—Innovation Awards</b>	2013	This program highlights examples of engineering, technology and operational innovation within the district energy industry.
	ENERGY GLOBE Foundation	<b>Canadian Energy Globe National Award</b>	2013	The national ENERGY GLOBE Awards distinguish best project submissions from a country. It is awarded annually to projects focusing on energy efficiency, renewable energies and the conservation of resources.

## ■ APPENDIX D—MANAGEMENT'S DISCUSSION AND ANALYSIS

### About the Company

The Lulu Island Energy Company (LIEC) is a wholly-owned municipal corporation, established to operate district energy utility operations in the City of Richmond on the City's behalf. LIEC was incorporated in August 2013 for the purposes of managing DE system in future years, and as such does not currently have assets or customers.

### Financial Summary

LIEC did not have any assets, expenses, revenues, financial liabilities or non-financial assets in 2013.





## ■ APPENDIX E—FINANCIAL STATEMENTS OF LULU ISLAND ENERGY COMPANY LTD.

Period of incorporation on  
August 19, 2013 to December 31, 2013





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## INDEPENDENT AUDITORS' REPORT

To the Shareholder of Lulu Island Energy Company Ltd.

We have audited the accompanying financial statements of Lulu Island Energy Company Ltd., which comprise the statement of financial position as at December 31, 2013, the statements of operations, changes in net financial assets and cash flows for the period from incorporation on August 19, 2013 to December 31, 2013, and, comprising a summary of significant accounting policies and other explanatory information.

### *Management's Responsibility for the Financial Statements*

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

### *Auditors' Responsibility*

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform an audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

### *Opinion*

In our opinion, the financial statements present fairly, in all material respects, the financial position of Lulu Island Energy Company as at December 31, 2013 and its results of operations, and its changes in net financial assets and its cash flows for the period from incorporation on August 19, 2013 to December 31, 2013 in accordance with Canadian public sector accounting standards.

Chartered Accountants

April 30, 2014

Burnaby, Canada

KPMG LLP is a Canadian limited liability partnership and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. KPMG Canada provides services to KPMG LLP.

**LULU ISLAND ENERGY COMPANY LTD.**

## Statement of Financial Position

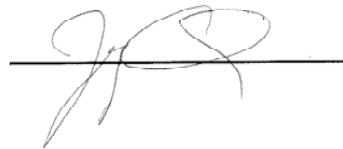
December 31, 2013

**Financial Assets**

Due from City of Richmond (note 3)	\$	1
Net financial assets		1
Accumulated surplus	\$	1

See accompanying notes to financial statements.

Approved on behalf of the Board:



Director



Director



**LULU ISLAND ENERGY COMPANY LTD.**

## Statement of Operations

Period from August 19, 2013 to December 31, 2013

	Budget 2013	2013
	(note 5)	
Revenue:		
Contribution from City of Richmond	\$ -	\$ 1
Annual surplus, being the accumulated surplus, end of period	\$ -	\$ 1

See accompanying notes to financial statements.

**LULU ISLAND ENERGY COMPANY LTD.**

## Statement of Changes in Financial Assets

Period from August 19, 2013 to December 31, 2013

	2013 budget (note 5)	2013
Surplus for the period	\$ -	\$ 1
Change in net financial assets, being net financial assets, end of period	\$ -	\$ 1

See accompanying notes to financial statements.

**LULU ISLAND ENERGY COMPANY LTD.**

## Statement of Cash Flows

Period from August 19, 2013 to December 31, 2013

Cash provided by (used in):

Operations:

Annual surplus	\$	1
Change in non-cash operating working capital:		
Due from City of Richmond		(1)

Net change in cash, end of period	\$	-
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See accompanying notes to financial statements.

# LULU ISLAND ENERGY COMPANY LTD.

## Notes to Financial Statements

Period from August 19, 2013 to December 31, 2013

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### 1. Incorporation and nature of business:

The Lulu Island Energy Company Ltd. (the "Corporation") was incorporated on August 19, 2013 under the Business Corporations Act of British Columbia as a municipal corporation wholly-owned by the City of Richmond (the "City"). The business of the Corporation is to manage and operate district energy utilities, including but not limited to energy production, generation or exchange, transmission, distribution, maintenance, marketing and sale to customers, customer service, profit generation, and financial management.

### 2. Significant accounting policies:

#### (a) Basis of presentation:

The financial statements of the Corporation are the representation of management prepared in accordance with Canadian public sector accounting standards as prescribed by the Public Sector Accounting Board ("PSAB") of the Canadian Institute of Chartered Accountants.

#### (b) Use of estimates:

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenue and expenses during the reporting period. Actual results could differ from these estimates.

#### (c) Income taxes:

The Corporation is not subject to income taxes as it is a municipal corporation wholly-owned by the City of Richmond.

### 3. Due from City of Richmond:

The amount due from City of Richmond relates to share capital (note 4).

### 4. Share capital:

Authorized: 10,000 common shares without par value.

Issued: 100 common shares for \$1.

### 5. Budget data:

There is no budget data approved by the Board of Directors for fiscal 2013.



## Lulu Island Energy Company

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