



# **Blatchford Renewable Energy Utility**

## **2019 Rate Filing**

## Blatchford Renewable Energy Utility - 2019 Rate Filing

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## 1.0 Overview

This 2019 Rate Filing is the first of what will be annual filings for approval of end use customer rates for the Blatchford Renewable Energy Utility (“BREU” or “Utility”). As per Section 3.0 the Blatchford District Energy Utility Fiscal Policy C597 (“Fiscal Policy”);

“The Utility Committee shall recommend annually to City Council the customer rates for the upcoming year, based on review of an annual rate filing prepared by the Utility subsequent to the preparation and presentation of the 4-year Business Plan.”

This Rate Filing is requesting City Council approval of the following:

- End use customer rates for 2019 provided in Appendix 5.0.

Further discussion in respect of the Fiscal Policy is included in Section 3 of this Rate Filing. A copy of the Fiscal Policy is included in Appendix 2.0.

In preparing this Rate Filing, the Utility has followed the principles as set out in the Fiscal Policy. In particular, the Utility established the forecast 2019 revenue requirement based on a traditional cost of service approach while taking into account a Policy Statement in the Fiscal Policy that end-use customers would pay “at most a comparable fee to what they would elsewhere in the City of Edmonton through their energy utility bills and annual maintenance costs” in establishing the proposed 2019 end use customer rates. This Policy Statement guided the approach taken to design end use customer rates in this Rate Filing and will henceforth be referred to as the Business as Usual (“BAU”) approach.

The Utility engaged Grant Thornton to assist in establishing the regulatory framework and end use customer rates in 2019. In its Blatchford Renewable Energy Utility - Alternatives for Establishing Initial Customer Rates (“Rate Review”) Grant Thornton identified and analysed several approaches on which to base the end use customer rates. Ultimately, Grant Thornton recommended utilizing a “pegged” approach wherein Blatchford customer utility bills are “pegged” to their BAU counterparts, or what utility bills would be elsewhere in the City of Edmonton. Grant Thornton recommended this approach as it aligns with the Fiscal Policy, will be easily understood by customers and be simple to implement. A further discussion of Grant Thornton’s Rate Review and the methodology utilized to establish the proposed 2019 end use customer rates is included in Section 6. A copy of Grant Thornton’s Rate Review is included in Appendix 1.0.

Given that this is the first year of operation of the Utility with no customer connections to the BREU system forecast until mid-2019 and that customer rates are to be set utilizing the BAU approach, the 2019 forecast customer revenue will not be sufficient to fully recover the Utility’s 2019 forecast revenue requirement. It is anticipated that this will be the case for each year during the 2019 to 2022 forecast period as the Utility grows and matures. As a result, the Utility is proposing to introduce a deferral account whereby the annual revenue shortfall amounts will be accumulated in the deferral account until such time as customer revenues exceed the Utility’s revenue requirement. Consistent with Section 2.1C of the Fiscal Policy the Utility will

borrow from the City of Edmonton in order to meet the insufficient cash flow during its first years of operation. Further details are provided in Section 6.

The Utility has provided a number of schedules with details of its 2019 revenue requirement and revenue on proposed rates in Appendix 4. These schedules utilize very similar format and content to the Minimum Filing Requirements format utilized in the electric and gas utility industry in Alberta.

The Rate Filing is organized as follows:

Section 2.0 - Background on the Blatchford Development

Section 3.0 - Blatchford Fiscal Policy

Section 4.0 - Blatchford 2019-2022 Business Plan

Section 5.0 - 2019 Forecast Revenue Requirement

Section 6.0 - Cost of Service, Rate Design, Revenue on Proposed Rates & Bylaw 17943

Section 7.0 - Appendices 1.0 - 5.0

## **2.0 Background**

The Blatchford development is aimed to be one of the world's largest sustainable communities and home to 30,000 residents. Blatchford will be comprised of two primarily residential spaces on the east and west side of the site, along with a town centre, an 80-acre central park with plenty of green space throughout the community, as well as a civic plaza.

A new public, city owned utility has been established, the Blatchford Renewable Energy Utility, that will own and operate a District Energy Sharing System ("DESS") and certain mechanical equipment within the customer buildings themselves. All buildings in Blatchford, with the exception of net-zero carbon buildings, must be connected to the DESS for all heating, cooling and domestic hot water services.

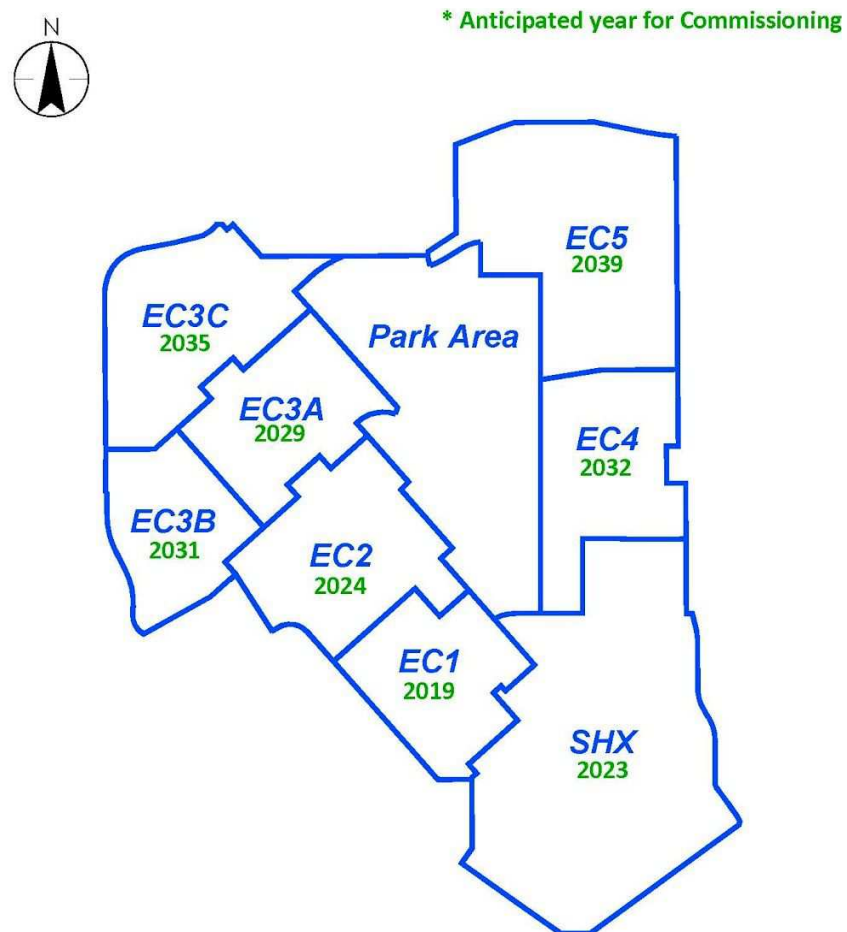
The first stage of the Utility development of the DESS consists of: a ground heat exchanger borefield located under the future stormwater pond; Energy Centre No. 1 located on the future Blatchford Plaza; and a distribution piping system which carries district energy water from the Energy Centre to Stage 1 of the Blatchford land development.

Customer condominium buildings will contain an energy transfer station that provides thermal energy from the DESS for the buildings. Blatchford buildings will use renewable district energy for heating and cooling and, as such, buildings will not need to be equipped with traditional systems related to the production of thermal energy, such as furnaces, boilers, chillers or fireplaces. Blatchford buildings will not require ancillaries such as boiler venting or cooling towers. The Utility will own, operate and maintain the central mechanical systems in the energy transfer station, reducing the operational burden on the builder and homeowner. Builders will fund the initial building of these energy transfer stations but the Utility will ultimately own,

operate and maintain all equipment in the transfer stations.

The Utility will follow the Blatchford development schedule and will adjust accordingly as considerations change along the way. Overall a staged approach for the land development and Utility is planned in Blatchford, which will also include periodic updates of the energy and financial model for the Utility. Following the current land development scenario, the overall service area and potential locations and staging/commissioning of future Utility operated Energy Centers for the DESS is outlined in Figure 1. Each Energy Center will provide energy to defined stages of land development. At full build out, currently anticipated in year 2047, the Utility is expected to have more than 16,000 customers. Figure 1 identifies Energy Centers based on geothermal ground heat exchange technology, and the Sewer Heat Recovery Energy Centre (SHX) located in the Town Centre of Blatchford.

**Figure 1: Blatchford Staging Plan**



It is currently anticipated that Energy Center 1 (“EC1”) will be operational in the third quarter of 2019 and will have the capacity to provide thermal energy to all customers expected to connect during the 2019-2022 forecast period. All other energy centers shown in Figure 1 above will not be operational during the 2019-2022 forecast period, although capital expenditures for planning

and initial construction for the Sewer Heat Recovery Energy Centre (SHX) and initial planning for Energy Center 2 will be required during the 2019-2022 forecast period.

Achieving financial sustainability for the new Utility depends on factors such as receiving a non refundable cash infusion, stable rate structure and other related Utility fees. This relationship and importance was outlined in more detail in several documents that have been previously provided to the Utility Committee and City Council. The City of Edmonton retained a consultant to develop a Business Decision Model (“Financial Model”) to assist in developing a framework to achieve financial stability for the Utility. This Financial Model provided guidance and direction in establishing the end use customer rates and regulatory framework proposed in this Rate Filing. Two additional documents, the Fiscal Policy and the 2019-2022 Business Plan, are discussed in more detail below.

### **3.0 Fiscal Policy**

On April 10, 2018, City Council approved the Blatchford Fiscal Policy. The Fiscal Policy is the prerequisite required to support the first four year Utility Business Plan and Bylaw including rates. As stated in the Fiscal Policy, the purpose of the Policy is to:

1. Ensure that the Blatchford District Energy Utility is operated in a manner that reflects City Council’s overall vision and philosophical objectives for the Utility.
2. Ensure that there is a consistent approach year over year for the financial planning, budgeting, and rate setting for the City managed Utility.
3. Ensure that the Utility is financially sustainable over the long term.

In addition to the three statements noted above, the following four Policy Statements outlined in the Fiscal Policy helped establish the regulatory framework and methodology utilized in this Rate Filing:

1. The Utility is to be operated in a manner that balances the best possible service at the lowest cost (public utility) while employing private sector approaches to rate setting.
2. Similar to private utilities, the Utility will account for the cost of service under a full cost accounting approach. All customer charges will be based upon cost of service with the end user (customer) paying at most a comparable fee to what they would elsewhere in the City of Edmonton through their energy utility bills and annual maintenance costs.
3. Through a phased approach, the Utility will generate positive net income, cash flow and a rate of return sufficient to cover current year expenses, working capital requirements, and to facilitate the funding for capital infrastructure and rehabilitation and replacement of capital assets.
4. The Utility is to contribute towards achieving the City’s Energy Transition Strategy.

In respect of this 2019 Rate Filing and the end-use customer rates included herein, the second Policy Statement, in particular, was instructive in establishing the framework for the setting of the end-use customer rates, both the rates levels and the rate structure. This will be discussed further in the Rate Design section of this Filing.

A copy of the Fiscal Policy has been provided in Appendix 2.0.

#### **4.0 2019-2022 Business Plan**

The 2019-2022 Business Plan was presented to the Utility Committee on June 8, 2018 (Integrated Infrastructure Services report CR\_5853). A copy of the Business Plan is included in Appendix 3.0. As noted on page 11 of the Business Plan, the Business Plan adheres to the principles established in the Blatchford Fiscal Policy. The Utility will strive towards achieving the financial indicators as set out in the Fiscal Policy (i.e. Positive Net Income, Positive Cash Position, Debt Financing of Capital).

Also noted on page 11 of the Business Plan, in the first four years, as the Utility continues to develop and moves towards longer term financial sustainability, the regulatory and financial priorities will be to:

- Establish the regulatory framework and customer rates based upon a cost of service methodology that ensures the Blatchford Renewable Energy Utility customers pay a comparable energy fee to what they would elsewhere in the City of Edmonton through their energy utility bills and annual maintenance costs ;
- Obtain a non-refundable cash infusion in order to fund the initial stages of the Utility infrastructure development;
- Obtain short-term bridge financing to be used as working capital for the day-to-day operations of the Utility as it continues to mature and begins to generate positive net income and a positive cash position as the number of residents and utility customers increase.

In addition, the Business Plan notes that the Utility will fund its operating and capital requirements from a number of sources. The following sources of funding will be required and utilized during the initial years of operation:

- **Rate Revenue**  
The Utility will generate revenue through monthly customer rates. Rates will be designed to be comparable to what customers would pay elsewhere in the City through their energy utility bills and annual maintenance costs.
- **Non-refundable cash-infusion**  
A non-refundable cash infusion is required for the initial years of operation to offset the capital investment required to establish the Utility and allow it to grow over time to achieve financial sustainability. The total amount required is anticipated to be \$93 million.
- **Builder Contributed Capital**  
The Builder will pay for central mechanical room equipment in multi-unit buildings, which will then be owned, operated and maintained by the Utility. These will be contributed assets on the Utility's balance sheet and will not attract a net depreciation expense or a return on rate base.

- **Infrastructure Fee**  
The Utility will collect a one time infrastructure fee for units and buildings from the builders that connect to the DESS. For residential units, an infrastructure fee of \$1,750 per unit is proposed. For each commercial development, the proposed infrastructure fee is \$20 per square meter (m<sup>2</sup>) of floor space. This fee creates an additional source of revenue for the Utility that would otherwise need to be funded by Utility rates or the non-refundable cash infusion. Based on the development timeline, the total infrastructure fee collected during this business plan period is approximately \$1.1 million in the first four years and \$46.8 million over the full development timeline.
- **Debt Borrowing**  
To ensure long term financial sustainability, the initial capital expenditures for the Utility will need be funded by the non-refundable cash-infusion discussed above.

## 5.0 2019 Forecast Revenue Requirement

### **Methodology and Key Assumptions**

The 2019 BREU Rate Filing adheres to the principles set out in the Blatchford Fiscal Policy, which establishes the framework for how BREU will set rates, finance its capital and manage its cash position, and is also consistent with the 2019-2022 Business Plan. As per the Fiscal Policy, an annual rate filing will be submitted each year requesting City Council approval of end use customer rates for the following year.

For purposes of this Rate Filing the first residents of Blatchford are assumed to move into the community in mid 2019. The initial residences will be a mixture of fee-simple and strata townhomes as well as 4-6 story and 7-10 story condominium buildings. The following table summarizes the forecast connections and energy consumption by end-use during the 2019-2022 forecast period.

**Table 1: Forecast Customer Connections and Energy Consumption by End Use**



	2019	2020	2021	2022
Item	Forecast	Forecast	Forecast	Forecast
<b>New Customer Connections</b>				
Townhomes - Fee Simple	30	-	15	26
Townhomes - Strata	30	-	15	26
Apartments - 4-6 Story	171	-	85	148
Apartments - 7-10 Story	31	-	16	27
Commercial/Office	-	-	-	-
Institutional	-	-	-	-
<b>Total New Customer Connections</b>	<b>262</b>	<b>-</b>	<b>131</b>	<b>227</b>
<b>Energy Consumption (MWh)</b>				
Townhomes - Fee Simple	100.0	200.0	250.0	386.5
Townhomes - Strata	102.5	205.0	257.0	398.5
Apartments - 4-6 Story	485.5	971.0	1,212.5	1,875.5
Apartments - 7-10 Story	110.0	220.0	275.0	425.0
Commercial/Office	-	-	-	-
Institutional	-	-	-	-
<b>Total Energy Consumption</b>	<b>798.0</b>	<b>1,596.0</b>	<b>1,994.5</b>	<b>3,085.5</b>

Note: 2019 forecast consumption is 50% of 2020 forecast consumption as customer connections in 2019 will not occur until mid year.

The current customer build-out forecast includes only residential customers during the 2019-2022 forecast period and it is anticipated that there will be no commercial/office or institutional customer connection requests until 2025.

As noted in the 2019-2022 Business Plan,

“A non-refundable cash infusion is required for the initial years of operation to offset the capital investment required to establish the Utility and allow it to grow over time to achieve financial sustainability.”.

The total non-refundable cash infusion required to achieve financial stability is currently expected to be \$93 million. For purposes of calculating the revenue requirement and deferral account under Cost of Service in the 2019 Rate Filing, the non-refundable cash contribution for the initial capital investments has been assumed at this time (since customer rates in 2019 are ultimately based on the pegged approach), resulting in no long term interest expense or amortization being incorporated. The 2019 revenue requirement and deferral account under Cost of Service will be amended in future annual rate filings as the availability of the non-refundable cash infusion is further clarified.

In addition, builder contributed capital will be utilized to fund certain assets, specifically equipment in the mechanical rooms of multi-unit buildings. Accordingly, for purposes of this Rate Filing all capital expenditures required during the 2019-2022 forecast period are assumed

to be funded through the non-refundable cash infusion or builder contributed capital resulting in the Utility having no debt or rate base on its balance sheet during the forecast period.

## Determination of Forecast Revenue Requirement

Total 2019 forecast revenue requirement and revenue for BREU is \$1.342 million and \$0.536 million respectively, resulting in a revenue shortfall of \$0.807 million. It is forecast that there will be a revenue shortfall each year during the 2019-2022 forecast period as BREU grows and matures and more customers begin to connect to the BREU system. The following table provides a summary of the annual revenue requirement and customer revenue during the 2019-2022 forecast period.

**Table 2 - Forecast Revenue Requirement, Customer Revenue and Revenue Surplus/(Shortfall) (\$000s)**

	2019	2020	2021	2022
Item	Forecast	Forecast	Forecast	Forecast
<b>Revenue Requirement</b>				
Operating Costs	1,342.4	1,489.3	1,295.5	1,390.3
Depreciation	-	-	-	-
Return on Rate Base	-	-	-	-
Revenue Offsets	-	-	-	-
<b>Total Revenue Requirement</b>	<b>1,342.4</b>	<b>1,489.3</b>	<b>1,295.5</b>	<b>1,390.3</b>
<b>Revenue</b>				
Revenue on Proposed Rates	77.2	161.4	206.1	325.1
Infrastructure Fee	458.5	-	238.5	421.6
<b>Total Revenue</b>	<b>535.7</b>	<b>161.4</b>	<b>444.6</b>	<b>746.7</b>
<b>Revenue Surplus (shortfall)</b>	<b>(806.7)</b>	<b>(1,327.8)</b>	<b>(851.0)</b>	<b>(643.6)</b>

The revenue requirement for BREU does not include any depreciation or return on rate base during the 2019-2022 forecast period as it is expected that all capital additions during the forecast period will be funded by a combination of the non-refundable cash infusion and builder contributions, as noted above. Accordingly, BREU will have no assets on its balance sheet during the 2019-2022 forecast period and no equity, debt, interest expenses, return on equity or depreciation expense.

## Operating Costs

Initial operation of the first stage of the DESS, with a relatively small number of connections and accounts, will be managed internally by the Utility in partnership with other City Departments,

external contractors and technical experts. Overall focus will be on appropriate oversight of the design and initial Utility operation. Through the design and construction of the first stage of the DESS, operational and maintenance protocols will be developed and implemented into the full operation. Qualified service providers will be evaluated and engaged for all aspects of utility operation. The Utility is currently evaluating service providers for initial billing services and customer support functions. The Utility will determine an opportune time to engage an external partner, which will likely occur when the initial stage of operations have matured. To promote the Blatchford Community, the Blatchford Land Development program is growing its marketing and communication efforts in cooperation with the Blatchford Renewable Energy Utility.

The following table summarizes the forecast Operating Costs by major expense category during the 2019-2022 forecast period.

**Table 3 - Forecast Operating Costs by Major Expense Category (\$000s)**

	2019	2020	2021	2022
Item	Forecast	Forecast	Forecast	Forecast
<b>Operating Costs</b>				
Utilities	24.2	35.7	43.3	62.1
Operations & Maintenance	700.1	826.1	945.9	994.2
Administration	369.9	377.3	194.4	198.3
Customer Billing Services	175.9	176.3	36.6	58.9
Corporate Administration/Shared Services	72.4	73.9	75.4	76.9
<b>Total Operating Costs</b>	<b>1,342.4</b>	<b>1,489.3</b>	<b>1,295.5</b>	<b>1,390.3</b>

The following sections provide further detail in respect of each of the major operating cost categories shown in Table 3 above.

### **Utilities**

BREU will require electricity and natural gas services in order to operate the DESS. The following table summarizes the electricity and natural gas costs, as well as the carbon tax paid on the natural gas purchases, over the 2019 to 2022 forecast period.

**Table 4 - Forecast Utilities Cost (\$000s)**

	2019	2020	2021	2022
Item	Forecast	Forecast	Forecast	Forecast
<b>Utility Costs</b>				
Electricity	21.9	31.5	38.0	53.8
Natural Gas	1.9	3.3	4.0	6.1
Carbon Tax	0.4	0.9	1.2	2.1
<b>Total Utilities</b>	<b>24.2</b>	<b>35.7</b>	<b>43.3</b>	<b>62.1</b>

### **Operation & Maintenance Costs**

The forecast Operation & Maintenance costs for each year are comprised of the following cost categories: (1) Operation & Maintenance for all BREU owned assets, (2) Personnel, (3) Travel & Training, (4) Tools, Equipment and Vehicles and (5) Technical Consultants.

The infrastructure built and installed to serve customers at Blatchford will require ongoing maintenance as well as a workforce to manage BREU's day to day operations. BREU will contract with an external service provider to assist with the operation and maintenance of the BREU system over the entire 2019-2022 forecast period. The forecast operation & maintenance costs for 2019-2022 was based on a capital maintenance factor (i.e. a percentage of capital) for each class of assets (e.g. ground heat exchange equipment, energy center equipment, distribution piping, etc.) applied to the total capital in service each year for each class of assets. The capital maintenance factors were based on industry standards for similar type of equipment.

It is currently anticipated that BREU will have three direct employees responsible for the managing of day to day operations during the 2019-2022 forecast period. The following table provides details of the three direct employees including position title and the percentage of each employee's time that will be allocated to BREU (a percentage of all three employees' time will be allocated to other renewable energy projects currently being undertaken by the City of Edmonton).

**Table 5 - BREU Direct Employees**

	2019 - 2022
Employee Title	% FTE
Director - Renewable Energy Systems	40%
Program Manager - Renewable Energy Systems	70%
Project Coordinator - Renewable Energy Systems	70%

The total forecast 2019 Personnel cost was determined by applying the % FTE factor in the table above to each employees' total compensation (base salary plus overhead and benefits). An annual escalation factor of 2% was applied to determine the forecast Personnel cost for 2020-2022.

In addition to the operation and maintenance costs for the external service provider and the three direct BREU employees, consultants will be retained to assist with technical and operational aspects of running the Utility. A cost of \$230,000 has been forecast for technical consultants in 2019 escalated by 2% per year each year over the 2020-2022 forecast period.

Forecast costs for travel and training as well as tools, equipment and vehicles were also included in the Operating Cost Forecast. For 2019 an estimate of \$5,800 was included for travel and training and \$19,300 for tools, equipment and vehicles. The forecast cost for tools, equipment and vehicles was based on a percentage (10%) of the Personnel cost for the Program Manager and Project Coordinator positions. Costs for both travel and training and tools, equipment and vehicles were escalated by 2% per year each year over the 2020-2022 forecast period.

The following table summarizes the total Operation & Maintenance Costs over the 2019-2022 forecast period.

**Table 6 - Forecast Operation & Maintenance Cost (\$000s)**

	2019	2020	2021	2022
Item	Forecast	Forecast	Forecast	Forecast
<b>Operations &amp; Maintenance</b>				
Energy Center 1 & Main Distribution System	155.2	263.2	350.1	360.8
Customer Connections and Meters	13.9	21.3	43.4	69.9
Personnel/Direct Labour	275.9	281.4	287.0	292.8
Travel & Training	5.8	5.9	6.0	6.1
Tools, Equipment & Vehicles	19.3	19.7	20.1	20.5
Technical Consultants	230.0	234.6	239.3	244.1
<b>Total Operating Costs</b>	<b>700.1</b>	<b>826.1</b>	<b>945.9</b>	<b>994.2</b>

### Administration Costs

The forecast Administration costs each year are comprised of: (1) Marketing, Education and Communication, and (2) Consultant Costs.

The Marketing, Education & Communication costs include internal labour costs for a Marketing Manager to be employed directly by the BREU for 2019 and 2020 as well as an estimate for time and materials required for marketing, communication and education of the Blatchford Community to potential residents during the 2019-2022 forecast period.

A cost of \$71,875 for 2019 was forecast for consultants to assist with non-technical (e.g. financial) aspects of setting up the BREU.

Forecast Administration costs for 2019 were escalated by 2% per year for each year over the 2020-2022 forecast period.

The following table summarizes the forecast Administration costs over the 2019-2022 forecast period.

**Table 7 - Administration Cost (\$000s)**

	2019	2020	2021	2022
Item	Forecast	Forecast	Forecast	Forecast
<b>Administration</b>				
Marketing, Education & Communication	298.0	303.9	119.6	122.0
Consultants	71.9	73.3	74.8	76.3
<b>Total Administration</b>	<b>369.9</b>	<b>377.3</b>	<b>194.4</b>	<b>198.3</b>



### Customer Billing Services Costs

BREU is currently working towards establishing a contract with EPCOR Energy Alberta GP Inc. (“EEA”) to perform the Customer Care and Billing (“CC&B”) services during the 2019-2022 forecast period. EEA currently provides CC&B services to Edmontonians for water, drainage as well as waste services on behalf of the City. BREU will incur a cost of \$6.50 per account per month for CC&B services in 2019 escalated by 2% each year during the remainder of the forecast period. BREU will also incur a one-time cost of \$304,000 required for EPCOR to set up BREU and BREU’s customers in its current billing system. This one-time set up cost has been spread equally over the first two years of operation (2019 and 2020). The following table summarizes the forecast Customer Service Billing Costs over the 2019-2022 forecast period.

**Table 8 - Customer Billing Services Cost (\$000s)**

	2019	2020	2021	2022
Item	Forecast	Forecast	Forecast	Forecast
<b>Customer Billing Services</b>				
Monthly Billing Charges	23.5	24.0	36.6	58.9
One-time Set up Costs	152.4	152.4	-	-
<b>Total Customer Billing Services</b>	<b>175.9</b>	<b>176.3</b>	<b>36.6</b>	<b>58.9</b>

### Corporate Administration Costs Costs

The forecast Corporate Administration costs each year are comprised of: (1) Shared Services, and (2) Asset Usage Fees.

The Shared Services costs include an estimate of the cost of services required by the BREU of the Finance, Law, Safety/Environment and Customer Services Branches of the City as well as the cost of usage fees on IT equipment (telephones and computers).

The following table summarizes the forecast Corporate Administration Costs over the 2019-2022 forecast period.

**Table 9 - Corporate Administration Cost (\$000s)**

	2019	2020	2021	2022
Item	Forecast	Forecast	Forecast	Forecast
<b>Corporate Administration</b>				
Shared Services	64.4	65.7	67.0	68.3
Asset Usage Fees	8.1	8.2	8.4	8.5
<b>Total Corporate Administration</b>	<b>72.4</b>	<b>73.9</b>	<b>75.4</b>	<b>76.9</b>

### Franchise Fees and Property Taxes

Currently it is anticipated that the Utility will not be required to pay a franchise fee or property taxes on its facilities to the City of Edmonton during the 2019-2022 forecast period. Accordingly there are no franchise fee or property tax amounts included in the 2019-2022 forecast revenue requirement.

### Depreciation/Amortization

BREU's revenue requirement will not include any amounts for depreciation/amortization during the 2019 -2022 forecast period. It is anticipated that BREU's capital requirements during the initial 2019-2022 forecast period will be completely funded through a combination of the non-refundable cash infusion and builder contributions. As a result, contributed assets will be equal to gross assets on the balance sheet resulting in no rate base for BREU for the 2019-2022 forecast period.

### Return on Rate Base/Interest Expenses

As noted above, BREU's assets will be fully funded via the non-refundable cash infusion as well as builder contributions resulting in no rate base during the forecast period. As a result BREU's revenue requirement will not include any return on rate base or interest expenses during the 2019-2022 forecast period.

### Revenue Offsets

Revenue Offsets are miscellaneous revenues earned by a utility and can include items such as late payment penalties, revenue from rental of company owned property and miscellaneous fees and non-rate revenues. No revenue offsets are forecast during the 2019-2022 forecast period.

### Rate Base

As noted previously, all required capital for the BREU system during the 2019-2022 forecast period will be financed by a combination of the non-refundable cash infusion and builder contributions resulting in no rate base on the Utility's balance sheet. The following table provides a summary of the mid year net property, contributions and rate base.

**Table 10 - Mid-Year Net Property, Contributions and Rate Base (\$000s)**

	2019	2020	2021	2022
Item	Forecast	Forecast	Forecast	Forecast
<b>Rate Base</b>				
Mid-year Net Property	9,139.0	18,860.0	19,442.0	19,442.0
Mid-year Net Contributions	(9,139.0)	(18,860.0)	(19,442.0)	(19,442.0)
<b>Net Mid-year Rate Base</b>	-	-	-	-

### Capital Additions and Capital Expenditures

The capital additions during the 2019-2022 forecast period will be related entirely to the development and construction costs associated with the building of the ground heat exchanger borefield, Energy Center 1 and the distribution piping system for Phase 1 of the Blatchford

development. Capital expenditures will be incurred during the forecast period related to the planning, design and initial construction of the Sewer Heat Recovery Energy Center (“SHX”) as well as initial planning and design for Energy Center 2 (“EC2”). The in-service dates for the SHX and EC2 are expected to be in 2023 and 2024 respectively. The following table provides a summary of the forecast capital additions and capital expenditures during the 2019-2022 forecast period.

**Table 11 - Capital Additions and Capital Expenditures (\$000s)**

	2019	2020	2021	2022
Item	Forecast	Forecast	Forecast	Forecast
Construction Work in Progress - Previous Year Balance	18,011.0	1,657.2	3,314.4	6,212.8
Current Year Capital Expenditures	1,924.2	2,821.2	2,898.4	22,598.1
Less: Current Year Capital Additions	(18,278.0)	(1,164.0)	-	-
Construction Work in Progress - Current Year Balance	1,657.2	3,314.4	6,212.8	28,810.9

## 6.0 Cost of Service, Rate Design and Revenue on Proposed Rates

The traditional regulatory approach in setting end use customer rates in the utility industry typically involves the preparation of a cost of service study which includes the grouping of the utility’s customers into unique customer classes. The cost of service study then sets out to allocate the utility’s total forecast revenue requirement to each of those customer classes based on well established cost functionalization, classification and allocation methodologies. End use customer rates are then designed to fully recover the forecast revenue requirement allocated to each of those customer classes. The resulting forecast revenue derived from the end use customer rates recovers the utility’s total annual forecast revenue requirement.

The Utility is in its initial year of operations in 2019 and will be interconnecting its first customers mid way through 2019. In respect of the 2019 end use customer rates for the Utility, the Fiscal Policy provides direction in regards to the design of such rates in that “All customer charges will be based upon cost of service with **the end user (customer) paying at most a comparable fee to what they would elsewhere in the City of Edmonton through their energy utility bills and annual maintenance costs.**” (emphasis added). This concept of BREU customers paying a comparable fee to what they would elsewhere in the City, or “Business as Usual” (“BAU”), is the key principle that ultimately determines the end use customer rates in this 2019 Rate Filing. This BAU principle will be discussed further below and in Grant Thornton’s Rate Review in Appendix 1. The combination of the Utility being in its initial year of operations, with the first customers not being connected until mid way through 2019, and the Utility being limited to charging its customers end use rates set at no more than what they would pay elsewhere in the City (i.e. BAU) results in the Utility being unable to recover its total forecast revenue requirement in 2019. As shown in Table 2 above, there is a shortfall of approximately \$807,000 in 2019 between the 2019 forecast revenue requirement and the 2019 forecast customer revenue.



## 6.1 Cost of Service Study

For the purpose of this 2019 Rate Filing, a traditional cost of service study was not completed for several reasons. Firstly, using the BAU approach to set end-use customer rates renders a traditional cost of service study somewhat meaningless in that end use rates are designed based on the BAU concept/principle and are not designed to recover the total revenue requirement allocated to each rate class. Secondly, there is only one type of traditional end use customer (i.e. residential) connecting to the BREU system during forecast period so a cost of service study that allocates costs to BREU's customer classes is, again, meaningless for 2019 as there is only one customer class. While there are two separate fixed charges for the BREU's residential customers (one for townhomes and another for condominiums/apartments) as described in the Rate Design section below, the reason for those separate charges is as a result of utilizing the BAU concept/principle and not necessarily due to cost differences in serving these two types of residential customers. Thirdly, given that the Utility is in its first year of operations there is, at best, very limited data available with respect to essential information required to complete a cost of service study such as consumption data/patterns for the various types of customers and information with respect to the impact (from both design and operational perspectives) of the various types of customers on the BREU system.

It is expected that a full cost of service study will be completed once actual detailed customer consumption data has been collected and some experience from operating the BREU system has been gained. In addition, as the Utility grows and matures it is expected that there will be a transition from utilizing a BAU approach to a more traditional cost of service approach as the basis for designing end use customer rates. At that time the Utility will complete detailed studies with respect to possible refinements such as: a split of residential townhomes and condominium/apartment customers into separate rate classes; introducing other customer rate classes as additional end use customer types connect to the BREU system (e.g. commercial/office buildings, large multi-use buildings at the Northern Alberta Institute of Technology, etc.). In future rate filings the Utility will endeavor to move towards reflecting cost causation principles in the design of end use customer rates wherein those rates will closely reflect the costs actually caused by the different types of customers connected to the system.

## 6.2 Rate Design and Proposed End-Use Customer Rates

### **End-Use Rates**

In establishing the end use customer rates proposed in this Rate Filing, the Utility gave consideration to the rate design principles established by Dr. James Bonbright<sup>1</sup>. These principles are summarized below:

- Rate attributes: simplicity, understandability, public acceptability, and feasibility of application;
- Freedom from controversies as to proper interpretation;

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<sup>1</sup> "Principles of Public Utility Rates", James C. Bonbright, Columbia University Press, 1961.

- Effectiveness of yielding total revenue requirements;
- Revenue (and cash flow) stability from year to year;
- Stability of rates themselves, minimal unexpected changes that are seriously adverse to existing customers;
- Fairness in apportioning cost of service among different consumers;
- Avoidance of undue discrimination;
- Efficiency, promoting efficient use of energy and competing products and services.

Dr. Bonbright's rate design principles have been used to guide utilities in setting end use customer rates in regulatory proceedings for many years and, where applicable, have been used to guide the design of the end-use customer rates in this 2019 Rate Filing.

The Utility engaged Grant Thornton to assist in establishing the regulatory framework and the setting of the 2019 end-use customer rates for the Utility. In particular, Grant Thornton was directed to: (1) identify alternative approaches for consideration in establishing customer rates for Blatchford both in the initial year of service and also in subsequent years as Blatchford grows, taking into account the framework established by the Fiscal Policy and the Financial Model, and (2) develop a model to be utilized in the calculation of end use customer rates in the first year of Blatchford including recommendations in respect of the rate classes and rate structures that should be adopted in year one, and thereafter. Grant Thornton's Blatchford District Energy Rate Review ("Rate Review") is included in Appendix 1.0.

In developing its recommendation in respect of the end-use customer rates for 2019, Grant Thornton relied upon a combination of information it obtained on rates developed for similar projects/communities in other jurisdictions, Dr. Bonbright's rate design principles noted above, the City of Edmonton's Financial Model, as well as the Blatchford Fiscal Policy. A crucial aspect underpinning Grant Thornton's study and the recommended rates was the BAU principle, as outlined in the Fiscal Policy.

In their Rate Review Grant Thornton completed their analysis for four different customer segments: (1) fee simple townhomes; (2) strata townhomes, (3) 4-6 story condominiums, and; (4) 7-10 story condominiums, consistent with the customer segmentation utilized in the Financial Model. For the purposes of this Rate Filing and Bylaw 17943, the two condominium customer segments will be referred to as 4-6 story apartments and 7-10 story apartments. It is only the referencing of these two customer segments that differs between Grant Thornton's Rate Review and this Rate Filing. All other data and assumptions in respect of these customer segments are identical between the Rate Review and this Rate Filing.

In respect of fundamentally determining what BAU is, Grant Thornton's recommended approach is to set the rates for customers of BREU such that utility bills for these customers are "pegged" directly to a bill for a similar customer outside of Blatchford. This approach directly aligns with the Fiscal Policy that a BREU customer should pay "at most a comparable fee to what they would elsewhere in the City of Edmonton through their energy utility bills and annual

maintenance costs.”. In determining what “a comparable fee” is for a customer “elsewhere in the City of Edmonton”, Grant Thornton used the following approach:

- (1) Calculate annual BAU equivalent bills for each type of customer forecast to be connected to the BREU system in 2019 (simple townhomes, strata townhomes, 4-6 story apartments and 7-10 story apartments). The BAU equivalent bills took into account assumed electricity and natural gas requirements to achieve equivalent heating, cooling and domestic hot water outputs to that provided by the Utility as well as publicly available utility rates.
- (2) Determine the differential in the annual maintenance costs (for furnaces, hot water tanks, boilers, etc) for a typical customer outside of the Blatchford community and what the expected annual maintenance costs will be for Blatchford customers. This maintenance cost differential for each type of customer was either added to or subtracted from the BAU bills determined in (1).
- (3) BREU proposed rates were then calculated to recover the sum of the annual BAU equivalent bill amount and the maintenance cost differential.

The following table provides a summary of the annual BAU bill and maintenance cost amounts for each type of customer;

**Table 12 - Summary of Annual BAU Bill and Annual Maintenance Costs (\$)**

Class	Annual BAU Bill Amount	BAU Maintenance Costs	BREU Maintenance Costs	Differential	Target BREU Annual Bill Amount
	(1)	(2)	(3)	(4)	(5)
				= (2) - (3)	= (1) + (4)
Simple Townhome	\$ 1,410	\$ 283	\$ 425	\$ (142)	\$ 1,268
Strata Townhome	\$ 1,420	\$ 294	\$ 455	\$ (161)	\$ 1,259
4-6 Story Apartment	\$ 871	\$ 444	\$ 297	\$ 147	\$ 1,018
7-10 Story Apartment	\$ 1,014	\$ 444	\$ 297	\$ 147	\$ 1,161

In terms of the final end-use customer rates, Grant Thornton recommended rates be established based on the “pegged” approach for a single class of customers, the Residential rate class, and that a two part rate structure be established: (1) separate fixed daily charges (\$/day) for townhomes and apartments, and (2) a single variable (\$/kWh) charge. The Variable Charge was set to recover 35% of the total BREU annual bill and the Fixed Charges were then set to recover the remaining 65%. Grant Thornton recommended that separate fixed daily charges be implemented for townhomes and multi-story apartments, due to the difference in BAU costs for these two types of residential loads. Grant Thornton used the simple average of the fixed daily charge for the simple and strata townhome segments to obtain the single proposed Fixed Daily Charge for townhomes. Similarly Grant Thornton used the simple average of the fixed daily charge for the 4-6 story apartment and 7-10 story apartment segments to obtain the single proposed Fixed Daily Charge for multi-story apartments.

In order to assess the reasonableness of the proposed BREU rates Grant Thornton compared annual bill differences for customers over the spectrum of energy usage. Grant Thornton completed an analysis of the differences in the BAU annual bill and the annual bill for Blatchford customers for each of the four type of residential customers at an assumed energy usage of +/- 25% (low usage/high usage) of the annual energy usage of a typical/average customer. The following tables provide a summary of the annual BREU bill, calculated based on the proposed rates, and annual BAU bill for low usage and high usage customers.

**Table 13 - Low Usage Customers - Annual BREU Bill on Proposed Rates and Annual BAU Bill (\$)**

Class	BREU Bill on Proposed Rates	BAU Bill	% Difference
Simple Townhome	\$ 1,145	\$ 1,124	1.9%
Strata Townhome	\$ 1,151	\$ 1,114	3.3%
4-6 Story Apartment	\$ 977	\$ 887	10.2%
7-10 Story Apartment	\$ 1,010	\$ 1,024	-1.4%

**Table 14 - High Usage Customers - Annual BREU Bill on Proposed Rates and Annual BAU Bill (\$)**

Class	BREU Bill on Proposed Rates	BAU Bill	% Difference
Simple Townhome	\$ 1,361	\$ 1,411	-3.5%
Strata Townhome	\$ 1,370	\$ 1,405	-2.5%
4-6 Story Apartment	\$ 1,157	\$ 1,148	0.7%
7-10 Story Apartment	\$ 1,211	\$ 1,297	-6.6%

In completing this analysis, Grant Thornton did not find any customers outside of a reasonable +/- range.

Further details of the approach Grant Thornton took to determine the exact end use rates is discussed on pages 11 to 20 of their Report.

Given that the Utility is in its first year of operation and this is the first rates for residents of the Blatchford community, the Utility submits that the approach taken by Grant Thornton and the resulting proposed rates are fair and reasonable for the following reasons:

- There will be only one type of traditional end use customer connecting to the BREU system in 2019 (i.e. residential) and there currently isn't enough information or data (e.g. hourly consumption data) available at this time to establish separate rate classes for the townhome and apartment customer segments,

- The overall BAU approach represents a very good approximation of the direction provided in the Fiscal Policy that a BREU customer should pay “a comparable fee to what they would elsewhere in the City of Edmonton through their energy utility bills and annual maintenance costs.”,
- Utilizing a simple two tier rate design (fixed daily charge and variable (\$/kwh) charge) in the first year of operations should result in a high level of acceptability and understandability for the new customers of the Utility and should lead to a higher level of proper interpretation and feasibility of application (e.g. metering/billing) of the rates themselves.
- Most current end use customer rates/contracts in the electric and gas utility industry in Alberta (e.g. Regulated Rate Option or competitive retail contracts) utilize some combination of a fixed charge and a variable charge (either c/kWh or \$/GJ) so the new customers in the Blatchford community should be very familiar and have some level of comfort with the proposed rate structure,
- A 35%/65% variable/fixed split of the rates is a reasonable compromise between representing the variable/fixed split of the Utility’s costs at this point in time (estimated at approximately 20%/80%) and the principle of promoting an efficient use of energy by utilizing a rate component that is charged based on the amount of energy consumed, while maintaining an overall level of fairness amongst high and low use customers,
- There is little to no operational information and customer usage data available to help guide more innovative rate design and any attempt to do implement more innovative (i.e. complex) rates at this time is considered premature,

The proposed end use customer rates for 2019 are summarized in the table below:

**Table 15 - 2019 Proposed BREU End-use Customer Rates may**

Rate Component		2019 Rate
<b>Fixed Charge (\$/day)</b>		
	Townhomes	1.43
	Apartments	1.12
<b>Variable Charge (\$/kWh)</b>		0.0248

BREU Rate Schedules with the proposed end use customer rates have been included in Appendix 5.0.

As the Utility grows and matures and more operational information and consumption data become available, the Utility will investigate alternatives in future rate filings to the single rate class, two component rates proposed in this Rate Filing, such as:

- Splitting the current single rate class into separate townhome and apartment rate classes,

- Adding rate classes as different end use customers (e.g. commercial/retail/office, institutional (e.g. NAIT), industrial, etc.) connect to the BREU system,
- The option of setting rate classes based on a size (MW) or consumption (MWh) differentiation rather than end use,
- Implementing separate rate components for heating and cooling,
- Implementing a seasonal or time of use component,
- Adding a demand (e.g. \$/kW) component to certain rate classes to encourage efficient use of the system
- Utilizing an inclining block variable charge to encourage conservation.

The Utility submits that it will need to gain some experience with operating and maintaining the system and be able to gather actual metered customer usage data (e.g. total consumption, consumption patterns, time of use, etc.) before any attempt at implementing any of the alternatives noted above are seriously considered.

### **Infrastructure Fee**

As outlined in the 2019-2022 Business Plan, the Utility is proposing to implement an Infrastructure Fee to charge the builders that connect residences and commercial developments to the DESS. For residential units, an infrastructure fee for 2019 of \$1,750 per unit is proposed. For each commercial development, the proposed infrastructure fee is \$20 per square meter of floor space. This fee creates an additional source of revenue for the Utility that would otherwise need to be funded by Utility rates or the non-refundable cash infusion. The proposed Infrastructure Fee for 2019 is summarized in the table below:

**Table 16 - 2019 Proposed Infrastructure Fee**

<b>Infrastructure Fee</b>	<b>Proposed 2019 Fee</b>
<b>Residential - all (\$)</b>	<b>\$ 1,750</b>
<b>Commercial (\$/m<sup>2</sup>)</b>	<b>\$ 20.0</b>

The proposed Infrastructure Fee Schedule has been included in Bylaw 17943, Blatchford Renewable Energy Utility Bylaw.

## **6.3 Revenue on Proposed Rates**

### **Rate Revenue**

The proposed rates for 2019, as discussed above, were applied to the 2019 forecast customer billing determinants (i.e. number of customers/accounts and total consumption) to derive the 2019 forecast rate revenue. The 2019 proposed customer rates were increased by 2% per year for each year during the 2020-2022 forecast period and applied to the forecast billing determinants for the appropriate year. The Utility is seeking approval for only the 2019 end use customer rates in this Rate Filing.

### **Infrastructure Fee Revenue**



The proposed Infrastructure Fee, as outlined above, was applied to the 2019 forecast number of customer connections to derive the 2019 forecast Infrastructure Fee revenue. The 2019 proposed Infrastructure Fee was increased by 2% per year for each year during the 2020-2022 forecast period and applied to the forecast number of new customer connections for the appropriate year.

The following table summarizes the forecast Rate Revenue and Infrastructure Fee Revenue for the 2019-2022 forecast period.

**Table 17- 2019 Forecast Rate and Infrastructure Fee Revenue**

	2019	2020	2021	2022
Item	Forecast	Forecast	Forecast	Forecast
<b>Revenue</b>				
Rate Revenue	77.2	161.4	206.1	325.1
Infrastructure Fee Revenue	458.5	-	238.5	421.6
<b>Total 2019 Revenue</b>	<b>535.7</b>	<b>161.4</b>	<b>444.6</b>	<b>746.7</b>

#### **6.4 Deferral Account and Interest on Financing**

As shown in Table 2 in Section 5 above, the Utility will realize a revenue shortfall each year during the 2019-2022 forecast period. Section 2.1 C of the Fiscal Policy states: "Where the Utility's cash position is insufficient to meet cash flow requirements, the Utility will borrow from the City of Edmonton on a short term basis, with the interest being paid by the Utility at an interest rate that compensates the City of Edmonton reflecting the Fund Balance were the cash was drawn." Accordingly, it is assumed that the annual revenue shortfall during the 2019-2022 forecast period will be financed by short-term debt obtained from the City of Edmonton at a rate of 3.5% for 2019, increasing by 0.25% per year over the 2020 to 2022 forecast period. The annual revenue shortfall amount and the interest expense associated with the deferral account balance each year are shown in the table below.

**Table 18 - Annual Revenue Shortfall and Interest Expense**

	2019	2020	2021	2022
Item	Forecast	Forecast	Forecast	Forecast
Total Revenue	535.7	161.4	444.6	746.7
Total Revenue Requirement	1,342.4	1,489.3	1,295.5	1,390.3
Annual Revenue Surplus (Shortfall)	(806.7)	(1,327.8)	(851.0)	(643.6)
Deferral Account Opening Balance	-	(820.8)	(2,204.4)	(3,160.5)
Annual Revenue Surplus (Shortfall)	(806.7)	(1,327.8)	(851.0)	(643.6)
Deferral Account Closing Balance	(806.7)	(2,148.7)	(3,055.3)	(3,804.2)
<b>Annual Interest Costs</b>	<b>(14.1)</b>	<b>(55.7)</b>	<b>(105.2)</b>	<b>(148.0)</b>
<b>Deferral Account Closing Balance Including interest Costs</b>	<b>(820.8)</b>	<b>(2,204.4)</b>	<b>(3,160.5)</b>	<b>(3,952.2)</b>

It is expected that as the Utility grows and more customers are connected to the system that annual customer revenue will exceed the Utility's annual revenue requirement and the debt obtained to cover the deferral account balance will eventually be paid back to the City of Edmonton.

## 6.5 Bylaw 17943

The purpose of this bylaw is to:

- (a) Regulate connections between building mechanical systems and the Blatchford district energy sharing system;
- (b) Regulate access to the Blatchford district energy sharing system;
- (c) Prevent damage or misuse of the Blatchford district energy sharing system; and
- (d) Prescribe fees and charges related to the Blatchford district energy sharing system.

The Utility has provided Bylaw 17943 in Integrated Infrastructure Services Report CR\_4358 and is requesting approval for the Bylaw to be in effect January 1, 2019.

## 7.0 Appendices

- Appendix 1.0 - Grant Thornton - Alternatives for Establishing Initial Customer Rates
- Appendix 2.0 - Blatchford District Energy Utility Fiscal Policy C597
- Appendix 3.0 - Blatchford Renewable Energy Utility 2019-2022 Business Plan
- Appendix 4.0 - Minimum Filing Requirements Schedules
- Appendix 5.0 - Proposed Rate Schedules