CREATIVENERGY

19 December 2019

Via E-filing

Mr. Patrick Wruck
Commission Secretary
BC Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC V6Z 2N3

Dear Mr. Wruck:

Re: British Columbia Utilities Commission (BCUC, Commission)
Creative Energy Vancouver Platforms Inc. (Creative Energy)
2019-2020 Revenue Requirements Application (RRA) for the
Core Steam System and Northeast False Creek Service Areas (Application)

Creative Energy writes to file the Application and requests the approvals set out in section 1.3. Attached to the Application is a working excel model of the revenue requirement schedules for each service area.

Creative Energy is requesting interim approval of 2020 rates effective January 1, 2020, as set out in section 1.3. A draft order is attached at Appendix A and corresponding tariff pages are included in Appendix B. The suggested regulatory process set out in section 1.4 contemplates that the timing of interim approval by the third week of January, 2020 would be reasonable to support the Commission's review and to allow Creative Energy to incorporate the interim approved rates into its January invoices at the close of the month.

Creative Energy also requests the Commission's consideration of one other item in the near term. Section 1.3 of the Application sets out a request for formal relief from Directive #5 on page 51 of the Decision accompanying Order G-205-18 and extension of the filing requirement of that Directive to December 31, 2020, for the reasons discussed in Appendix E of the Application - the current timeline for that filing requirement is January 31, 2020.

For further information, please contact the undersigned.

Sincerely,

Rob Gorter
Director, Regulatory Affairs and Customer Relations

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Creative Energy Vancouver Platforms Inc.

2019-2020 Revenue Requirements Application

Core Steam System and Northeast False Creek

December 19, 2019

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1 Application Overview

This document is the Revenue Requirements Application (**RRA** or **Application**) of Creative Energy Vancouver Platforms Inc. (**Creative Energy** or **CEV**) in respect of each of the Core Steam System and Northeast False Creek (**NEFC**) service areas, for the two years 2019 and 2020. Creative Energy's rates are currently in place on an interim approval basis pursuant to British Columbia Utilities Commission (**BCUC** or **Commission**) Order G-248-18. In this RRA, Creative Energy is requesting final approval of 2019 rates, effective January 1, 2019, and also interim and final approval of rates effective January 1, 2020.

The outlook for operating conditions during 2020 is business as usual for Creative Energy. The system load is expected to remain generally stable with modest new customer load in each of the Core System and NEFC service areas. The need to increase rates effective January 1, 2020 is driven primarily by increased charges and levies by governmental bodies and general inflationary cost pressures.

Creative Energy presently has an application before the Commission for a Certificate of Pubic Convenience and Necessity (**CPCN**) for the proposed Expo and Beatty Plant projects and approvals related to corporate reorganization in aid of those projects (**CPCN Application**). Assuming the BCUC grants approval of the CPCN Application, work will begin on the Expo Plant component and once the Expo Plant is completed and in-service, work will begin on the Beatty Plant renovation component. The Expo Plant will not be completed and placed into service during the period covered by this RRA. Similarly, the Beatty Plant renovation component will not begin during the period covered by this RRA. Accordingly, the projects contemplated by the CPCN Application have no impact on Creative Energy's revenue requirements during the period covered by this RRA.

Creative Energy will continue to invest in its plant and equipment during 2020, noting that the capital plan is very much targeted to sustaining the equipment that will be retained and not replaced as part of the Beatty Plant renovation project, including the steam distribution network.

1.1 Core System - Smooth and Predictable Rate Increase

Creative Energy applies for the following approvals in this Application for the Core Steam System:

- To set 2019 Core Steam system rates equal to 2019 interim approved rates, on a permanent basis effective January 1, 2019;

- To set 2020 Core Steam system rates at levels reflecting a 4.2 percent increase over 2019 rates, on a permanent basis effective January 1, 2020;

- To establish a new rate rider (the Deferral Account Rate Rider or **DARR**), effective January 1, 2020, to recover non-rate base regulatory and pension -related deferred costs from Core Steam system customers, with the level of the DARR set to recover the balance over a two-year amortization; and

- To charge a Fuel Cost Adjustment Charge (**FCAC**) Rate Rider to NEFC customers, effective January 1, 2020, to recover from these customers the existing FCAC Rate Rider in effect for Core Steam system customers pursuant to BCUC Order G-226-19.

The requested increase to Core System steam rates of 4.2 percent in 2020 is necessary to recover inflationary cost increases in the context of forecast business-as-usual operating conditions over the two-year period since rate increases were last approved. The Application sets out the underlying cost drivers in that context to support the requested increase to steam rates, with some cost recovery also deferred until 2021 under the proposed DARR. Core Steam system load remains generally stable, with recorded differences in 2019 between actual and forecast levels primarily due to colder weather last winter. Creative Energy expects to serve modest new customer load in each of the Core and NEFC service areas in 2020 and, overall, there is minimal customer attrition and the planned provision of steam service is business as usual in this time frame.[1]

Correspondingly this Application provides straightforward, detailed accounting and variance explanations of Creative Energy's cost of service between the 2020 RRA Forecast and the 2018 Approved levels. The reporting and explanations accord with the BCUC's system of accounts as required, and also refer to more detailed account-level reporting on specific cost drivers to highlight the drivers of revenue requirement increases where costs are generally considered controllable as compared to where cost pressures are externally driven and/or set in accordance with factors largely outside of Creative Energy's control.

Table 1: Smooth and Predictable Rates: 2018 to 2020

	Revenue ($)	Load (M#)	Average Rate ($/M#)	% Increase over Approved
2018 Approved	8,402,753	1,098,514	7.65	n/a
2019 Interim Approved	8,402,753	1,098,514	7.65	0.0%
2019 RRA	8,643,231	1,129,834	7.65	0.0%
2020 RRA Steam Rate	9,087,307	1,140,634	7.97	4.2%
2020 RRA Deferral Account Rate Rider ($/M# through 2021)	331,097		0.29	3.8%
Average rate impact 2019-2020				4.0%

1.1.1 Summary of Core Steam Revenue Requirements

Table 2 below provides an overall summary of the Core System revenue requirements for 2019 and 2020, with a discussion that follows comparing the components to the 2018 Approved and 2019 Projected amounts. Projected 2019 results are based on actuals through September 2019 and a forecast of October through December 2019.

[1] As explained in Appendix C, the 2020 load forecast has increased about 3 percent compared to 2018 Approved due to a corrected forecast of estimated steam transfers from the NEFC to the Core system.

Table 2: Core Revenue Requirements –Summary

Core Revenue Requirements Summary ($)	2018	2019	2019	2020
Cost or Rate Component	Approved	Projected	RRA	RRA
O&M - Total	4,475,257	4,931,063	4,931,063	5,126,308
Wages and Benefits (Steam, Distribution & Management)	2,692,446	2,713,899	2,713,899	2,992,604
Water-related and Electricity Expenses	776,350	943,543	943,543	991,046
Maintenance and related functional Operations	487,994	504,187	504,187	499,108
Special Services (Regulatory, Audit, Legal, Consultant)	233,315	485,361	485,361	313,215
Other General & Administration & Sales Expense	285,152	284,074	284,074	330,335
Municipal Access Fee	258,887	262,726	262,726	272,015
Property Taxes	595,160	661,900	661,900	763,300
Income Taxes	275,579	279,700	279,700	283,400
Depreciation	1,010,151	944,584	944,584	971,284
Interest Expense	600,856	585,000	585,000	608,000
Return on Equity	1,053,026	966,594	1,024,000	1,063,000
Total Return on Rate Base	1,653,882	1,551,594	1,609,000	1,671,000
Subtotal	8,268,916	8,631,567	8,688,973	9,087,307
Approved amortization of deferred Regulatory and Pension expenses in steam rate	133,837	n/a	n/a	n/a
Amortization of deferred Regulatory and Pension expenses in DARR	n/a	n/a	n/a	331,097
Revenue	8,402,753	8,632,146	8,643,231[2]	9,418,404
Rate Summary				
Steam Load M#	1,098,514	1,129,834	1,129,834	1,140,634
Average Steam Rate $/M#	7.65	7.64	7.65	7.97
Average Steam Rate % increase	n/a	n/a	0.0%	4.2%
Deferral Account Rate Rider (DARR) $/M#	n/a	n/a	n/a	0.29
DARR % rate impact	n/a	n/a	n/a	3.8%
Rate of Return Summary				
Rate Base	25,603,229	25,367,554	25,367,554	26,329,211
Debt	14,721,857	14,586,343	14,586,343	15,139,296
Equity	10,881,372	10,781,210	10,781,210	11,189,915
Debt %	57.5%	57.5%	57.5%	57.5%
Equity %	42.5%	42.5%	42.5%	42.5%
Weighted Average Cost of Debt	4.1%	4.0%	4.0%	4.0%
ROE	9.5%	9.0%	9.5%	9.5%

1.1.1.1 2018 Approved

By Order G-205-18 and accompanying Decision dated October 25, 2018 (**2018 Decision**), the Commission denied Creative Energy's application for approval of a multi-year index-based ratemaking mechanism for the period 2018-2020. Permanent rates for 2018 were subsequently determined and approved in accordance with the 2018 Decision. For that purpose, the 2018

[2] This amount is less than the subtotal revenue line item, which reflects the proposal to set 2019 rates equal to the interim approved level of 7.65/M# given projected load and to concurrently record an addition to the Third-Party Regulatory Costs Deferral Account in the amount of the difference ($45,742) for recovery through the DARR beginning in 2020. Please refer to sections 1.1.1.2 and 1.1.1.3 for further discussion of the regulatory cost pressures that provide the impetus for this approach to cost recovery and rate smoothing.

Decision established an approved steam load forecast of 1,098,514 thousand pounds of steam (**M#**) equal to the level of the 2017 approved load forecast. The Commission accepted that variances in actual 2017 load compared to forecast were primarily driven by weather, outside of Creative Energy's control and not indicative of future results. The Commission concluded that the demand forecast of 1,098,514 M# was generally consistent with the Commission's determination of Creative Energy's 2018 revenue requirement.

The 2018 permanent rates amounted to a 0.15 percent increase over the 2017 approved rates, factoring in certain inflationary and other accounting adjustments. Permanent rates effective January 1, 2018 were approved in November 2018 and rates for 2019 were approved shortly thereafter on an interim basis effective January 1, 2019 and equal to 2018 approved rates pending this Application for permanent 2019 rates.

1.1.1.2 2019 Projected

Projected 2019 results are based on actuals through September 2019 and a forecast of October through December 2019. Projected 2019 revenues are approximately 4.4 percent higher than 2018 Approved. Operating cost pressures in 2019 have been offset by higher revenues due to actual steam load that is about 3 percent higher than the approved load forecast, which was driven by colder weather during certain periods of the winter heating season earlier this year. One particular impact of note was the polar vortex that descended into the region including into Vancouver during February 2019. The effect of the polar vortex in February 2019 was an increase in actual load of 30 percent over the seasonal projected load for that month (175,617 M# Actual versus 134,732 M# February Seasonal Projection, or 40,885 M# higher than forecast). That increase alone is greater than the net observed difference of approximately 31,000 M# between 2019 Projected Load and 2018 Approved Load, supporting the view that this net difference is broadly explained by weather variation.

Approximately 95 percent of the total projected increases in 2019 Projected costs compared to 2018 Approved are related to externally-driven cost pressures largely outside of Creative Energy's control (~$421,000 compared to ~$456,000 as reported in Table 4 below). Approximately 80 percent of the externally-driven costs are due to higher regulatory costs and higher water-related costs as set by the City of Vancouver (~$178,000 and $167,000 compared to ~$421,000, respectively, or ~40% of the difference for each), and another 15 percent relates to significant property tax increases in 2019.

Creative Energy remarks that the under normalized weather patterns it would have required a rate increase of about 3.5 percent to contend with these cost pressures in 2019 alone. The increased revenue due to higher than forecast load in 2019 has assisted in avoiding a rate increase that would otherwise be required had load tracked close to the 2018 Approved load forecast, but Creative Energy nonetheless projects earning a lower ROE than approved under the circumstances in 2019.

1.1.1.3 2019 RRA

The 2019 RRA mirrors 2019 Projected results, with the exception that the 2019 RRA incorporates the allowed ROE of 9.5 percent into the determination of the required average rate and specifically targets maintaining 2019 rates equivalent to 2018 rates.

The 2019 projected load is 3 percent higher than the 2018 Approved load forecast of 1,098,514 M#, an outcome that is not indicative of future results but rather related to colder weather last winter. The projected load for 2019 is based on 9 months of actual data and on this basis, and as shown in Table 2, Creative Energy has used the projected 2019 load for the purpose of calculating 2019 permanent rates as compared to a weather normalized amount.

Creative Energy's intent is to maintain smooth and predictable rate increases over the entire 2019 to 2020 period while allowing it to recover its cost of service under business as usual conditions in response to inflationary pressures and with a fair opportunity to earn its allowed ROE. Accepting the removal of an otherwise beneficial sharing of the load impact in 2019 allows Creative Energy to put in place this objective.

The objective to maintain smooth and predictable rate increases over the entire 2019 to 2020 period is also supported by accruing an incremental portion of the higher than forecast regulatory costs in 2019 (~46,000 of the ~178,000 additional regulatory costs) for recovery through the Third-Party Regulatory Costs Deferral Account, beginning in 2019. Absent this treatment, Creative Energy would require about a 0.7 percent increase in the average 2019 rate effective January 1, 2019, even with the benefit of higher load factored in.

In summary overall, subject to the proposed approach, the effect is to demonstrate that 2019 rates can be made permanent at the same levels as the 2019 rates that are in place now on an interim approval basis.

1.1.1.4 2020 RRA

The 2020 RRA increase is driven largely by inflationary increases across all business functions: an approximate 3% increase to Wages and Benefits over the two years from 2018 to 2020 as well as increases to City of Vancouver water expenses (2.6%) and Property Taxes (2.0%), among other externally-driven factors. A forecast increase in load (4%) compared to the 2018 Approved load forecast offsets these cost pressures, with a net increase in steam rates of 4.2 percent required. Please refer to Table 3 for a summary of the overall factors. While operating costs related to Wages and Benefits are regarded as generally controllable, the main accounting of these increases relates to annual increases in accordance with a collective agreement with the union representing plant and distribution employees.

The 2020 base load forecast for customers connected to the Core system, normalized for weather, is equal to the 2018 Approved load forecast for those customers, as discussed in Appendix C. The 2020 load forecast has been developed using existing forecast methodologies with minor exceptions. The incremental increase in steam load is explained largely by the addition of new

customers connecting to the NEFC system, requiring the Core system to supply more steam to the PARQ Hot Water Plant serving NEFC.

Table 3: Incremental Factors impacting 2020 Steam Rate Increase compared to 2018 Approved

Summary	Applicable Amount ($)	% of Rate Impact (2018-2020)
Amortization of deferred Regulatory and Pension expenses in steam rate	(133,837)	-1.6%
Controllable costs as generally understood	305,222	3.7%
Externally Driven Costs as generally understood	513,169	6.1%
Load M#	42,120 M#	-4.0%
Total Core Steam Rate Increase 2020		4.2%

Further summary detail into the business as usual cost drivers in 2020 are presented in Table 4 below. As noted, the two-year span of cost increases in 2020 compared to 2018 Approved primarily relate to supervision and labour-related inflationary cost increases for the operation of the steam plant and distribution system, and external water cost and steam production expenses as well as tax increases.

Table 4: Core Revenue Requirements – Summary of Component Rate Increase and Variance from 2018 Approved to 2020 RRA

2020 Rate Increase Components				
Cost Component	General Category of Cost Control	2018 Approved to 2019 RRA	Explanatory Variance of Overall Steam Rate Increase: 2018 Approved to 2020 RRA	
O&M		455,806	651,051	7.7%
Wages and Benefits (Steam, Distribution & Management)		13,008	247,923	3.0%
	External	8,445	52,235	0.6%
Water-related expenses (Fees, treatment, electric service)		-	-	0.0%
	External	167,194	214,697	2.6%
Maintenance (including parts, supplies, safety and vehicles)		16,192	11,114	0.1%
	External	-	-	0.0%
Special Services (Regulatory, Audit, Legal, Outside Services)		54,445	49,563	0.6%
	External	197,601	30,336	0.4%
Other General & Administration (e.g. insurance, office expenses)		(49,548)	(3,377)	0.0%
	External	48,469	48,560	0.6%
Municipal Access Fee	External	3,839	13,128	0.2%
Property Taxes	External	66,740	168,140	2.0%
Income Taxes	External	4,121	7,821	0.1%
Depreciation	External	(65,567)	(38,867)	-0.5%
Interest Expense	External	(15,856)	7,144	0.1%
Return on Equity	External	(29,026)	9,974	0.1%
Summary				
Amortization of deferred Regulatory and Pension expenses in steam rate			(133,837)	-1.6%
Controllable Costs as generally understood		34,098	305,222	3.7%
Externally Driven Costs as generally understood		421,708	513,169	6.1%
Load M#			42,120	-4.0%
Total Steam Rate Increase 2020				4.2%

1.1.1.5 Deferral Account Rate Rider

The 2020 RRA reflects implementation, effective January 1, 2020, of the requested new Deferral Account Rate Rider (**DARR**) to recover non-rate base regulatory and pension -related deferred costs from Core customers, amortized over two years. The forecast balance of non-rate base deferred expenses that are approved for recovery through the established Pension and Third-Party Regulatory Costs Deferral Accounts totals $641,614, amounts recorded and un-recovered through the period ending December 31, 2018, plus the noted addition of ~$46,000 as explained in section 1.1.1.3. These costs relate both to a change in the valuation of pension costs and to the BCUC regulatory review costs charged to Creative Energy for its review of the Beatty-Expo Plants CPCN and Reorganization Application (BCUC Project No. 1598962). For further discussion, please refer to section 5.

The objective of the rate rider mechanism and two-year amortization is to target smooth and stable recovery of these irregular regulatory and pension cost impacts. Under the proposed DARR, these costs will be recovered from Core Steam customers on a single per unit basis ($/M#) and not tied to the declining block steam rate design. This approach will promote more equitable allocation of cost recovery from customers and more predictable cost recovery by the utility. This rate mechanism also supports approval of the applied-for 2020 rate increase as a separate accounting of the current costs required to serve customers.

Creative Energy proposes that the DARR be set at a level to recover these costs over a two-year amortization. Creative Energy notes that a one-year amortization of these costs, for example, would equate to about a 11.5 percent steam rate increase overall in 2020.

1.2 Northeast False Creek – Prudent increase to levelized rates

1.2.1 Introduction

The revenue requirements, rate design and rates for the NEFC service area were established by Order G-167-16 and the Commission's accompanying decision into Creative Energy' 2016-2017 RRA and Rate Design for NEFC Hot Water Service.

Order G-167-16 established the NEFC revenue requirements utilizing two forms of deferral accounts:

1. Revenue Deficiency Deferral Account (**RDDA**) - A RDDA is in place to address the timing differences between the installation of the required infrastructure to serve hot water load and the buildout of customer load over time. The RDDA allows for a levelized rate structure to smooth rate increases over time recognizing that the rates will not initially recover forecast revenue requirements. Forecast revenue shortfalls during initial years of service are approved to be added to the balance of the RDDA to be ultimately recovered through load growth and levelized rate increases over time.

The Commission Panel into the 2016-2017 RRA approved a RDDA recovery period commencing in 2020 and ending in 2030 as reasonable given forecast revenues and a relatively small forecast peak balance in the RDDA at that time.[3]

The approved mechanism of the RDDA records variances between approved revenue requirements and forecast revenues calculated on the basis of approved rates and load forecast; it is not approved to capture revenue shortfalls based on differences between actual revenues received and approved forecasts. Certain variances in that latter respect are addressed separately through the Variance Deferral Account described below.

2. Variance Deferral Account – A Variance Deferral Account is in place to capture variances related to the following material items outside of management's control, to be amortized over a one-year period and recovered through the hot water rates:

    - Variances in the NEFC customer revenues due to the difference between forecast versus actual load
    - Variances between forecast versus actual Steam Service rates and Fuel Cost charged to NEFC;
    - Variances between forecast versus actual Distribution expenses; and
    - Variances between forecast versus actual Income Tax expense.

    The Variance Deferral Account was approved for a five-year period at which time Creative Energy must apply for renewal, that being the period therefore beginning January 1, 2021.[4]

As part of its 2016-2017 Application, Creative Energy adopted the NEFC hot water load forecast that was filed and accepted by the Commission in the NEFC CPCN proceeding. A summary of projected demand was included in Table 13 of the Commission's Decision at page 63. The reported hot water demand forecast for 2016 and 2017 was accepted by the Commission Panel for the purpose of setting the 2016-2017 NEFC revenue requirements.

NEFC rates and an opening balance in the RDDA were thus approved for 2017 as follows:

- A fixed Rate of $0.27 per square meter per month;
- A Variable Rate of $52.1 per megawatt hour (MWh); and
- An addition to RDDA in the amount of $373,900.

These rates were maintained at this level during 2018, Creative Energy having not applied for any changes to NEFC rates for that period, and a corresponding increase to the RDDA balance in 2018 of $373,900 was recorded.

[3] Order G-167-16 Decision, page 69.

[4] Order G-167-16 Decision, pages 70-71.

By Order G-148-18 Creative Energy was directed to maintain NEFC's fixed and variable rates at the levels above on an interim basis, effective January 1, 2019. Finalization of 2019 rates for the NEFC system together with a request for approval of an increase to NEFC rates in 2020, are subjects of this Application.

1.2.2 NEFC Neighbourhood Development Update

The hot water load forecast that formed the basis of the Creative Energy's NEFC CPCN Application in 2015 and its NEFC RRA in 2016 assumed full buildout in the NEFC neighborhood on 8 parcels of land by 2025 with a total connected floor area of 506,300 square meters and total hot water demand of 48,100 MWh.

Presently, Creative Energy has connected a total of four buildings in the NEFC, served by two hot water plants, with a total connected floor area of 162,481 m^2 and hot water demand of 19,162 MWh forecast for 2020, the first full year of forecast consumption for all four buildings in total.

The City of Vancouver (the **City**) has extended their connection bylaw to now include the future development in the NEFC neighbourhood, which means that the City will provide service to the future developments in NEFC, rather than Creative Energy.

Creative Energy intends to supply the hot water to serve the City's loads in the NEFC as it develops using the installed capacity and capital expansions as contemplated when the rates and RDDA were established for NEFC service. However, the necessary arrangements with the City have not been made yet for Creative to serve that load and are subject to the City's process. At this point in time therefore, Creative Energy does not have a consolidated forecast of load growth in the NEFC neighbourhood and the timing of the required incremental capacity investments to support that load growth is uncertain.

As a result, Creative Energy believes that at this time there is not a sufficient basis to determine longer-term levelized increases to NEFC rates given the uncertainty in relation to load growth. In its next RRA and as applicable following confirmation with the City of a long-term plan for connecting new load in the NEFC, Creative Energy will renew a long-term plan of projected levelized rates that recover the RDDA over a reasonable time frame. In the absence of such a consolidated basis on which to determine current rates within a longer-term plan for RDDA recovery, Creative Energy sets out below its 2019 and 2020 revenue requirements for the NEFC with a plan to commence recovery of the RDDA balance in 2020 through a modest increase in rates.

Creative Energy notes that it intends to review the NEFC rate design in terms of both: 1) the application of the Variance Deferral Account as directed by the Commission, and 2) the mechanism by which forecast fuel and steam input costs to serve current NEFC customers in the current period are captured in the forecast amounts to be added to the RDDA rate smoothing deferral account for future recovery. The latter effect and concern is readily observed in Table 5 in the magnitude of the overall Cost of Sales ($1.24 million) as a percentage of the Total Revenue Requirement ($1.96 million) in 2020 (~65%) compared to the under-recovery of the 2020 total cost of service by about 20 percent under projected rates (Projected revenues of $1.58 million). Creative Energy's intention is to bring forward these matters in a separate filing, as part of its next RRA for example.

1.2.3 NEFC Revenue Requirements and Proposed Rate Increase

Please refer to Table 5 for a summary of the NEFC revenue requirements for the 2019 and 2020 test period and in reference to the discussion further below to the impacts in each year.

Table 5: NEFC Revenue Requirements – Summary

Component	2017 Approved	2017 Actual	2018 Approved	2018 Actual	2019 RRA	2020 RRA
Fuel (excluding FCAC Rate Rider)	313,800	282,725	313,800	354,737	458,904	752,306
Steam Tariff	222,900	187,360	222,900	223,974	208,549	492,249
Subtotal Cost of Sales	536,700	470,085	536,700	578,711	667,453	1,244,555
O&M Expense	121,600	115,742	121,600	243,981	115,319	161,044
Municipal Taxes	10,100	10,601	10,100	13,077	17,768	19,765
Income Tax Expense	3,700	16,324	3,700	(28,741)	5,653	19,313
Depreciation Expense	180,300	-	180,300	96,582	184,100	208,800
Return on Rate Base	321,800	134,205	321,800	284,348	303,000	307,000
Total Revenue Requirement	1,174,200	746,957	1,174,200	1,187,958	1,293,293	1,960,478
Hot Water Sales Revenues	800,300	848,053	800,300	1,046,191	1,421,412	1,581,195
Revenue (Surplus)/Deficiency	373,900	n/a	373,900	n/a	(128,120)	379,282
FCAC Rate Rider Recovery						309,360

1.2.3.1 2019 NEFC RRA

Creative Energy proposes to maintain interim 2019 NEFC hot water rates on a permanent basis; that is, no increase to the rates set in 2017 and that remain in effect currently on an interim basis.

- Fixed Rate of $0.27 per square meter per month;
- Variable Rate of $52.1 per MWh.

Under this proposal Creative Energy maintains compliance with the direction under Order G-167-16 to not begin recovery of the RDDA balance until 2020.

Creative Energy seeks approval to reduce the RDDA balance for recovery in a future period by the projected reduction of $128,120. The indicated reduction in the RDDA balance of $128,120 is explained by lower than expected fuel and steam costs due to lower recorded steam transfers to the Core that should have been expected based on projected customer demand for hot water in MWh. The steam meter at the PARQ Hot Water Plant was very recently detected to be under-reporting steam flow. The effect was to reduce the total revenue requirement below the revenues projected based on MWh hot water load. Creative Energy is addressing this matter prospectively as part of the 2020 NEFC RRA and an associated increase to the forecast of NEFC steam load and the projected cost of steam sales in 2020.

1.2.3.2 2020 NEFC RRA

Creative Energy proposes to increase 2020 NEFC system rates over the rates currently in effect by 3.7 percent as follows:

- Fixed Rate of $0.28 per square meter per month; and
- Variable Rate of $54.03 per MWh.

The NEFC rate increase of 3.7 percent is equivalent to a one cent increase in the fixed charge per square meter per month and an approximate $2 per MWh increase in the variable charge. The increase was determined in consideration of the update provided in section 1.2.2, namely that:

- The amount and timing of long-term load growth that will connect to the NEFC system is uncertain; and therefore
- Levelized rate increases to commence RDDA recovery over a reasonable period cannot at this time factor in future load growth in the NEFC with certainty.

The rate increase of 3.7 percent is estimated as a reasonable minimum required increase based on an indicative estimate of inflation of 2 percent per year in steam, fuel and operating costs and continued recovery of and on the infrastructure capital invested and that which would target recovery of the RDDA in 15 to 20 years all else equal. In the alternative, a determination of the necessary rate increases under a levelized approach to clear the RDDA balance in 10 years by 2030, as contemplated under Order G-167-16, may not be reasonable at this time due to current uncertainty of load growth in the NEFC neighbourhood and an expected rate increase of 5 percent per year over that time frame to existing customers assuming no load growth.

While this is necessarily a simplified approach under the current uncertainty, Creative Energy believes it is prudent to commence recovery of the RDDA balance at this time and to avoid a larger addition to the RDDA balance otherwise in the current and future periods. The proposed 2020 rate increase is within a reasonable range in consideration of the cost of service to current customers.

1.2.3.3 Fuel Cost Adjustment Charge (FCAC) Rate Rider

Creative Energy also proposes to recover directly from NEFC customers those amounts approved to be recovered from steam customers though the FCAC Rate Rider approved by Order G-226-19, as explained and specifically applied-for below.

Creative applies for approval to put into effect a new charge to NEFC customers to recover the existing FCAC Rate Rider in effect for steam customers, but on a $/MWh of hot water load basis and equal to $16.15/MWh. With this charge in place, Creative Energy will correspondingly exclude forecast recovery of these amounts from the fuel cost of service forecast, and the forecast amount for approval to add to the RDDA for 2020 will be reduced accordingly.

As discussed in section 2.3, the Commission recently approved a FCAC Rate Rider equal to $4.40/M# effective March 1, 2019 and to remain in place until February 2021 for a period of 24 months in total. The FCAC Rate Rider allows Creative Energy to recover from its steam customers

over that period the extraordinary excess fuel costs that it incurred to provide service during the winter of 2018/2019.

Absent a direct charge of an equivalent FCAC Rate Rider to NEFC customers in 2020, the total forecast cost associated with the FCAC Rate Rider will be included in the NEFC total forecast cost of fuel and thus the net effect of the levelized rates currently in place for NEFC customers would be under-recovery of these fuel costs over the 24-month period the Commission determined as appropriate in its Order G-226-19 Decision. Therefore, consistent with the intent of the FCAC Rate Rider, Creative Energy believes that the amount of FCAC Rate Rider revenue to be included in the 2020 NEFC revenue requirement should be directly recovered from NEFC customers in 2020 by way of a rate rider and it is appropriate therefore to not include those amounts in the RDDA for future recovery. This approach also maintains consistency with the approved intent and mechanism of the RDDA as a rate smoothing account for a separate and different purpose as described in section 1.2.1.

The proposed FCAC Rate Rider of $16.15/MWh is determined on the basis of the NEFC load forecast set out in section 4. It is equal to:

$$\frac{\text{FCAC Rate Rider \$4.40/M\# * 2020 forecast NEFC steam load transfer 70,309 M\#}}{\text{2020 Forecast hot water load of 19,162 MWh}}$$

The total amount, $309,360, forecast to be recovered from NEFC customers is excluded from the fuel cost component of the 2020 revenue requirements reported in Table 5.

Creative Energy therefore seeks approval to add $379,282 to the RDDA balance for recovery in a future period. Without a rate rider in place to directly charge NEFC customers for the FCAC Rate Rider, the amount to add to the RDDA would equal $688,642 ($309,360 + $379,282).

1.3 Requested Approvals

In this Application, Creative Energy is seeking Orders of the Commission granting the approvals described below pursuant to the noted sections of the legislation. A draft Commission Order is provided in Appendix A to this Application while Appendix B provides the corresponding tariff pages for approval.

Creative Energy requests the following approvals:

1. Interim approval, effective January 1, 2020 and pursuant to sections 58 to 60 and 90 of the *Utilities Commission Act* (the **Act**) and section 15 of the *Administrative Tribunals Act*:
   - the Core Steam rates set forth in Appendix B-1;
   - the Core Deferral Account Rate Rider set forth in Appendix B-1;
   - the NEFC hot water rates set forth in Appendix B-2;
   - the NEFC FCAC Rate Rider set forth in Appendix B-2;
2. Permanent approval, effective January 1, 2019 and pursuant to sections 58 to 60 of the Act:

- the Core Steam rates set forth in Appendix B-3;
- the NEFC hot water rates set forth in Appendix B-4;

3. Permanent approval, effective January 1, 2020 and pursuant to sections 58 to 60 of the Act:
   - the Core Steam rates set forth in Appendix B-5;
   - the Core Deferral Account Rate Rider set forth in Appendix B-5;
   - the NEFC hot water rates set forth in in Appendix B-6; and
   - the NEFC FCAC Rate Rider set forth in Appendix B-6.

In addition, Creative Energy seeks:

- Approval of a modified 2-factor Massachusetts's Formula for cost allocation of residual General and Administration expenses among Creative Energy projects, as set out in section 2.2; and
- Formal relief from Directive #5 on page 51 of the Decision accompanying Order G-205-18 and extension of the filing requirement of that Directive to December 31, 2020, for the reasons discussed in Appendix E – LTRP Update.

1.4 Recommended Regulatory Review

Creative Energy proposes that this Application is suitable for review through a written hearing process of the Commission beginning in January, and that a regulatory timetable as suggested in the following table would be appropriate.

Table 6: Suggested Regulatory Timetable

Action	Date	Time increment	Time span
Application Filed	December 19	-	
Creative Energy – Notice of Application to Customers, Intervenors, Website	December 27	1 week	
Intervenor Registration	January 17	3 weeks	4 weeks
Commission and Intervenor Information Request (IR) No. 1 to Creative Energy	January 24	1 weeks	5 weeks
Creative Energy Response to IR No. 1	February 14	3 weeks	8 weeks
Creative Energy Evidentiary Update	February 21	1 week	9 weeks
Commission and Intervenor IR No. 2 to Creative Energy	March 6	2 weeks	11 weeks
Creative Energy Response to IR No. 2	March 20	2 weeks	13 weeks
Creative Energy Final Argument	April 9	3 weeks	16 weeks
Intervenor Final Argument	April 23	2 weeks	18 weeks
Creative Energy Reply Argument	April 30	1 week	19 weeks

Creative Energy notes that this timetable contemplates the option for Creative Energy to file an Evidentiary Update to the Application if there are any material changes to its evidence that arise; for example, related to confirmation of 2020 Property taxes or an update to 2019 load based on the full year actual result, or updates to the NEFC Variance Deferral Accounts based on 2019 actual results.

2 Application Context

2.1 Business Context

Creative Energy owns and operates a number of thermal energy systems (**TES**) whose rates are regulated by the BCUC. The largest of Creative Energy's TES is the steam production plant at 720 Beatty Street and associated steam distribution network that began operating in 1968 and now serves over 200 buildings in downtown Vancouver (the **Core Steam** system).

The Core Steam system also supplies thermal energy to Creative Energy's Northeast False Creek hot water system (**NEFC** system), which serves four buildings in the NEFC neighbourhood of Vancouver. The NEFC system is thus both a customer of the Core Steam system and a separate service area with its own Commission-approved revenue requirements and rates for hot water service.

Creative Energy also owns and operates several TES that are not connected to the Core Steam or NEFC systems, some of which are exempt from Commission regulation as Stream A TES in accordance with the Commission's Thermal Energy Systems Regulatory Framework Guidelines (**TES Guidelines**) and some of which are regulated as Stream B TES.

Creative Energy is a wholly owned subsidiary of Creative Energy Canada Platforms Corp. (**Creative Energy Canada**). In 2014, Creative Energy Canada acquired all of the shares of Central Heat Distribution Ltd. (**CHDL**) with Commission approval and renamed the company Creative Energy.

Creative Energy Canada and Emanate Energy Solutions Inc. have formed a partnership, Creative Energy Developments Limited Partnership (**CEDLP**), to pursue new TES projects primarily in BC and Ontario. A project that CEDLP determines to have merit and plans to proceed to implementation in BC will be transferred to a subsidiary entity that will apply for all necessary regulatory approvals as required under the Act and TES Guidelines, including for a Certificate of Public Convenience and Necessity (**CPCN**) and rates, as applicable. The subsidiary will construct and operate the approved TES project.

A Board of Directors is responsible for the stewardship of the business and affairs of Creative Energy. An experienced and capable management team is in place to ensure the provision of safe, reliable and cost-effective service and to deliver on the strategic priorities of the company.

Table 7 below reports TES in the Lower Mainland that are currently in operation, forecast to begin operating during 2019-2020 and that are under development by **CEDLP** and not under the control of Creative Energy Vancouver Platforms. Reference to this table supports the discussion of cost allocation further below in section 2.3.

Table 7: Creative Energy Thermal Energy Systems in Vancouver, Planned or In-service

Vancouver Projects	TES Type	Status	Entity
Core Steam	Stream B	In-service	CEV
NEFC	Stream B	In-service	CEV
Main & Keefer	Stream A	In-service	CEV
Kensington Gardens	Stream A	In-service	CEV
South Downtown Heating TES	Stream B	In-service	CEV
South Downtown Cooling TES	Stream B	Subject to approval	CEV
Pendrell Heating	Stream A	In-service	CE Pendrell LP
Horseshoe Bay Heating	Stream A	Planned	CEDLP
Main & 5th Cooling	Stream B	Planned	CEDLP
Cambie Thermal - Corix Partnership	Stream B	Planned	CEDLP

2.2 Cost Allocation

The following discussion highlights: 1) the allocation of Creative Energy staff time between Creative Energy's regulated projects and to the CEDLP projects, 2) the direct assignment of the capitalization of staff time to Creative Energy's Vancouver Projects and the net expenses allocated to Creative Energy Vancouver Platforms overall, and 3) the methodology for allocating the net expenses of Creative Energy Vancouver Platforms between the Core Steam system and Creative Energy's other regulated Vancouver Projects.

The overall intent is to demonstrate that the costs of staff time and other general and administrative expenses are fairly and properly assigned to the Core and NEFC revenue requirements and that the customers of the Core and NEFC do not subsidize and are not subsidized by either the customers of other Creative Energy projects in operation in Vancouver or any projects in development in Vancouver or elsewhere.

2.2.1 Direct Allocation of Time to Capital versus Expense

Table 8 reports the forecast allocation of Creative Energy staff time between CEV and CEDLP and the direct assignment of forecast time to CEV that will capitalized. These allocations and assignments are developed by the Management team and reviewed with the Board of Directors. Table 8 also reports the net forecast of expenses to be assigned to CEV on a percentage basis, which is an input to the allocation of expenses across all regulated Vancouver projects, including the Core system, using the Massachusetts Formula methodology as approved by the Commission under Order G-205-18, and as described further below.

Table 8: 2020 Budgeted Time Allocation and Project Assignment by Role

	Time Allocation		Creative Energy Vancouver Platforms				
	Creative Energy Vancouver Platforms	Creative Energy Developments Limited Partnership	Project Assignment			Net Expense Assignment to Core RRA	
			Direct Assignment to CEV Projects (Capitalized)	Expensed to CEV	Net CEV Expense	Direct Assign-ment	Mass. Form.
Chief Executive Officer	50%	50%	0%	100%	50%	n/a	Yes
VP, Engineering & Projects	40%	60%	80%	20%	8%	n/a	Yes
VP, Business Development	0%	100%	n/a	n/a	0%	n/a	n/a
Chief Financial Officer	30%	70%	0%	100%	30%	n/a	Yes
Director, Regulatory Affairs	80%	20%	0%	100%	80%	n/a	Yes
Director, Operations	100%	0%	0%	100%	100%	n/a	Yes
Director, Engineering (planned)	40%	60%	80%	20%	8%	n/a	Yes
Mgr. Corporate Development	60%	40%	0%	100%	60%	n/a	Yes
Construction Manager	100%	0%	80%	20%	20%	n/a	Yes
Project Engineer	0%	100%	n/a	n/a	0%	n/a	n/a
Project Engineer	0%	100%	n/a	n/a	0%	n/a	n/a
Project Engineer (planned)	0%	100%	n/a	n/a	0%	n/a	n/a
Controller	70%	30%	0%	100%	70%	n/a	Yes
Accountant	80%	20%	0%	100%	80%	n/a	Yes
Accountant	40%	60%	0%	100%	40%	n/a	Yes
Office Coordinator	60%	40%	0%	100%	60%	n/a	Yes
Chief Engineer Steam Plant	100%	0%	0%	100%	100%	Yes	n/a
Steam Plant Crew (11)	100%	0%	0%	100%	100%	Yes	n/a
Distribution Lead	97%	3%	0%	100%	97%	Yes	n/a
Distribution Crew (6)	97%	3%	0%	100%	97%	Yes	n/a

2.2.1 Assignment of Net Expenses using the Massachusetts Formula

Commission Order G-205-18 approved for Creative Energy the use of the Massachusetts Formula methodology to allocate Sales and General & Administrative costs between Creative Energy's Core steam service and its other regulated Vancouver projects, including the NEFC.

The Panel in the 2018-2022 RRA proceeding agreed with Creative Energy's assessment that the methodology is used by many utilities and is a valid methodology commonly used to allocate costs to outside projects or other entities. The Panel approved the methodology for application in future revenue requirements. All salaries and benefits that are not directly assigned and capitalized to projects are included in the category of General & Administrative costs for allocation as per the Massachusetts Formula methodology. Further detail and explanation into General and Administrative costs is provided in section 3.2.7.

Creative Energy has found the use of the Massachusetts Formula in practice to be a simple, effective and non-controversial approach and confirms that there is no reason why the methodology ought not to continue to be applied. However, as discussed below, Creative Energy recommends a small modification to the formula to account for the disparate size and number of customers served by each Creative Energy system and that thereby improves the fairness in the

cost allocation between them consistent with the expected level of administrative and management effort required.

The approved Massachusetts Formula methodology derives the percentage ratio between each regulated Vancouver project and Creative Energy Vancouver Platforms overall for each of the following three factors:

1. Gross property, plant and equipment;
2. Direct labor expenses; and
3. Gross revenues.

A combined percentage ratio is then derived for each project as the simple average of these three factors. The combined ratio for each project is applied to the total General and Administrative costs of CEV to determine the amounts to be allocated to each project. Those costs are the net expenses.

Creative Energy proposes in this Application to use a modified formula based on only two factors, Direct labour expenses and Gross revenues, and excluding Gross property, plant and equipment, the results of which are illustrated in Table 9.

Table 9: Massachusetts Formula: 3 Factor versus 2 Factor

	Core	NEFC	Main & Keefer	Kensington Garden	SODO Heating	SODO Cooling[5]	Pendrell[6]	Total
Factor ($)								
Capital	25,665,155	4,851,398	781,427	1,865,605	3,752,214	1,418,054	1,254,230	39,588,083
Revenues	9,087,307	1,581,195	135,544	341,167	418,675	159,541	167,156	11,890,586
Plant & Dist. Labour	2,228,989	51,691	19,384	77,536	51,691	12,737	25,845	2,467,874
Ratio								
Capital	65%	12%	2%	5%	9%	4%	3%	100%
Revenues	76%	13%	1%	3%	4%	1%	1%	100%
Plant & Distribution Labour	90%	2%	1%	3%	2%	1%	1%	100%
Combined Ratio: 3 Factor	77.2%	9.2%	1.3%	3.6%	5.0%	1.8%	1.9%	100%
Combined Ratio: 2 Factor	83.4%	7.7%	1.0%	3.0%	2.8%	0.9%	1.2%	100%
3-Factor Allocation	1,211,978	144,695	20,407	56,123	78,995	28,470	29,420	1,570,089
2-Factor Allocation	1,309,019	120,837	15,115	47,189	44,085	14,585	19,258	1,570,089
Difference	97,041	-23,857	-5,292	-8,934	-34,910	-13,885	-10,162	-

Creative Energy considers the 2-factor allocation method to be more reasonable as it improves the relative fairness in the cost allocation across all systems and to the individual customers served. That is, it may not be as fair to allocate a disproportionate amount of administration cost based on the relative asset base in comparison to our Core system, which has significantly more customers

[5] Assume effective July, 2020.

[6] Pendrell received Stream A approval under the CEDLP entity, but Creative Energy will be transferring ownership to a separate regulated limited partnership entity to ensure the proper separation of its activities from non-regulated CEDLP activities.

than the other systems. Creative Energy notes also that for the two Stream A systems under which rates were established prior to the adoption of the Massachusetts formula (Main & Keefer and Kensington Gardens), the 2-factor method brings allocated costs more closely in line with the associated estimated costs on which the rates for those systems were in part determined.

A qualitative assessment by Creative Energy's Controller and accounting team confirms an overall view that under the 2-factor allocation the magnitude of cost assignment between the systems appears better aligned with the respective general and administrative expense required to operate and manage each system. In general, compared to the Core system, the other projects are relatively new and require relatively less administrative effort, but factoring in the capital ratio skews those results in the other direction despite the relatively higher general and administrative attention required for the Core system. As other projects continue to grow, their allocated share will increase based on increases to the Revenues factor, while over time the capital factor would tend to compress that effect.

2.2.2 Transfer Pricing Policy

Creative Energy does not at this time have a Commission-approved Transfer Pricing Policy (**TPP**) in place but through this Application, Creative Energy has endeavoured to provide a transparent accounting of the allocation of its costs to its non-regulated and regulated thermal energy systems to demonstrate that concerns about cross-subsidization between customers of the different systems are properly addressed.

Creative Energy does intend in its next RRA to file a TPP for Commission review and approval, and that effort may be well informed by the proceeding to review this Application. In addition, a decision on Creative Energy's Application for a CPCN for Beatty-Expo Plants and Approval of Corporate Reorganization is pending. Creative Energy considers that the filing of a TPP ought to be properly informed by the Commission's decision in the matter of the proposed corporate reorganization that forms part of that application.

2.3 Natural Gas Fuel Costs

Creative Energy incurred extraordinary excess fuel costs during the winter of 2018/2019 related to very high natural gas commodity prices arising from the supply constraint due to the Enbridge pipeline explosion, among other factors, and compounded by some very cold weather in the region. Creative Energy applied to the Commission for approval of a FCAC Rate Rider equal to $4.80/M# effective March 1, 2019 to recover the additional costs. The Commission approved the requested FCAC Rate Rider on an interim basis and established a process to review that application, pursuant to Order G-52-19. The Commission recently determined under Order G-226-19 that the FCAC Rate Rider should be calculated on the basis of recovering the additional fuel costs over 24 months; the effect of which is to set the FCAC Rate Rider to $4.40/M# effective March 1, 2019, and which will remain in place until February, 2021.

Following the events of last winter and as part of our continuing efforts to provide reliable service to customers at reasonable rates, Creative Energy reviewed with the Commission the option of

Creative Energy obtaining its natural gas requirements from FortisBC Energy Inc. (**FEI**) for both the commodity and delivery. Creative Energy expected that the proposed approach would stabilize fuel costs, mitigate future potential rate shocks and also reduce regulatory burden by avoiding the need for the Commission to annually review both the gas contracting strategies of Creative Energy and FEI, versus only that of FEI. Commission Letter L-22-19 accepted Creative Energy's proposed contracting plan to obtain natural gas supply and delivery from FEI under FEI's bundled service Rate 7, effective November 1, 2019. As a result, the Commission recently approved Creative Energy's forecast of total annual fuel costs and an updated FCAC equal to $10.70/M#, effective November 1, 2019, a reduction from the previously approved level of $13.75/M#. The Commission will continue to review our fuel costs on a quarterly basis, and consequently a review of fuel costs is outside of the scope of this Application.

The total net rate impact to Core system customers over the 2019-2020 period is shown in Table 10. The implementation of a cost-effective gas contracting strategy offsets 2020 expected rate impacts overall as compared to 2019 rates.

Table 10: Summary of Steam and Fuel Cost Rate Impacts

$/M#	2018	2019	2020	2020 Rate Impact
Average Steam Rate	$7.65	$7.65	$7.97	4.2%
DARR	n/a	n/a	$0.29	3.8%
Average Fuel Cost Adjustment Charge (FCAC)	$11.50	$13.75	$10.70	-22.0%
FCAC Rate Rider (effective March 1, 2019)	n/a	$4.40	$4.40	-
Total	$19.15	$25.80	$23.36	-9.0%
Year over Year Overall Rate Impact	n/a	34.7%	-9.0%	-

2.4 City of Vancouver – Water and Sewer Charges

The City of Vancouver charges Creative Energy water and sewer fees together as part of its quarterly water billing. These costs are externally set outside of Creative Energy's control and correlate very closely with steam load.

Table 11: Applicable City of Vancouver Water Rates

	Rate per unit		
Period	2017	2018	2019
High season (June 1 – September 30)	$3.37	$3.57	$3.92
Low season (All remaining months)	$2.69	$2.85	$3.13
Annual rate of increase (both periods)		6.0%	9.7%

The City of Vancouver does not meter property sewer drain flows directly; rather, it relies on water meters to gauge sewer drain volumes. Since 2003, Creative Energy has been exempted from approximately 95 percent of the sewer discharge fees that might otherwise apply given that steam does not go to drain at our plant.

The City does not have drain flow meters in place for the steam at most Creative Energy customer sites. The City has estimated that to put such meters in place would entail significant capital investment. In the alternative, if the City were to otherwise consider removing the sewer discharge exemption and

attempt to recover the allocated costs from Creative Energy directly, Creative Energy's operating costs could increase by approximately $700,000 per year.

Creative Energy continues to assess this risk and to defend the current exemption with the City of Vancouver. While the probability of this cost arising is the very near term is currently low, if it were to arise, Creative Energy would immediately and appropriately bring forward an application to pass through these costs for direct recovery from customers.

3 Core Steam Revenue Requirements

3.1 Core Steam System Load Forecast

Steam loads are the essential billing determinants for Core Steam system rate setting since all costs are recovered through the volume of steam sold to customers. Steam load is forecast to grow modestly over the period covered by this RRA as a result of new customers. Steam load may vary plus or minus 10 percent in any given year due to the effect of temperature.

Creative Energy applies for approval of the 2019 Projected and 2020 Forecast Steam Loads set out in Table 12. The load forecast methodology is set out in detail in Appendix C.

Table 12: 2019 and 2020 Steam Load Forecast - Summary

M#	Core Steam	NEFC Steam	Total Steam	% Change Compared to 2018 Approved
2018 Approved	1,069,572	28,942	1,098,514	-
2019 Projected	1,099,443	30,391	1,129,834	3%
2020 Forecast	1,070,325	70,309	1,140,634	4%

Projected 2019 load is based on actual load from January through September, 2019, plus a forecast for October through December load based in part on historical load in that period and factoring in the additional load of one building in the NEFC that began taking full service in October, 2019.

Creative Energy requests approval of the 2020 load forecast set out in table below for the purpose of setting 2020 Core Steam rates. The 2020 forecast is normalized for weather and the addition of new customer load as set out in the table below.

Table 13: 2020 Forecast Steam Load – Existing and New

M#	Core Steam	NEFC Steam	Total Steam
Existing Load	1,069,572	57,459	1,127,031
New Load	753	12,849	13,602
Total	1,070,325	70,309	1,140,634

3.2 Operations and Maintenance

Operations and Maintenance budgets (and Capital budgets) are prepared by the management team and then approved by the Board. In general, prior year actuals and year-end projected amounts are used as a benchmark to identify the activities that need to be budgeted for given that the majority of O&M activities are recurring in nature and these costs typically change with inflationary pressures. Budgets are prepared to align with Creative Energy's business functions and the established BCUC accounts for each function where possible. Where informative and predictive, some maintenance expenses are pooled by equipment and analyzed on a combined and trended basis for budgeting purposes. Other cost categories such as water and electricity expenses

are subject to rate increases set by governmental bodies and the amounts required vary by load, and are estimated on those bases.

3.2.1 Summary by Business Function

Please refer to Table 14 below and to Schedule 15 for a summary of total O&M by business function in accordance with the established BCUC accounts. This summary is not ideal for identifying cost drivers and explaining test period variances; for example, given that the costs associated with labour and benefits are applicable across business function and that the implementation of overall maintenance activities is effectively pooled across business function and may vary within the year based on priority or emergent need. In addition, certain costs are within the internal control of management while others are driven by external fees, charges and levies, or weather, for example, and that categorization of cost control may vary across the detailed buildup of costs within each BCUC account, where applicable.

Table 14: Total O&M by Business Function

		2015	2016	2017	2018	2018	2019	2020
Acct. #	Account Name	Actual ($)	Actual ($)	Actual ($)	Actual ($)	Approved ($)	Test Year ($)	Test Year ($)
Steam Production-Operation								
500	Supervision and Labour	1,220,581	1,280,201	1,490,282	1,574,018	1,386,755	1,525,479	1,566,232
502	Steam Expenses	900,535	900,394	1,122,868	1,089,206	986,219	1,079,965	1,110,166
	Total	2,121,116	2,180,595	2,613,150	2,663,224	2,372,974	2,605,444	2,676,398
Steam Production-Maintenance								
506	Structures and Improvements	3,576	1,548	8,230	37,129	9,573	80,084	78,696
Distribution - Operation								
870	Supervision & Labour	551,027	529,141	520,275	592,644	549,834	566,677	662,757
874	Mains & Services	23,134	24,664	27,677	20,057	19,451	19,224	21,200
880	Other Distribution Operation	0	0	0	0	15,582	0	0
933	Transportation	14,102	11,198	13,612	13,191	24,951	16,221	20,840
	Total	588,263	565,003	561,565	625,892	609,818	602,122	704,797
Distribution Expenses - Maintenance								
887	Mains & Services	35,838	44,716	52,965	42,286	68,233	47,256	51,880
889	Meters & House Regulators	106,675	160,888	90,809	112,863	116,403	184,407	187,000
	Total	142,513	205,604	143,774	155,149	184,636	231,663	238,880
Sales Promotion Expenses-Operation								
910	Sales Expense	59,865	41,922	69,735	55,146	52,651	25,337	31,285
Administrative & General - Operation								
915	Directors Fees	71,135	49,268	24,150	28,200	40,023	3,257	41,686
920	Admin & General Salaries	784,491	593,410	496,221	551,172	648,236	532,131	676,042
921	Office Supplies & Expenses	110,831	110,167	114,006	106,356	92,776	106,423	104,801
922	Admin & General Expenses	18,874	6,011	4,697	25,493	10,693	5,821	7,303
923	Special Services	246,122	386,217	110,595	510,491	233,315	485,361	313,215
924	Insurance	102,466	109,466	103,106	107,102	103,877	136,994	138,740
925	Injuries & Damages-WCB	7,078	6,959	4,527	6,622	5,907	6,242	6,520
926	Employee Benefits	159,930	70,199	208,074	253,445	107,621	89,612	87,573
	Total	1,500,927	1,331,697	1,065,375	1,588,881	1,242,448	1,365,840	1,375,879
Administrative & General - Maintenance								
932	Maintenance of General Plant	15,814	16,873	22,980	71,747	23,932	20,573	20,372
Gross O&M Expense		4,432,074	4,343,242	4,484,809	5,197,167	4,496,032	4,931,063	5,126,308
O&M Expenses Allocated to Capital $						(20,775)		
Net O&M Expense		4,432,074	4,343,242	4,484,809	5,197,167	4,475,257	4,931,063	5,126,308

3.2.2 Summary by Cost Driver and Control

The summary presented in this section reports O&M costs according to the following 5 categories of cost drivers. The variance explanations that follow elaborate on the roll-up of these costs as grouped.

1. Wages and Benefits (Steam, Distribution and Management
2. Water-related (primarily, and Electricity Expenses)
3. Maintenance and some related Operation (e.g. parts, supplies, safety, vehicles)
4. Special Services (Regulatory, Audit, Legal, Third-party consultants); and
5. Other General and Administrative plus Sales Expense.

The intent of these groupings is both to offer clarity on the cost of service across Creative Energy's business and to present the specific costs driving the requested rate increases in the 2020 test period. To assist this discussion, cost drivers are further grouped according to a qualitative assessment of where management is generally able to exercise budgeting control and decision-making and where operating costs are commonly understood to be within the scope of management control, as compared to where costs are more largely determined outside Creative Energy (e.g., rates applicable to Creative Energy's water, electricity and natural gas consumption). Creative Energy would caution, however, that this categorization should not be considered as precise. The categorization is intended to provide insight and understanding of the drivers for the variances between the 2020 test year and 2018 Approved levels.

Please refer to Table 15 for an overall summary of costs in accordance with this approach.

Table 15: Total O&M by Cost Driver and Control

	Category of Cost Control	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2018 Approved	2019 Test Year	2020 Test Year
O&M	Total	4,432,074	4,343,242	4,484,809	5,197,167	4,475,257	4,931,063	5,126,308
	Not external	3,190,434	2,997,434	2,961,241	3,195,497	3,248,280	3,282,378	3,553,502
	External	1,146,440	1,405,408	1,277,168	1,597,971	1,226,977	1,648,685	1,572,806
Wages and Benefits	Total	2,620,829	2,532,551	2,468,452	2,567,579	2,692,446	2,713,899	2,992,604
	Not external	2,478,382	2,339,375	2,297,301	2,403,029	2,502,162	2,515,170	2,750,085
	External	142,447	193,176	171,151	164,549	190,284	198,729	242,519
Water-related and Electricity Expenses	Total	770,298	830,476	924,810	928,734	776,350	943,543	991,046
	Not external	-	-	-	-	-	-	-
	External	770,298	830,476	924,810	928,734	776,350	943,543	991,046
Maintenance (including parts, supplies, safety and vehicles)	Total	329,376	329,805	414,331	457,744	487,994	504,187	499,108
	Not external	329,376	329,805	414,331	457,744	487,994	504,187	499,108
	External	-	-	-	-	-	-	-
Special Services (Regulatory, Audit, third-party consultants)	Total	246,122	386,217	110,595	510,491	233,315	485,361	313,215
	Not external	147,525	135,690	60,315	119,979	69,074	123,519	118,637
	External	98,597	250,527	50,280	390,512	164,241	361,842	194,578
Other General & Administration, Sales Exp (e.g. insurance, office expenses)	Total	370,249	323,793	320,221	328,919	285,152	284,074	330,335
	Not external	235,151	192,564	189,294	214,744	189,049	139,502	185,672
	External	135,098	131,229	130,926	114,175	96,103	144,572	144,663
Pension revaluation		95,200	(59,600)	246,400	403,700	-	-	5,126,308

Pension revaluation is shown separately to not skew the underlying trends in Wages and Benefits, but to ensure that the totals for O&M match other references as applicable.

The detail in the following sections provides variance explanations related to the category specific detail summarized above.

3.2.3 Wages and Benefits

3.2.3.1 Summary

Creative Energy is a small organization with 33 employees. Twenty employees comprise the Steam Plant and Distribution operations staff. Three employees spanning business development and project engineering functions allocate time entirely to CEDLP and outside of the RRA, as shown in section 2.2, Table 8. Employees perform various functions across day-to-day operations and just one employee is responsible for administrative functions directly. Managing to budget is the responsibility of the entire management team.

Table 16: Summary of Total Wages and Benefits

	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2018 Approved	2019 Test Year	2020 Test Year
500 Supervision and Labour	1,220,581	1,280,201	1,490,282	1,574,018	1,386,755	1,525,479	1,566,232
870 Supervision and Labour	551,027	529,141	520,275	592,644	549,834	566,677	662,757
920 Admin & General Salaries	784,491	593,410	496,221	551,172	648,236	532,131	676,042
926 Employee Benefits	159,930	70,199	208,074	253,445	107,621	89,612	87,573
Subtotal	2,615,866	2,521,540	2,458,608	2,555,771	2,692,446	2,713,874	2,992,604
Total Pension Revaluation	95,200	(59,600)	246,400	403,700	-	-	-
Total	2,716,029	2,472,951	2,714,852	2,971,279	2,692,446	2,713,899	2,992,604

Attracting and retaining talent is critical to serving the customers and to the commercial success of Creative Energy. Creative Energy competes with other and typically much larger utilities in BC, other parts of Canada and in some cases North America for employees with specialized skill sets that are not widely available. In addition, there are specific risks associated with the size of Creative Energy. Given a small number of employees each with multiple skill sets and responsibilities, a loss of key employees can have a significant impact on the business.

Creative Energy's compensation strategy is to balance competitive compensation packages that attract, motivate and retain talent with the skills required for key roles, while also aligning the compensation of each management employee to their individual level of responsibility. The compensation program includes an incentive program designed to complement the compensation strategy.

Labour costs and year over year increases for unionized employees primarily working in steam production and distribution functions are set in accordance with the collective agreement.

3.2.3.2 Steam Production Supervision and Labour – Account 500

Compared to the 2018 Approved levels, base wages for the 2020 Test Year are planned to increase approximately 3.7 percent, consistent with union-approved annual wage increases of 1.8 percent per year over the two-year 2019-2020 test period.

Table 17: Steam Production Supervision and Labour – Account 500 - Summary

500 Supervision and Labour	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2018 Approved	2019 Test Year	2020 Test Year
Wages	1,030,544	1,075,306	1,165,332	1,130,144	1,181,190	1,218,287	1,225,290
Overtime	23,328	24,244	36,001	66,696		32,655	53,692
Benefits	77,527	95,189	101,466	103,999	103,593	147,265	136,089
Pension Costs	89,182	85,462	87,433	98,280	101,972	127,272	151,162
Pension Revaluation			100,050	174,899			
Total	1,220,581	1,280,201	1,490,282	1,574,018	1,386,755	1,525,479	1,566,232

Table 18: Steam Production Supervision and Labour – Account 500 - Variance

500 Supervision and Labour		2018 Approved to 2020 Forecast	
Wages	Not external	44,100	4%
Overtime	Not external	53,692	
Benefits	Not external	32,496	31%
Pension Costs	External	49,190	48%
Total		179,477	13%
	Not external	130,287	9%
	External	49,190	4%

2018 Approved levels did not record the cost of overtime, which is necessary periodically to maintain efficient operation of the plant, for example when operations staff work additional hours to cover for another employee that is away sick. The average actual cost for overtime between 2015 and 2018 was $37,000 and was as high as $67,000 in 2018. Overtime is estimated at $54,000 for the 2020 Test Year.

The cost of benefits has also increased from 2018 Approved. Approximately $25,000 of the increase relates to the BC Government's Employer Health Tax that was added in 2019. Medical Services Plan (**MSP**) costs were charged alongside the Employer Health Tax in 2019, but have recently been discontinued and will not be incurred in 2020. Actual costs for Extended Health Benefits have been trending higher than what was estimated in 2018. Benefits costs estimated for the 2020 test period are consistent with 2019 actual amounts less the discontinued MSP costs.

Pension costs have also increased from 2018 Approved cost as the contribution rate has increased. Calculations are based on the expectation that all plant staff will enroll in the program. Variances in pension costs are captured in the approved Pension Expense Deferral Account.

3.2.3.3 Distribution Supervision and Labour – Account 870

Compared to the 2018 Approved, base wages for the 2020 Test Year are planned to increase approximately 10 percent. Approximately 3.6 percent of this increase relates to union approved

annual wage increases in absolute terms. The remainder of the increase is driven by the volume of work required as well as benefits and pension costs increases, as explained further below.

The Distribution team directly charges time to the energy systems it supports. The Distribution team supports the Core system, but also the NEFC, Main & Keefer, South Downtown, Kensington Gardens and Pendrell systems. The Core system will require an additional one-third of a headcount in 2020 as compared to previous years. The Core system has been understaffed and it is anticipated that it will require additional attention for maintenance purposes and monitoring in 2020. Overtime is also anticipated to increase in 2020 for this same reason.

The cost of benefits has also increased from 2018 Approved related to the BC Government's Employer Health Tax that was added in 2019. Also, as previously noted, MSP costs were charged alongside the Employer Health Tax in 2019, but have recently been discontinued and will not be incurred in 2020. In sum, Actual costs for Extended Health Benefits are still trending higher than what was estimated in 2018 and forecast increases in the 2020 test period are consistent with 2019 actual amounts considering also the additional headcount requirements.

Pension costs have also increased from the 2018 Approved cost as the contribution rate has increased. Calculations are based on the expectation that all Distribution staff will enroll in the program. Variances in pension costs are captured in the approved Pension Expense Deferral Account.

Table 19: Distribution Supervision and Labour – Account 870 - Summary

870 Supervision and Labour	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2018 Approved	2019 Test Year	2020 Test Year
Wages	472,340	447,368	404,526	447,044	469,429	460,378	515,940
Overtime	3,568	3,642	6,854	20,319	10,400	14,055	22,403
Benefits	39,117	39,768	30,550	38,748	41,364	50,423	55,804
Pension	36,002	38,362	32,589	27,181	28,641	41,822	68,611
Pension Revaluation			45,756	59,351			
Total	551,027	529,141	520,275	592,644	549,834	566,677	662,757

Table 20: Distribution Supervision and Labour – Account 870 - Variance

870 Supervision and Labour		2018 Approved to 2020 Forecast	
Wages	Not external	46,511	10%
Overtime	Not external	12,003	115%
Benefits	Not external	14,440	35%
Pension	External	39,970	140%
Total		112,923	21%
	Not external	72,953	13%
	External	39,970	7%

3.2.3.4 Management Labour and Benefits – Accounts 920 and 926

Administration and General Salaries are planned to increase 4 percent for the 2020 test period over the 2018 Approved cost. These salaries are budgeted for allocation to the Core system for each individual role as set out in section 2.2, Table 8.

Table 21: Management Labour and Benefits – Accounts 920 and 926 - Summary

920 Admin & General Salaries	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2018 Approved	2019 Test Year	2020 Test Year
Wages	784,491	593,410	496,221	551,172	648,236	532,131	676,042
926 Employee Benefits							
Benefits	47,467	60,448	56,351	44,907	47,950	59,977	64,826
Pension	17,263	69,351	51,130	39,088	59,671	29,635	22,746
Pension Revaluation	95,200	(59,600)	100,593	169,450			
Subtotal Total	159,930	70,199	208,074	253,445	107,621	89,612	87,573
Total	944,421	663,609	704,295	804,617	755,857	621,743	763,614

Table 22: Management Labour and Benefits – Accounts 920 and 926 - Variance

920 Admin & General Salaries		2018 Approved to 2020 Forecast	
Wages	Not external	27,805	4%
926 Employee Benefits			
Benefits	Not external	16,876	35%
Pension	External	(36,924)	-62%
Subtotal		(20,048)	-19%
Total		7,757	1%
	Internal	44,682	6%
	External	(36,924)	-5%

Variations from the 2018 Approved level do not relate to one individual role. Most roles are partially allocated to other entities or to capital as shown in Table 8. The 4 percent increase in wages primarily relates to wage increases for given roles; for example, in 2019 Creative Energy bolstered its Finance and Regulatory expertise when filling corresponding vacancies. The projected 2019 test period amount is lower than 2020 primarily due to a vacant Chief Financial Officer role in 2019. It is anticipated that this role will be filled in the first quarter of 2020.

Benefits have also increased as relating to the Employer Health Tax described above. Conversely, estimated pension costs are significantly lower than 2018 Approved as fewer management team members are enrolled in the pension. The pension plan was discontinued for new members of the management team in 2018 and only those employees that were with the company prior to it being discontinued still receive this benefit.

Please note that the balance for the comparatives have been adjusted for the 2015 to 2018 period. As mentioned above, management labour costs are allocated to other entities and to capital. In previous years, this cost allocation was pulled out of the wages line. However, the cost allocation also includes a portion of benefits and pension costs. As such, a portion of the labour cost allocation has been split out to benefits and pension as well. This results in a comparison of actual results that properly demonstrates the relationship between wages, benefits and pension costs. In addition, previous applications and annual reports included the plant and distribution in the Account 926 Employee Benefits grouping. For the purpose of this rate application, the benefits for plant and distribution have been reclassed to Account 500 Supervision and Labour and Account 870 Supervision and Labour as summarized above.

3.2.4 Water and Electricity Expenses

The cost of water is one of the major expenses for the Company. Creative Energy's primary water usage consists of:

1. Feed water as an input in steam production; and
2. Water cooling applied to Distribution system condensate so that it can safely be discharged into the City of Vancouver's storm and sewer network.

The methodology to forecast the water expense is based on a historic ratio of actual water expense and actual steam load multiplied by forecast steam load, given the direct relationship between the water inputted and steam produced. Water treatment costs are generally stable year over year.

Electricity costs are included in this cost category to reflect that the entirety of these costs are broadly driven by factors and external rates outside of management control.

Table 23: Water and Electricity Related Expenses – Account 502 Partial and Account 874 – Summary

	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2018 Approved	2019 Test Year	2020 Test Year
502 Steam Expenses - Partial							
Water	500,997	580,806	617,733	661,905	502,200	710,230	743,622
Electricity	115,610	94,934	78,068	77,380	118,018	103,396	93,624
Water Treatment	130,557	130,072	201,332	169,392	136,680	110,694	132,600
Subtotal	747,164	805,812	897,133	908,677	756,898	924,319	969,846
874 Mains and Services							
Electricity	238	231	241	270	224	224	300
Water Mains	22,896	24,433	27,437	19,787	19,227	19,000	20,900
Subtotal	23,134	24,664	27,677	20,057	19,451	19,224	21,200
Total	770,298	830,476	924,810	928,734	776,350	943,543	991,046

Table 24: Water and Electricity Related Expenses – Account 502 Partial and Account 874 – Variance

		2018 Approved to 2020 Forecast	
502 Steam Expenses - Partial			
Water	External	241,422	48%
Electricity	External	(24,394)	-21%
Water Treatment	External	(4,080)	-3%
Subtotal	External	212,948	28%
874 Mains and Services			
Electricity	External	76	34%
Water Mains	External	1,673	9%
Subtotal	External	1,749	9%
Total		214,697	28%
	Not external	-	-
	External	214,697	28%

3.2.4.1 Water Expenses

Projected water costs in the 2019 and 2020 test period have increased from the 2018 Approved cost. This is driven by the forecast increase in steam volumes and the increased rates as set by the City of Vancouver.

The 2018 Approved cost was based on adding approximately 2 percent inflation to the 2017 Approved cost. The 2017 Approved cost was based on 2015 actual cost. However, that projection using the 2015 actual cost did not factor in that water costs are directly driven by steam load demand and will vary up and down as load moves up and down. The year 2015 was a warm year and actual load was about 9 percent lower than approved at that time (refer to Appendix C, Table C-5). Water costs in 2015 are therefore not a reasonable basis for predicting water costs in a year with average weather. With colder than average temperatures in 2017 through 2019, actual water costs have been higher than the 2018 Approved cost.

Water rates from the City of Vancouver have also increased by more than inflation. Metered water rates increased as follows:

- 4 percent between 2016 and 2017;
- 6 percent between 2017 and 2018; and
- 10 percent between 2018 and 2019.

The 2020 test period assumes the water rate will increase by 6.5 percent, which is approximately the average increase in the water rate over the last 3 years. For the purpose of estimating overall 2020 water costs, historical data from 2017-2019 is used to project the volume of water required for each M# of steam sold. Water consumption has been projected using the average ratio of pounds of steam sold for every pound of water consumed. The projected volume of water was multiplied by the 2019 City of Vancouver water rate plus a 6.5% rate increase.

3.2.4.2 Water Treatment

Water treatment costs also vary with load, but the relationship is not as direct as water costs. Water treatment costs in 2017 and 2018 were significantly higher than the actual cost from 2015 and 2016 and the approved costs. While this was partially due to load, a Softener System Upgrade capital project was implemented during 2018 that resulted in more accurate metering of water and salt brine, improving efficiencies for the regeneration cycle. Also, by replacing resin the softener cycle was extended.

In addition, plant staff have been focusing on the accuracy of steam metering within the plant, which has led to a more efficient use of chemicals. The timing of when chemicals are purchased also impact actual costs during a year. It is estimated that with the efficiency improvements noted above that water treatment costs for the 2020 Test Year will be more in line with 2015 and 2016 actuals and the 2018 Approved cost.

3.2.4.3 Electricity

Creative Energy takes electricity service from BC Hydro under Large General Service Rate Schedule 1611. Electricity costs for the 2020 Test Year factor in the requested rate increases in BC Hydro's 2019-2020 RRA of 6.85 percent in 2019 and 0.72 percent in 2020, both effective April 1st per BC Hydro's fiscal year. The estimate of 2020 electricity costs uses an estimate of historical peak demand by month to forecast demand charges and an estimate of the ratio of electricity consumption to steam production to forecast energy charges.

3.2.5 Maintenance – Multiple Accounts

This general category of Maintenance includes some related operations cost components to simplify the overall summary.

Forecast 2020 maintenance costs exceed 2018 Approved amounts by 2 percent. Maintenance budgets are pooled across business function overall and they may vary within the year based on priority or emergent need, as indicated by the variation in spend within and across account category of expense. The unusual recorded percentage variance in account 506 compared to 2018 Approved reflects a change in the coding of costs to this category in recent years.

The evident longer-term trend of increasing maintenance costs from 2015 through 2020 forecast relates to a requirement for more inspections of ageing equipment and more expensive work to maintain that equipment, noting that the amount of equipment to be maintained is generally stable.

Table 25: Maintenance and related functional operation – Multiple Accounts – Detailed Summary

	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2018 Approved	2019 Test Year	2020 Test Year
502 Steam Expenses – Maintenance & related	153,371	94,582	225,735	180,529	229,321	155,646	140,320
506 Structures and Improvements	3,576	1,548	8,230	37,129	9,573	80,084	78,696
880 Other Distribution Operation	-	-	-	-	15,582	-	-
933 Transportation	14,102	11,198	13,612	13,191	24,951	16,221	20,840
887 Mains and Services	35,838	44,716	52,965	42,286	68,233	47,256	51,880
889 Meters & House Regulators	106,675	160,888	90,809	112,863	116,403	184,407	187,000
932 Maintenance of General Plant	15,814	16,873	22,980	71,747	23,932	20,573	20,372
Total	329,376	329,805	414,331	457,744	487,994	504,187	499,108

Table 26: Maintenance and related functional operation – Multiple Accounts – Variance

		2018 Approved to 2020 Forecast	
502 Steam Expenses - Partial	Not external	(89,001)	39%
506 Structures and Improvements	Not external	69,123	722%
880 Other Distribution Operation	Not external	(15,582)	-100%
933 Transportation	Not external	(4,111)	-16%
887 Mains and Services	Not external	(16,353)	-24%
889 Meters & House Regulators	Not external	70,597	61%
932 Maintenance of General Plant	Not external	(3,560)	-15%
Total	Not external	11,114	2%

3.2.6 Special Services

3.2.6.1 Summary

The following two tables provide an overall summary to the category discussion that follows below.

Table 27: Special Services – Account 923 – Summary

923 Special Services	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2018 Approved	2019 Test Year	2020 Test Year
Audit Fees	51,200	70,975	28,596	47,203	28,590	48,851	44,578
Legal Fees	18,284	20,242	7,875	18,654	17,869	8,647	13,171
Outside Services	129,241	115,448	52,439	101,325	51,205	114,872	105,466
Regulatory	47,397	179,552	21,684	343,309	135,651	312,991	150,000
Total	246,122	386,217	110,595	510,491	233,315	485,361	313,215

Table 28: Special Services – Account 923 – Variance

923 Special Services		2018 Approved to 2020 Forecast	
Audit Fees	External	15,987	56%
Legal Fees	Not external	(4,698)	-26%
Outside Services	Not external	54,261	106%
Regulatory	External	14,349	11%
Total		79,899	34%
	Not external	49,563	21%
	External	30,336	13%

3.2.6.2 Regulatory

As discussed in section 1, the variance in 2019 Projected versus 2018 Approved Regulatory expenses consist primarily of the BCUC costs associated with the ongoing review into the Beatty and Expo CPCN Application and the expenses related to the regulatory proceeding into the recovery of extraordinary fuel costs that Creative Energy incurred during the Winter of 2018-2019.

As discussed in section 1.1, higher regulatory costs explain about 40 percent of the higher overall expenses in 2019 compared to 2018 Approved levels.

Table 29: Summary of 2019 Regulatory Expenses

	2019 Total Projected
BCUC	
Quarterly Fees	39,631
Beatty CPCN Commission & Contractor Fees	198,263
Fuel Cost Adjustment Charge (including approved PACA costs)	28,430
Other	3,777
Regulatory Legal – Fuel Cost Rate Rider & Misc.	42,890
Total Regulatory	$312,991

Creative Energy expects that 2020 Regulatory expenses ought to be closer in range to 2018 Approved levels and therefore it budgets $150,000 for the 2020 test period, an increase of approximately 10 percent over the 2018 Approved level. Consistent with the fact that these costs

are difficult to forecast, Creative Energy will apply differences between forecast and actual 2020 amounts to the Third-Party Regulatory Costs Deferral Account for the purpose of rate setting going forward.

3.2.6.3 Outside Services

Outside Services relate to consulting costs for government advisory services, business development opportunities and the scoping of low carbon project opportunities and funding sources. Government advisory costs for the 2019 and 2020 Test Years are approximately $50,000 per year. Consulting costs make up the remainder of the forecast annual total. The average actual cost from 2015 through 2018 has been approximately $100,000 and actual average amounts are considered representative of ongoing company priorities as compared to 2018 Approved.

3.2.6.4 Audit Fees

Approved 2018 audit and tax fees are significantly lower than the actual fees from 2015 through 2018, which averaged $49,000 during that period. Audit fees for the 2020 test period are therefore anticipated to be similar in comparison to actual historical amounts. The total 2020 forecast applicable to Creative Energy Vancouver Platforms is therefore set on the basis of the five-year average of actual audit fees 2015-2019. An annual cost of about $45,000 in 2020 is therefore applicable noting that these costs are also allocated out to the other energy systems based on the Massachusetts formula. The result is therefore less the historical average but does amount to an increase of 56 percent compared to the 2018 Approved level.

3.2.6.5 Legal Fees

Legal fees in this category of costs do not include expenses relating to regulatory applications and proceedings. Higher amounts incurred in 2018 included incremental efforts to support drafting a statutory rights of way for the Post Office site and the corporate affairs related to hiring a new CEO. Projected legal fees in 2019 are lower than approved amounts by about 50 percent but this is not necessarily reflective of an indicative trend in business requirements for the 2020 test period. The 2020 forecast is therefore set based on the five-year average of actual legal costs 2015-2019, which Creative Energy believes fairly represents a forecast of legal expenses in any given year under business as usual operations.

3.2.7 Other General & Administrative and Sales Expense

3.2.7.1 Other General & Administrative – Multiple Accounts

Other General and Administrative Cost comprise a relatively small percentage of Creative Energy's cost of service. Overall, these costs are budgeted to increase by about 18 percent in 2020 compared 2018 Approved.

Table 30: Other General & Administrative – Multiple Accounts - Summary

	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2018 Approved	2019 Projected	2020 Test Year
915 Directors Fees	71,135	49,268	24,150	28,200	40,023	3,257	41,686
921 Office Supplies & Expenses	110,831	110,167	114,006	106,356	92,776	106,423	104,801
922 Admin & General Expenses	18,874	6,011	4,697	25,493	10,693	5,821	7,303
924 Insurance	102,466	109,466	103,106	107,102	103,877	136,994	138,740
925 Injuries & Damages - WCB	7,078	6,959	4,527	6,622	5,907	6,242	6,520
Total	310,384	281,871	250,486	273,773	253,276	258,737	299,050

Table 31: Other General & Administrative – Multiple Accounts - Variance

		2018 Approved to 2020 Forecast	
915 Directors Fees	Not external	1,663	4%
921 Office Supplies & Expenses	Not external	12,025	13%
922 Admin & General Expenses	Not external	(3,390)	-32%
924 Insurance	External	34,863	34%
925 Injuries & Damages - WCB	Not external	613	10%
Total		45,774	18%

Director fees in 2019 are not indicative of Creative Energy's business requirements but reflect transitory changes in 2019 Board membership and the volunteer, unpaid positions that existed during this period. With the Beatty and Expo projects and other emergent project opportunities in the near-term horizon, the Board plans to build its capacity in 2020. It seeks to return to a stable level of membership and oversight as existed in 2015 and 2016.

Office supplies, which include Information Technology costs, are reasonably forecast based on prior actual costs. The 2019 projected and 2020 forecast amounts are notably consistent with 2018 Actuals. The 2018 Approved amounts were lower than the evident requirements for costs in this category.

Insurance expense has increased from 2018 Approved. This increase does not relate to projects under construction or the growth of other energy systems. The increase relates to higher actual property insurance costs for the equipment at the plant and for the building at 720 Beatty Street. The replacement value of equipment and building was reviewed for 2019 upon request by Creative Energy's insurer and the statement of values were increased. As a result, property insurance increased in 2019 from previously approved and the inflationary forecast in 2020 is consistent with those updates.

3.2.7.2 Sales Expense – Account 910

The Sales Expense account records costs related to conferences and professional development. Historical year actual costs included advertising and promotion, and sponsorship for conferences such as relating to the International District Energy Association. Creative Energy does not forecast any promotional, advertising or sponsorship related expenditures in 2020, which explains the forecast reduction compared to 2018 Approved.

Table 32: Sales Expense - Summary & Variance

	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2018 Approved	2019 Test Year	2020 Test Year	Control	2018 Approved to 2020 Forecast	
910 Sales Expense	59,865	41,922	69,735	55,146	52,651	25,337	31,285	Not ext.	(21,366)	-41%

3.3 Municipal Taxes (City of Vancouver Municipal Access Fee)

Creative Energy has a thirty-year Municipal Access Agreement (**MAA**) with the City of Vancouver (the **City**)(effective September 1, 1999), which grants the Company rights to continue to operate, construct and maintain its distribution system in City streets for supply of steam-heat and hot water services. In exchange for the rights under the MAA, the Company pays to the City an annual fee equal to 1.25 percent of Tariff Revenues plus a flat fee that the City escalates at 2 percent for each of 2019 and 2020. Please refer to the summary table below and Schedule 17 for further detail.

Table 33: Municipal Taxes

	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Test Year	2020 Test Year
Annual Steam Revenues[7]	7,352,630	8,290,726	10,528,185	10,103,721	8,434,682	8,926,155
Tax Rate	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%
Municipal Tax on Steam Revenue	91,908	103,634	131,602	126,297	105,434	111,577
Prior Year Flat Fee	129,372	142,309	148,219	151,184	154,208	157,292
Rate Increase	10%	4%	2%	2%	2%	2%
Escalated Flat Fee	142,309	148,219	151,184	154,208	157,292	160,438
Total Municipal Tax	234,217	251,853	282,786	280,505	262,726	272,015

The current MAA was approved by the Commission under Order C-13-00 on June 12, 2000.

3.4 Property Taxes

Property taxes are paid to the City of Vancouver for the properties located at 720 Beatty Street and 701 Expo Boulevard. The total property tax expense is a function of the value of the property, as assessed annually by BC Assessment, multiplied by various levy rates which are also set amounts and typically changed annually. Please refer to the summary table below and Schedule 16 for further detail.

Table 34: Property Taxes

Item	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Test Year	2020 Test Year
Total for 720 Beatty Street	410,913	427,552	475,276	731,160	784,714	844,149
Reduction for Non-Regulated	(96,000)	(99,000)	(107,000)	(136,000)	(148,000)	(108,000)
Add Property Tax for 701 Expo Blvd.	22,595	11,343	12,563	27,824	25,203	27,119
Total	337,508	339,900	380,800	623,000	661,900	763,300

[7] Less internal transfers to NEFC

There are two classes of assessed value as well as applicable levy rates. The two classes are 1) Utility and 2) Business and Other Utility. The levies pertaining to the Utility class have higher rates.

The 2019 Test Year is based on the actual assessment. As the 2020 assessment is not yet available, the 2020 Test Year estimates the cost by increasing the assessed value of land by 7.6 percent and the additional property tax for 701 Expo Blvd. by 7.6 percent. The City of Vancouver has recently been considering increasing property taxes for 2020 in the range of 5 to 8 percent. Creative Energy will include actual total property tax in the planned evidentiary update.

3.4.1 Allocation to Non-Regulated Operations

Historically Creative Energy has allocated a portion of the total property tax to its non-regulated operations (**NRO**); thus, reducing the amount of its regulated revenue requirement and benefiting steam customers through lower rates.

Creative Energy's NRO include leasing of surplus office space to tenants and parking rentals on land not used in utility operation. To calculate the appropriate amount to be allocated to NRO, Creative Energy applies the levy rates to the total assessed value of the land and building and a portion is then allocated to the NRO using building and land square footage as an allocation base. The allocation of the NRO portion of property tax is collected as part of lease payments. The Company believes that this approach to allocation continues to be reasonable and fair and should be applied in the 2019 and 2020 revenue requirements.

The Company proposes an allocation to its NRO for 2019 Test Period of $148,000 and for the 2020 Test Period of $108,000. The reduced allocation to NRO in 2020 compared to 2019 is due to the fact that in November 2019 the tenant on the second floor moved out and Creative Energy has not been able to rent this space since. Potential tenants that initially expressed interest were looking for a longer term then the short time horizon available prior to the planned site redevelopment. The majority of Creative Energy's property tax is driven by land value. Creative Energy has therefore reduced the allocation to NRO in 2020 given that the empty space is on the second floor of the building and does not constitute a material amount of space to share in a property tax allocation.

3.5 Income Taxes

Forecast income tax expense for 2019 and 2020 is reported in the following table based on the income tax pertaining to regulated operations. The effective tax rate during both test periods is 27 percent. Please refer to the summary table below and Schedule 19.

For the purpose of calculating income tax expense, Creative Energy uses a flow-through or current taxes method. Under this approach the equity portion of the return on rate base, adjusted for permanent and temporary tax differences, and future enacted tax rates (both Federal and Provincial) are used in calculating the total tax expense.

Table 35: Income Taxes

	2019 Test Year	2020 Test Year
Allowed/Proposed Return on Rate Base (After Tax)	1,609,000	1,671,000
Add: Equity Portion of AFUDC		
Less: Financing Costs	(585,000)	(608,000)
Accounting Income After Tax	1,024,000	1,063,000
Total Additions (Depreciation Expense)	976,700	1,003,400
Total Deductions (Capital Cost Allowance)	(1,244,343)	(1,300,113)
Taxable Income/(Loss) for Tax Purposes (After Tax)	756,357	766,287
Tax Gross Up	73.00%	73.00%
Taxable Income/(Loss) for Tax Purposes (Before Tax)	1,036,105	1,049,708
Effective Income Tax Rate	27.00%	27.00%
Current Income Tax Expense	279,700	283,400

It is important to note that on an actual basis, revenues are known, and subsequently used in arriving at the Net Utility Income figure[8]. With respect to the forecast, the fundamental purpose of the revenue requirement is to determine the amount of revenues required to deliver utility services, cover all the expenses (including income tax) and provide for the allowed return on equity. Since the revenues are not "given", but the allowed equity return[9] is, we can use this percentage together with the rate base to calculate what the after tax equity return would be. Working backwards and adjusting the after tax equity return for tax differences, we can calculate the before tax income and consequently the income tax expense.

3.6 Depreciation and Amortization Expense

Depreciation expense is a function of undepreciated plant balances and applicable depreciation rates. Please refer to the summary table below and to Schedule 5 for further detail.

Table 36: Depreciation Expense

	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Test Year	2020 Test Year
Opening Accumulated Depreciation	(16,733,386)	(17,648,865)	(18,593,054)	(19,571,700)	(20,565,064)	(21,541,763)
Closing Accumulated Depreciation	(17,648,865)	(18,593,054)	(19,571,700)	(20,565,064)	(21,541,763)	(22,545,152)
Depreciation Expense	915,479	944,189	978,646	993,364	976,699	1,003,389

As per its existing depreciation methodology, Creative Energy uses a "pooled" or asset class depreciation approach, as opposed to depreciating individual assets. Under the asset class approach, all the capital additions to Utility plant are categorized and assigned to a specific asset class with its own specific depreciation rate. This depreciation rate is then applied to the asset class balance to arrive at the total annual depreciation expense for the class.

[8] Utility Revenues less Utility Expenses equal Net Utility Income

[9] The equity return is after tax and it is expressed as a percentage.

Creative Energy uses a "straight-line" depreciation method for recognizing and recording the annual depreciation expense for each asset class. The depreciation rates are based on an estimated useful life for a "typical asset" in each class. Thus, the rates can either be expressed on a percentage or number-of-years basis. The asset classes and applicable rates are listed in the table below.

Table 37: Asset Classes and Depreciation Rates

Acct. #	Account Name	Dep. Rate	Acct. #	Account Name	Dep. Rate	Acct. #	Account Name	Dep. Rate
	Steam Production Plant			**Distribution Plant**			**General Plant**	
311	Structures & Improvements	1.50%	376	Mains	2.00%	390	Structures & Improvements	1.50%
312.1	Boiler Plant Equipment	2.50%	378	Manhole Structures	1.50%	391	Office Furniture & Equipment	5.00%
312.2	Boiler Tanks Equipment	2.50%	380	Services	2.00%	391.1	Office Electronics	20.00%
312.3	Boiler Auxiliary Equipment	5.00%	381	Meters	3.00%	392	Transportation Equipment	15.00%
315	Accessory Electric Equipment	5.00%	382	House Regulators & Meter Instal.	3.00%	393	Stores Equipment	5.00%
316	Other Steam Production Equipment	5.00%	387	Other Distribution Equipment	5.00%	394	Tools & Work Equipment	5.00%
						398	Other General Equipment	5.00%

For each asset class, annual capital additions are tracked separately and depreciation begins in the year following their addition. Once a particular annual capital addition has reached the end of its useful life, depreciation is no longer applied and such additions are then taken out of the depreciable asset pool for calculation purposes.

3.6.1 Depreciation of CIAC

Depreciation of Contribution-in-Aid-of-Construction reduces the overall depreciation expense and effectively lowers the rates. Creative Energy uses the same approach as discussed above when calculating CIAC depreciation. There is only one CIAC class and its depreciation rate is set at 2.5 percent. The depreciation percentage approximates the overall deprecation rate for distribution plant to which the CIAC pertains. Please refer to Schedule 6.

3.7 Rate Base Return

Rate base return represents the return on capital invested to provide regulated utility services. It combines both debt and equity returns based on the capital structure and approved rates. Table 38 below summarizes the Rate Base Return as calculated for the 2019 Test Period and the 2020 Test Period:

Table 38: Summary of Rate Base Return

	2019 Test Year	2020 Test Year
Mid-year Rate Base	25,367,554	26,329,211
Cost of Capital		
Equity	1,024,000	1,063,000
Long term Debt	400,000	416,000
Short Term Debt	185,000	192,000
Return on Rate Base	1,609,000	1,671,000

The forecast Rate Base Return for 2019 and 2020 is $1,609,000 and $1,671,000, respectively, and it is calculated in accordance with the methodology and rates discussed below.

3.7.1 Equity Thickness and Allowed Return on Equity

The Commission's Generic Cost of Capital Stage 2 Decision, issued under Order G-47-14 and dated March 25, 2014, set an equity thickness for Creative Energy of 42.5 percent and a Return on Equity (**ROE**) at 9.5 percent. By Order G-82-15, the Commission accepted that the deemed equity thickness and ROE for Creative Energy rate setting should continue to be based on an equity thickness of 42.5 percent and an equity risk premium of 75 basis points for regulated thermal energy systems. The Commission's decision established the equity thickness as appropriate given the business risks faced by the Company and that the allowed ROE provides the Company with a reasonable opportunity to earn a fair return on its equity investment.

3.7.2 Debt Financing

By Orders G-195-15 and G-184-16, the Commission approved a Credit Facilities Agreement with the Royal Bank with the four credit facilities shown in the table below. These facilities are still utilized and continue to be renewed on an annual basis. They have been renewed each year on the maturity date since 2016. Principal payments on Facility #3 and Facility #4 are made on a monthly basis. Current interest rates on these loans are provided in Table 39.

Table 39: Credit Facility Summary

Facility #1	Revolving Demand	4,500,000	Prime + 0.3% or BA Floating Rate + 1.25%
Facility #2	Non-revolving	10,000,000	Prime + 0.5% or BA Floating Rate + 1.4%
Facility #3	Non-revolving	2,853,421	Prime + 0.5% or BA Floating Rate + 1.4%
Facility #4	Non-revolving	3,512,000	Prime + 0.5% or BA Floating Rate + 1.4%

3.8 Rate Base and Capital Additions

3.8.1 Summary

Mid-Year Rate Base is forecast to be $25.3 million in the 2019 Test Period and $26.2 million in the 2020 Test Period as reported in the table below. Please also refer to Schedule 2.

The Mid-year Rate Base comprises the following components:

- Net Mid-year Plant in Service (comprising of gross plant in service, accumulated depreciation and adjusted for the timing of major additions)
- Net Mid-year CIAC (comprising of gross CIAC and accumulated depreciation of CIAC)
- Mid-year Plant Allocated to NRO (portion of the plant used to support Company's NRO)
- Mid-Year Deferral Accounts (representing the Company's funding of activities where there is a timing difference between cost incurrence and its collection in rates)
- Mid-Year Working capital (representing Company's investment into non-capital assets used in support of regulated operations)

Table 40: Rate Base Summary

	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Test Year	2020 Test Year
Gross Plant in Service						
Opening Balance	41,295,180	42,252,280	43,759,112	44,195,808	45,368,846	47,475,864
Closing Balance (estimated)	42,252,280	43,759,112	44,195,808	45,368,846	47,475,864	49,124,780
Average Balance (Mid-Year)	41,773,730	43,005,696	43,977,460	44,782,327	46,422,355	48,300,322
Accumulated Depreciation						
Opening Balance	(16,733,386)	(17,648,865)	(18,593,054)	(19,571,700)	(20,565,064)	(21,541,763)
Closing Balance (estimated)	(17,648,865)	(18,593,054)	(19,571,700)	(20,565,064)	(21,541,763)	(22,545,152)
Average Balance (Mid-Year)	(17,191,125)	(18,120,959)	(19,082,377)	(20,068,382)	(21,053,413)	(22,043,458)
Net Mid-year Plant in Service	24,582,605	24,884,737	24,895,083	24,713,945	25,368,941	26,256,864
Net Mid-year CIAC	(660,600)	(708,436)	(858,273)	(935,988)	(904,578)	(873,168)
Mid-year Net Plant Allocated to NRO	(28,454)	(27,698)	(26,992)	(26,285)	(26,992)	(26,992)
Mid-Year Rate Base Deferred Accounts	747,024	663,774	497,268	414,012	414,012	414,012
Mid-Year Working Capital	428,753	317,391	248,510	483,873	516,170	558,494
Mid-year Rate Base	25,069,327	25,129,768	24,755,597	24,649,557	25,367,554	26,329,211

Net Mid-year Plant in Service is the largest component of the Rate Base and it represents the cumulative undepreciated investment in capital assets. It is Gross Plant in Service (**GPIS**) net of Accumulated Depreciation. GPIS comprises the prior year's closing balance carried over to the current period, plus capital additions, AFUDC, and capitalized overheads, less plant retirements. Each of these components is discussed below in respect of the 2019 to 2020 test period.

3.8.2 Capital Additions

The year-over-year increases to Rate Base in 2019 and 2020 are primarily driven by capital additions. Projected capital additions are $2.1 million in 2019 and $1.6 million in 2020.

Capital additions are based on the year that costs are transferred from Construction in Progress into Plant in Service. Costs may be spent in a previous year but not added to Rate Base until a subsequent year. Higher than average capital additions in one year could be directly related to lower than average capital additions in another year. Rate Base is adjusted each year based on actual capital additions.

Historical capital additions and incremental additions in the 2019-2020 test period are summarized in Table 41. For further detail, please refer to Appendix D.

Table 41: Core System Capital Additions

	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Test Year	2020 Test Year
Total Capital Additions	957,101	1,506,832	436,695	1,173,038	2,107,017	1,648,917
Steam Plant					285,427	407,000
Distribution System					533,483	559,667
Customer Building Services					420,076	163,868
Customer Connections					868,032	518,382

Certain components of the Steam Plant will be removed as part of the Beatty Plant renovation project as summarized below and discussed in detail in the Beatty CPCN Application:

- Boilers #1, 2 and 4 will be abated and demolished; Boilers #3, 5 and 6 will be retained
- Deaerators #1 and #2 will be abated and demolished; Deaerator #3 will be retained
- Feedpumps #1-3 and 5-7 will be abated and demolished; Feedpumps #4 and 8 will be retained
- Diesel generator will be abated and demolished, and replaced
- Diesel Fuel Tanks #1-4 will be abated and demolished, and replaced

The Steam Plant capital additions summarized above and in Appendix D represent regular upgrades that are a long-term betterment to the property and that will remain as part of the Beatty Plant following the renovation project. Any expenditures to maintain equipment that is planned to be removed from the Beatty Plant as part of the project will be expensed. Distribution capital additions in 2020 pertain largely to restoration of several manholes.

In addition to more regular typical additions for Plant, Distribution and Building Services, 2019 and 2020 capital additions include an estimated $868,000 and $518,382 to connect new customers. These amounts primarily relate to connecting a customer at 402 Dunsmuir Street as part of a staged connection to renew service to the former Vancouver Post Office building as that development proceeds, with the amount in 2019 relating entirely to the cost of the distribution piping system investments at the Vancouver Post Office building. These costs relate to connecting both the post office building, one other new customer and an existing customer; each will utilize this asset. Further investment is still required to complete the connection to the post office building as that development proceeds; however, the existing customer would have lost service if not for the timing of this capital expenditure. This component of the distribution piping system to connect the customer at 402 Dunsmuir Street is currently in service and the costs have been added to the rate base in 2019.

3.8.3 Allowance for Funds Used During Construction (AFUDC)

The AFUDC applies where an asset is not part of the rate base, but funds have been invested to finance its construction. The AFUDC recognizes that there are carrying costs arising from such an investment and provides for their future recovery. 2019 and 2020 capital additions do not include AFUDC.

3.8.4 Accumulated Depreciation

Accumulated Depreciation is a contra asset account that reduces the carrying costs of the underlying asset (such as any plant asset) in recognition of its finite useful life and diminishing economic value with the passage of time. Annual Depreciation expense adds to the Accumulated Depreciation balance whereas plant retirements and net proceeds from disposition reduce it.

The change in Accumulated Depreciation is explained entirely by the change in annual Depreciation expense.

3.8.5 Contributions in Aid of Construction

A customer may be required to make a financial contribution to extend utility services, a Contribution in Aid of Construction, if the incremental cost of extending the service exceeds forecast incremental revenue over the planned or contracted period of service duration. When required, such contributions protect existing customers from subsidizing the costs of new customer connections.

CIAC reduces rate base and its net balance decreases over time recognizing the effect of depreciation. The change in the Mid-year CIAC in the 2019 to 2020 test period is driven by the annual CIAC depreciation. Creative Energy does not forecast any new CIAC additions during the test period of this Application. Please also refer to Schedule 6.

Table 42: Contributions in Aid of Construction

	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Test Year	2020 Test Year
Gross CIAC						
Opening Balance	(922,397)	(922,397)	(1,052,385)	(1,256,385)	(1,256,385)	(1,256,385)
Repayments						
Additions		(129,988)	(204,000)			
Closing Balance	(922,397)	(1,052,385)	(1,256,385)	(1,256,385)	(1,256,385)	(1,256,385)
Accumulated Depreciation						
Opening Balance	253,218	270,376	287,534	304,692	336,102	367,512
Depreciation	17,158	17,158	17,158	31,410	31,410	31,410
Closing Balance	270,376	287,534	304,692	336,102	367,512	398,922
Net CIAC						
Opening Balance	(669,179)	(652,021)	(764,852)	(951,693)	(920,283)	(888,873)
Closing Balance	(652,021)	(764,851)	(951,693)	(920,283)	(888,873)	(857,463)
Net Mid-Year CIAC	(660,600)	(708,436)	(858,273)	(935,988)	(904,578)	(873,168)

3.8.6 Allocation to Non-Regulated Operations

Creative Energy allocates a portion of building and land costs to NRO and this allocation lowers the overall regulated rate base and the amount of revenue requirements to be collected through rates. Please refer to Schedule 8.

3.8.7 Working Capital

Working capital is the amount of funds required to finance the day-to-day operations of a regulated utility and are included as part of rate base for ratemaking purposes.

Working capital represents Creative Energy's investment in non-capital assets and accounts for timing differences between payment of current period expenses (cash outlay) and their recovery in revenues. Please refer also to Schedules 9 and 10.

Table 43: Working Capital Requirements

	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Test Year	2020 Test Year
Natural Gas & Oil Purchases	-	-	-	-	-	-
Operation & Maintenance Expense	250,255	244,716	253,266	294,210	277,101	288,286
Insurance	51,233	54,733	51,553	53,551	68,497	69,370
Other	-	-	-	-	-	-
Municipal Taxes	(159,083)	(171,062)	(192,072)	(190,522)	(178,447)	(184,756)
Income Tax Expense	(16,162)	(110,903)	(175,981)	(96,623)	(109,514)	(110,963)
Property Taxes	126,565	127,463	142,800	233,625	248,213	286,238
Subtotal	252,809	144,947	79,566	294,241	305,850	348,174
Oil Inventory	179,444	179,444	179,444	202,132	224,820	224,820
Customer Deposits	(3,500)	(7,000)	(10,500)	(12,500)	(14,500)	(14,500)
Work in Process	-	-	-	-	-	-
Total	428,753	317,391	248,510	483,873	516,170	558,494

Working capital requirements for 2019 and 2020 are calculated as forecast expenses multiplied by the applicable Lead/Lag Days, as currently approved by the Commission, plus any pre-paid expenses such as fuel oil inventory.

Table 44: Working Capital – Approved Net Lead (Lags) Days

	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Test Year	2020 Test Year
Natural Gas & Oil Purchases	0.09	0.09	0.09	0.09	0.09	0.09
Operation & Maintenance Expense	21.10	21.10	21.10	21.10	21.10	21.10
Other	136.88	136.88	136.88	136.88	136.88	136.88
Municipal Taxes	(247.91)	(247.91)	(247.91)	(247.91)	(247.91)	(247.91)
Income Tax Expense	(142.90)	(142.92)	(142.91)	(142.91)	(142.91)	(142.91)
Insurance	182.50	182.50	182.50	182.50	182.50	182.50
Property Taxes	136.88	136.88	136.88	136.88	136.88	136.88

4 Northeast False Creek Revenue Requirements

4.1 NEFC Hot Water Load Forecast

4.1.1 2019 Projected NEFC Hot Water Load

Projected 2019 NEFC hot water load is set equal to:

1. Actual metered hot water load in MWh for January through September 2019, plus

2. A forecast of October through December 2019 hot water load in MWh equal to the 2020 Forecast for these months, which appropriately factors in the additional load of one building (the ARC building) in the NEFC that began taking full service in October 2019.

Table 45: 2019 Projected NEFC Hot Water Load

MWh	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Aquilini Plant Total	300	109	162	122	84	71	57	58	74	98	149	196	1,479
PARQ	1,268	1,959	1,254	696	287	161	48	58	219	624	941	1,385	8,899
One Pacific	517	600	493	384	269	216	172	177	218	332	412	545	4,335
Arc	176	231	173	139	76	55	48	52	87	368	456	604	2,465
PARQ Plant Total	1,960	2,790	1,919	1,219	633	432	267	287	524	1,325	1,808	2,534	15,699
Total	2,261	2,898	2,081	1,341	716	504	324	345	598	1,423	1,957	2,730	17,178

4.1.2 2020 Projected NEFC Hot Water Load

Forecast 2020 hot water load is equal to:

1. The average of 2018 and 2019 consumption in MWh for existing customers, reflecting the limited data set available given that service to the NEFC commenced in April 2017, plus

2. The addition of a new customer (ARC building), for which a full year's load in 2020 is scaled on the basis of its floor area compared to that of One Pacific, an existing, similar building customer in terms of scale and use. The ratio of floor area of ARC to One Pacific is 1.108.

Table 46: 2020 Forecast NEFC Hot Water Load

MWh	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Aquilini Plant Total	223	126	158	112	78	74	61	66	65	98	149	196	1,405
PARQ	1,249	1,693	1,334	738	253	190	100	78	215	624	941	1,385	8,798
One Pacific	533	547	502	358	247	218	170	177	209	332	412	545	4,250
Arc	590	606	556	397	273	241	188	196	232	368	456	604	4,709
PARQ Plant Total	2,371	2,846	2,392	1,493	773	648	459	452	656	1,325	1,808	2,534	17,757
Total	2,595	2,972	2,549	1,605	851	722	519	518	721	1,423	1,957	2,730	19,162

To determine the associated steam load supporting the NEFC System, the estimated hot water consumption in MWh is scaled up based on the measured efficiency of the distribution system (97.5%) and the efficiencies of the PARQ Hot Water Plant (88%) and the Aquilini Center Hot Water Plant (85%).

Total estimated MWh are converted to M# multiplying through by a conversion factor of 3.14 M#/MWh.

Table 47: 2020 Forecast NEFC Steam Load

Method Component	Plant	Total Steam Load
Forecast Plant Gate Volumes MWh (Adjusting for Distribution Efficiency)	Aquilini	1,441
	PARQ	18,213
	Total	19,654
Forecast Steam Volume MWh (Adjusting for Plant Efficiency)	Aquilini	1,695
	PARQ	20,696
	Total	22,391
Forecast Steam Volume M#	Aquilini	5,322
	PARQ	64,987
	Total	70,309

4.2 NEFC Revenue Requirements

Please refer to Table 48 for a summary of the NEFC revenue requirements for the 2019 and 2020 test period in reference for the discussion further below of the impacts in each year.

Table 48: NEFC Revenue Requirements – Summary

Component	2017 Approved	2017 Actual	2018 Approved	2018 Actual	2019 RRA	2020 RRA
Fuel (excluding FCAC Rate Rider)	313,800	282,725	313,800	354,737	458,904	752,306
Steam Tariff	222,900	187,360	222,900	223,974	208,549	492,249
Subtotal Cost of Sales	536,700	470,085	536,700	578,711	667,453	1,244,555
O&M Expense	121,600	115,742	121,600	243,981	115,319	161,044
Municipal Taxes	10,100	10,601	10,100	13,077	17,768	19,765
Income Tax Expense	3,700	16,324	3,700	(28,741)	5,653	19,313
Depreciation Expense	180,300	-	180,300	96,582	184,100	208,800
Return on Rate Base	321,800	134,205	321,800	284,348	303,000	307,000
Total Revenue Requirement	1,174,200	746,957	1,174,200	1,187,958	1,293,293	1,960,478
Hot Water Sales Revenues	800,300	848,053	800,300	1,046,191	1,421,412	1,581,195
Revenue (Surplus)/Deficiency	373,900	n/a	373,900	n/a	(128,120)	379,282
FCAC Rate Rider Recovery						309,360

4.2.1 2019 NEFC RRA

Creative Energy proposes to maintain interim NEFC 2019 rates on a permanent basis; that is, no increase to the rates set in 2017 and that remain in effect currently, as follows:

- Fixed Rate of $0.27 per square meter per month; and
- Variable Rate of $52.1 per MWh.

This proposal maintains compliance with the direction under Order G-167-16 to not begin recovery of the RDDA balance until 2020. The indicated reduction in the RDDA balance of $128,120 is explained by lower than expected fuel and steam costs due to lower than expected recorded steam transfers to the Core based on projected customer demand for hot water in MWh. Creative Energy therefore seeks

approval also to reduce the RDDA balance for recovery in a future period by the projected reduction of $128,120.

Please refer also to section 1.2.3.

4.2.2 2020 NEFC RRA

Creative Energy proposes to increase 2020 rates over the rates currently in effect by 3.7 percent as follows:

- Fixed Rate of $0.28 per square meter per month; and
- Variable Rate of $54.03 per MWh.

For the reasons set out in section 1.2.3.2, Creative Energy also proposes a new charge to NEFC customers to directly recover the approved FCAC Rate Rider on a $/MWh basis and equal to $16.15/MWh. The derivation of this charge is also set out in section 1.2.3.2 in relation to the NEFC load forecast report in Table 46 and Table 47.

Creative Energy therefore also seeks approval to add $379,282 to the RDDA balance for recovery in a future period as discussed in section 1.2.3.3.

The rate increase of 3.7 percent is equivalent to a one cent increase in the fixed charge per square meter per month and an approximate $2 increase in the variable charge per MWh. For the reasons discussed in section 1.2.3 this increase is considered prudent under an overall objective to commence recovery of the RDDA balance at this time and to avoid a larger addition to the balance otherwise.

4.2.3 Variance Explanations

4.2.3.1 Fuel Costs

The NEFC System is a customer of the Core Steam system. Fuel costs are charged to NEFC using the same process as other customers of the Core Steam system. Costs are a function of steam load used by the NEFC system and the FCAC Rate Rider charged to customers. For the 2019 Test Year, fuel costs were higher than 2018 approved partially due to higher steam load transferred and partially due to an increase in the FCAC and the addition of the FCAC Rate Rider effective as of March 1, 2019. NEFC system fuel costs will increase for the 2020 Test Year primarily due to an increase in the steam load transfer as set out in section 4.1.2.

4.2.3.2 Steam Tariff

Similar to fuel costs, steam tariff costs are a function of steam load used by the NEFC system. These costs increase for the 2020 Test Year due to the increase in the steam load transfer as discussed above. The cost is calculated by using the steam rates derived from the 2020 Core Steam RRA.

4.2.3.3 Operation & Maintenance Expense

Please refer to Schedule 14 for details on Operation & Maintenance Expense by category. Supervision and labour costs relate to time directly charged by the distribution team for maintenance and monitoring of the NEFC system. The planned cost for 2020 is in line with actuals from 2018.

Administrative and General costs, including related salaries and benefits, office supplies and general legal and audit fees are allocated using the Massachusetts formula. The 2019 allocation is based on the 3-factor methodology using projected 2019 allocable costs across all systems. The 2020 allocation is based on the proposed 2-factor methodology as summarized in section 2.2.

4.2.3.4 Municipal Taxes

Municipal taxes are calculated as total revenue multiplied by 1.25 percent.

4.2.3.5 Income Tax Expense

A tax rate of 27 percent is used. Please refer to Schedule 18.

4.2.3.6 Depreciation Expense

Depreciation is calculated based on Plant-In-Service and depreciation rates by asset category. Please refer to Schedules 3 and 4. Average Plant in Service for the 2020 Test Year is $5,295,330 of which approximately 65 percent is depreciated at 5 percent and the remainder depreciated at 2 percent per year. This is an average depreciation rate of approximately 4 percent compared to the average depreciation rate of 4.3 percent used to support the 2016-2017 NEFC RRA.

4.2.3.7 Capital Additions

Test period capital additions are set out in the following table.

Table 49: NEFC Capital Additions

NEFC Plant Additions	2019	2020	Comment
New customer connection and remaining common costs	359,278		Remaining cost transferred from CIP for new customer connection
PARQ Casino Ventilation	122,754		Life extension of equipment due to cooler temperatures
Heat Exchanger		20,000	Spare
Other	10,736		
	492,768	20,000	

4.2.3.8 Return on Rate Base

Please refer to Schedule 2 for the rate base calculation and Schedule 13 for the interest expense and return on equity calculation. Return on rate base is calculated using the approved capital structure of 42.5 percent equity and 57.5 percent debt and an approved return on equity of 9.5 percent.

5 Non-Rate Base Deferrals and Deferral Account Rate Rider

5.1 Summary

Creative Energy requests approval of a new Deferral Account Rate Rider (**DARR**), effective January 1, 2020, to recover non-rate base regulatory and pension -related deferred costs from Core Steam system customers amortized over two years.

Creative Energy has two deferral accounts currently approved to support implementation of the DARR:

1. Pension Expense Deferral Account – Approved by Order G-98-15 - To capture the annual variance between forecast Pension expenses recovered in rates and the pension expense reported in financial statements, with the balance to be amortized over one year at a carrying cost equal to Creative Energy's short-term debt rate. Recorded variances include expenses related to revaluation gains and losses; and

2. Third Party Regulatory Costs Deferral Account (**TPRCDA**) – Approved by Order G-167-16 – To capture the annual variance between forecast and actual third party costs relating to regulatory filings and proceedings required under the Act, with the balance to be amortized over one year at a carrying cost equal to Creative Energy's short-term debt rate. Recorded variances include quarterly commission fees, Commissioner and Commission Contractor costs charged to individual proceedings, Intervenor Participant Assistant Cost Awards as well as the costs of external legal services in support of Creative Energy's regulatory submissions and proceedings.

The forecast balance of the non-rate base deferred expenses in these two accounts totals $641,614 and relates primarily to a change in the valuation of pension costs and to the BCUC regulatory review costs charged to Creative Energy for its review of the Beatty-Expo Plants CPCN and Reorganization Application. The amounts recorded and un-recovered through the period ending December 31, 2018 total $595,830, and the total amount to be recovered includes the addition of partial BCUC regulatory costs of $45,751 to review the Beatty-Expo CPCN, which are added to the TPRCDA in 2019 as explained and proposed in section 1.1.

Table 50: Pension Expense and Third-Party Regulatory Costs Deferral Account Balances

Deferred Account Name	2018 Opening Balance	Additions/ (Deductions)	Interest/ AFUDC	Amortization	Ending Balance
Reg. Transitional Adjustment Deferral Account	115,261	-	2,017	(117,278)	-
Pension Expense Deferral Account 2016	(77,509)	-	(1,356)	78,866	-
TPRCDA 2016	(34,739)	-	(618)	35,357	-
Pension Expense Deferral Account 2017	242,034	-	4,236	(246,270)	-
TPRCDA 2017	(113,502)	-	(1,986)	115,488	-
Pension Expense Deferral Account 2018	-	377,966	6,614	-	384,580
TPRCDA 2018	-	207,659	3,634	-	$ 211,293
Subtotal	131,546	585,624	12,540	(133,837)	595,873
TPRCDA 2019					$ 45,741
Total					$ 641,614

5.2 Pension Expense Deferral Account

In 2018, pension costs were $377,924 higher than approved. Approved pension costs were not explicitly stated in the 2017 or 2018 revenue requirement applications. However, pension costs were embedded in the total approved wages and benefits. The details of pension costs have been split out for the purpose of the 2018 deferral account calculation based on Creative Energy's detailed 2017 budget as approved.

Approved pension costs for 2017 were derived from the 2017 Approved costs with inflation of 1.84 percent added as directed by the Commission when finalizing 2018 Core Steam rates. A portion of the actual pension costs are allocated to capital costs and projects other than the Core steam system. As such, actual pension costs used for calculating the deferral account balance are lower than the expense in the notes to the 2018 audited financial statements. The addition to the deferral account is also lower.

In 2018, current service costs on the pension were $25,776 lower than Approved. However, there was a revaluation of the pension asset for $403,700 as the return on plan asset was not sufficient to cover the interest expense on pension liability. Details are reported in the following table.

Table 51: Pension Expense Deferral Account Variances

Description	2017 Approved	Inflation Factor	2018 Approved	2018 Actual	Deferral
Plant	100,130	1.84%	101,972	98,280	(3,692)
Service	28,124	1.84%	28,641	27,181	(1,460)
Management	58,593	1.84%	59,671	39,088	(20,583)
Revaluation				403,700	403,700
Total	186,846		190,284	568,249	377,966

5.3 Third Party Regulatory Costs Deferral Account

In 2018, third-party regulatory costs were $207,659 higher than the Approved amount of $135,651. The Approved regulatory costs for 2018 were derived from the 2017 Approved costs with inflation of 1.84% added as directed by the Commission when finalizing 2018 rates.

Table 52: Third Party Regulatory Costs Deferral Account Variances

Description	2017 Approved	Inflation Factor	2018 Approved	2018 Actual	Deferral
BCUC Quarterly Fees	43,000	1.84%	43,791	23,435	(20,357)
BCUC RRA Fees 2018	15,000	1.84%	15,276	24,132	8,856
RRA Consulting Support	48,000	1.84%	48,883	20,366	(28,517)
PACA - CEC/BCOAPC	27,200	1.84%	27,700	52,472	24,771
RRA Legal Fees				95,812	95,812
RNG Application				2,329	2,329
BCUC LTRP review				2,996	2,996
Beatty CPCN BCUC				121,768	121,768
Subtotal	133,200		135,651	343,309	207,659
BCUC Review of Beatty CPCN in 2019 - partial					45,741
Total (not including interest)					253,400

Actual regulatory costs in 2018 were $343,309. The two most significant costs were the Commission costs, intervenor costs and consulting and legal fees for the 2018 Revenue Requirement Application totaling $194,782, and Commission fees related to the Beatty Redevelopment CPCN totaling $121,768.

5.4 Deferral Account Rate Rider

The objective of the DARR and the two-year amortization period is to target smooth and stable recovery of irregular regulatory and pension cost impacts. Under the proposed DARR, these costs will be recovered on a single per unit basis ($/M#) and not tied to the declining block steam rate design. This approach will promote more equitable allocation of cost recovery from customers and more predictable cost recovery by the utility.

Creative Energy proposes that the DARR be set at a level to recover these costs over a two-year amortization. Creative Energy notes that a one-year amortization of these costs, for example, would equate to about a 9 percent steam rate increase overall in 2020.

Creative Energy requests approval of a DARR equal to $0.29/M# in 2020, with recovery forecast each month over the two-year period 2020-2021 as shown in the table below. Going forward, Creative Energy will seek approval to amend the level of the DARR if and as required to recover recorded variances between actual and forecast amounts in subsequent periods.

Table 53: Forecast DARR Recovery

DARR	0.29	$/M#										
Annual Load		1,140,634	M#									
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Historical Load Shape	14.3%	12.3%	11.4%	8.6%	6.2%	4.5%	3.7%	3.5%	4.3%	7.2%	10.9%	13.3%
Monthly Load 2020	163,030	139,898	129,547	98,566	70,212	50,960	42,023	39,380	48,710	81,959	124,562	151,787
Opening Balance 2020	641,614	594,287	553,675	516,069	487,455	467,073	452,280	455,911	444,479	430,339	406,547	370,387
Interest							15,830					
Rate Rider Revenue	47,327	40,612	37,607	28,613	20,382	14,793	12,199	11,432	14,140	23,792	36,159	44,063
Ending Balance 2020	594,287	553,675	516,069	487,455	467,073	452,280	455,911	444,479	430,339	406,547	370,387	326,324
Monthly Load 2021	163,030	139,898	129,547	98,566	70,212	50,960	42,023	39,380	48,710	81,959	124,562	151,787
Opening Balance 2021	326,324	278,998	238,386	200,779	172,166	151,784	136,991	129,586	118,155	104,015	80,222	44,063
Interest							4,795					
Rate Rider Revenue	47,327	40,612	37,607	28,613	20,382	14,793	12,199	11,432	14,140	23,792	36,159	44,063
Ending Balance 2021	278,998	238,386	200,779	172,166	151,784	136,991	129,586	118,155	104,015	80,222	44,063	-

Appendix A

Draft Order for Interim Approval of 2020 Rates

Order Number

●

IN THE MATTER OF
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

Creative Energy Vancouver Platforms Inc.
2019-2020 Revenue Requirements Application
for Core System Steam Service and Northeast False Creek Hot Water Service

ORDER

WHEREAS:

A. On December 19, 2019, Creative Energy filed with the British Columbia Utilities Commission (**BCUC**) an application (**Application**) for final approval of 2019 rates for Creative Energy's Core System steam service and Northeast False Creek (**NEFC)** System hot water service, and interim and final approval of 2020 rates for Core System steam and NEFC System hot water services;

B. The Application requests, among other things:

   (i) final approval to set 2019 rates for Core System steam and NEFC System hot water services equal to the 2019 rates the Commission approved on an interim basis pursuant to Order G-248-18;

   (ii) approval to increase rates for Core System steam services by 4.2 percent and to increase rates for NEFC System hot water service by 3.7 percent both effective as of January 1, 2020;

   (iii) approval of a new Deferral Account Rate Rider (**DARR**) to be applied to Core System steam customers and to amortize the balance in the Pension Expense and Third-Party Regulatory Costs Deferral Accounts over two years beginning January 1, 2020; and

   (iv) approval to charge a Fuel Cost Adjustment Charge (FCAC) Rate Rider to NEFC System hot water customers, effective January 1, 2020, to recover from these customers the existing FCAC Rate Rider in effect for Core Steam system customers pursuant to BCUC Order G-226-19.

C. Creative Energy requests the approvals in recitals B.(ii),(iii) and (iv) in this Order to be made effective on an interim basis, pending a final BCUC decision on the Application; and

D. The Commission has commenced its review of the Application and is satisfied that the setting of interim rates for 2020 is warranted.

NOW THEREFORE, pursuant to sections 58 to 60 and 90 of the Utilities Commission Act and section 15 of the Administrative Tribunals Act, the BCUC orders as follows:

1. The Core System Steam rates set out at Appendix B-1 of the Application are approved on an interim and refundable basis, effective January 1, 2020 and subject to further order of the BCUC.

2. The DARR set out at Appendix B-1 of the Application is approved on an interim and refundable basis, effective January 1, 2020 and subject to further order of the BCUC.

3. The NEFC System Hot Water and FCAC Rate Rider rates set out at Appendix B-2 of the Application are approved on an interim and refundable basis, effective January 1, 2020 and subject to further order of the BCUC.

4. The rates approved by this order will remain interim and subject to refund/recovery or adjustment with interest at Creative Energy's weighted average cost of debt until further order of the BCUC.

5. Creative Energy is directed to refile with the BCUC the rate schedules reflecting the interim rate changes for endorsement by the BCUC within 10 days of the issuance of this order, in accordance with the terms of this order.

6. Creative Energy must provide all Creative Energy Core System and NEFC System customers with notification of the interim rate changes as soon as is practicable.

DATED at the City of Vancouver, in the Province of British Columbia, this _____ day of January 2020.

Appendix B-1

Core Steam Rates and Deferral Account Rate Rider

2020 Tariff Page for Interim Approval

CREATIVE ENERGY VANCOUVER PLATFORMS INC.

15. RATE SCHEDULE

Applicability: All areas serviced by the Utility.

Class of Service: Steam Service.

Steam Rates:

$ 10.74 per M pounds of steam for the first 50M pounds of steam per month
$ 9.08 per M pounds of steam for the next 150M pounds of steam per month
$ 8.04 per M pounds of steam for the next 800M pounds of steam per month
$ 6.38 per M pounds of steam for the remainder per month

Rate Increase: Effective January 1, 2020 the steam rates above include an interim rate increase of 4.2% before rounding, approved by Order G-xx-20.

Deferral Account Rate Rider (DARR): $ 0.29 per M pounds of steam

Approved on an interim basis by Order G-xx-20, effective January 1, 2020

Fuel Cost Adjustment Charge (FCAC):

FCAC	$10.70 per M pounds of steam
Rate Rider - Stabilization Account Amortization	$ 4.40 per M pounds of steam
Total	$15.10 per M pounds of steam

FCAC charges effective November 1, 2019 as approved by BCUC Order G-259-19.

Air Conditioning: A 15% discount will be given to metered steam used for air conditioning through the months of May, June, July and August based on the average price, as calculated pursuant to the rates set out above, per thousand pounds of steam per month used by the Customer concerned. The 15% discount only applies to Steam Rates and not the FCAC.

Appendix B-2

NEFC Rates

2020 Tariff Page for Interim Approval

CREATIVE ENERGY VANCOUVER PLATFORMS INC.

1. RATE SCHEDULE

Applicability: NEFC area serviced by the Utility.

Class of Service: Hot Water Service.

Hot Water Service Rates:

Fixed Rate per m2 / month: $0.28 per m2 / month

Variable Rate per MWh: $54.03 per MWh

Rate Increase: Effective January 1, 2020 the steam rates above include an interim rate increase of 3.7% before rounding, approved by BCUC Order G-xx-20.

Fuel Cost Adjustment Charge Rate Rider:

Rate Rider – Fuel Cost Stabilization Account:
$16.15/MWh

Approved on an interim basis by Order G-xx-20, effective January 1, 2020, and in effect through February 2021, in accordance with Order G-226-19.

Issued by:

Krishnan Iyer
CEO
Creative Energy Vancouver Platforms Inc.
Suite 1, 720 Beatty Street
Commission Vancouver, B. C. V6B 2M1

Accepted for Filing:

Commission Secretary
British Columbia Utilities

Effective Date *January 1, 2020*

Order No. G-xxx-20

Appendix B-3

Core Steam Rates

2019 Tariff Page for Permanent Approval

CREATIVE ENERGY VANCOUVER PLATFORMS INC.

15. RATE SCHEDULE

Applicability: All areas serviced by the Utility.

Class of Service: Steam Service.

Steam Rates:

$ 10.30 per M pounds of steam for the first 50M pounds of steam per month
$ 8.72 per M pounds of steam for the next 150M pounds of steam per month
$ 7.72 per M pounds of steam for the next 800M pounds of steam per month
$ 6.12 per M pounds of steam for the remainder per month

Fuel Cost Adjustment Charge (FCAC):

FCAC	$10.70 per M pounds of steam
Rate Rider - Stabilization Account Amortization	$ 4.40 per M pounds of steam
Total	$15.10 per M pounds of steam

FCAC charges effective November 1, 2019 as approved by BCUC Order G-259-19.

Air Conditioning: A 15% discount will be given to metered steam used for air conditioning through the months of May, June, July and August based on the average price, as calculated pursuant to the rates set out above, per thousand pounds of steam per month used by the Customer concerned. The 15% discount only applies to Steam Rates and not the FCAC.

Appendix B-4

NEFC Rates

2019 Tariff Page for Permanent Approval

CREATIVE ENERGY VANCOUVER PLATFORMS INC.

1. RATE SCHEDULE

Applicability: NEFC area serviced by the Utility.

Class of Service: Hot Water Service.

Hot Water Service Rates:

Fixed Rate per m2 / month:	$0.27 per m2 / month
Variable Rate per MWh:	$52.1 per MWh

Issued by:

Krishnan Iyer
CEO
Creative Energy Vancouver Platforms Inc.
Suite 1, 720 Beatty Street
Commission Vancouver, B. C. V6B 2M1

Accepted for Filing:

Commission Secretary
British Columbia Utilities

Effective Date *January 1, 2019*

Order No. G-xxx-20

Appendix B-5

Core Steam Rates and Deferral Account Rate Rider

2020 Tariff Page for Permanent Approval

CREATIVE ENERGY VANCOUVER PLATFORMS INC.

15. RATE SCHEDULE

Applicability: All areas serviced by the Utility.

Class of Service: Steam Service.

Steam Rates:

$ 10.74 per M pounds of steam for the first 50M pounds of steam per month
$ 9.08 per M pounds of steam for the next 150M pounds of steam per month
$ 8.04 per M pounds of steam for the next 800M pounds of steam per month
$ 6.38 per M pounds of steam for the remainder per month

Deferral Account Rate Rider (DARR): $ 0.29 per M pounds of steam

Fuel Cost Adjustment Charge (FCAC):

FCAC	$10.70 per M pounds of steam
Rate Rider - Stabilization Account Amortization	$ 4.40 per M pounds of steam
Total	$15.10 per M pounds of steam

Air Conditioning: A 15% discount will be given to metered steam used for air conditioning through the months of May, June, July and August based on the average price, as calculated pursuant to the rates set out above, per thousand pounds of steam per month used by the Customer concerned. The 15% discount only applies to Steam Rates and not the FCAC.

Issued by:

Krishnan Iyer
CEO
Creative Energy Vancouver Platforms Inc.
Suite 1, 720 Beatty Street
Commission Vancouver, B. C. V6B 2M1

Accepted for Filing:

Commission Secretary
British Columbia Utilities

Effective Date *January 1, 2020*

Order No. G-xxx-20

Appendix B-6

NEFC Rates

2020 Tariff Page for Permanent Approval

CREATIVE ENERGY VANCOUVER PLATFORMS INC.

1. RATE SCHEDULE

Applicability: NEFC area serviced by the Utility.

Class of Service: Hot Water Service.

Hot Water Service Rates:

Fixed Rate per m2 / month: $0.28 per m2 / month

Variable Rate per MWh: $54.03 per MWh

Fuel Cost Adjustment Charge Rate Rider:

Rate Rider – Fuel Cost Stabilization Account: $16.15/MWh

Approved as per Order G-xxx-20 and in effect through February 2021, in accordance with Order G-226-19.

Issued by:

Krishnan Iyer
CEO
Creative Energy Vancouver Platforms Inc.
Suite 1, 720 Beatty Street
Commission Vancouver, B. C. V6B 2M1

Accepted for Filing:

Commission Secretary
British Columbia Utilities

Effective Date *January 1, 2020*

Order No. G-xxx-20

Appendix C

2019 – 2020 Core System Steam Load Forecast

Appendix C: Core System Steam Load Forecast

The following sections set out the methodology and results of Creative Energy's 2019 Projected and 2020 Forecast of Core steam load, which includes the steam load to serve the NEFC System and the remainder of the Core System.

1.1 Steam Load Forecast - Summary

Steam loads are the essential billing determinants for Core system rate setting since all costs are recovered through the volume of steam sold to customers. Steam load is largely dependent on weather and may vary plus or minus 10 percent in any given year due to the effect of temperature and outside of Creative Energy's control.

Creative Energy applies for approval of the 2019 Projected and 2020 Forecast Steam Loads as set out in Table C-1. The load forecast methodology is set out in the sections that follow further below.

Table C-1: Steam Load Forecast - Summary

M#	Core System Steam	NEFC System Steam	Total Steam	% Change Compared to 2018 Approved
2018 Approved	1,069,572	28,942	1,098,514	-
2019 Projected	1,099,443	30,391	1,129,834	3%
2020 Forecast	1,070,325	70,309	1,140,634	4%

In the course of preparing the load forecast to support this Application, Creative Energy noted a discrepancy between the recorded metering of steam delivered to the PARQ Hot Water Plant, which heats the water for serving three buildings in the NEFC hot water system, and the revenue metering of total MWh of hot water load delivered and billed to the three buildings connected to the PARQ Hot Water Plant.

Creative Energy has assessed that the revenue meters are operating correctly and that the steam metering at the PARQ Hot Water Plant is reading lower than actual steam supplied. Given the plant and distribution efficiencies of the NEFC System, Creative Energy has assessed that the steam meter at PARQ is recording about 50 percent of the steam that would be expected given the total MWh of hot water consumption.

The 2020 steam load forecast thus includes a higher forecast based on a calculation of steam usage at PARQ derived using the total forecast MWh of hot water consumption. About 3 percent of the total forecast increase in 2020 steam load compared to 2018 Approved is explained by the corrected forecast of steam usage by the PARQ Hot Water Plant, as shown in Table C-2.

The factors that explain the variance in 2019 Projected Load and 2020 Forecast Load compared to 2018 Approved are set out in Table C-2 and discussed further below in the sections that follow.

Table C-2: Explanatory Factors of Load Forecast Variance from Prior Approved

2018 Approved M#	1,098,514	Difference compared to 2018 Approved		Colder weather		NEFC existing - correct steam meter		New Load (mainly NEFC)	
2019 Projected M#	1,129,834	31,320	100%	29,454	96%		0%	1,866	4%
			3%		3%		0%		0.0%
2020 Forecast M#	1,140,634	42,120	100%	n/a	n/a	28,518	68%	13,602	32%
			4%		n/a		3%		1%

1.2 Projected 2019 Steam Load

For the Core component of steam load, Projected 2019 load is based on actual load from January through September, 2019, plus a forecast for October through December derived on the basis of shaping the 2018 approved load forecast by the average seasonality of load in those months over the last 20 years as served by the Steam Plant.

For the NEFC component of steam load, Projected 2019 steam load is based on 1) actual metered steam load January through September, 2019 plus 2) a forecast for October through December set based on the average of previous years' steam load and factoring in the additional load of one building in the NEFC that began taking full service in October, 2019, also on this basis.

Projected steam load in 2019 is about 3 percent higher than the 2018 Approved load forecast due to colder weather during the winter heating season earlier this year; for example, as related to the polar vortex that descended into the region including Vancouver during February 2019. The effect of the polar vortex on February 2019 load was an increase in actual load of 30 percent over the seasonal projected load for that month (175,617 M# Actual versus 134,732 M# February Seasonal Projection, or 40,885 M# higher than forecast). That increase alone is greater than the net difference of 29,454 M# between 2019 Projected Load and 2018 Approved Load explained by colder weather, supporting the view this net difference is broadly explained by weather variation.

Table C-3: 2019 Projected Steam Load

M#	Period	Core Steam	NEFC Steam			Total Steam
			Existing	New	Total	
2019 Actual	January – September	763,458	22,890	-	22,890	787,137
2019 Forecast	October - December	335,985	5,635	1,866	7,501	342,697
2019 Projected	Total	1,099,443	28,525	1,866	30,391	1,129,834

Table C-4: Core Steam October to December 2019 Forecast

Month	Seasonality factor	2018 Approved subtotal: 1,069,572
October	7.2%	76,853
November	10.9%	116,801
December	13.3%	142,330
Total	n/a	335,985

1.3 Forecast 2020 Steam Load

1.3.1 Introduction

The 2020 steam load forecast equals 1,140,634 M#, about 4 percent higher the 2018 Approved forecast based on the calculated adjustment to steam supplied to the PARQ Hot Water Plant (3%) and new customer additions (1%).

- The base forecast of the Core component of steam load is based on the 2018 Approved forecast, adjusted for known customer additions.

- The forecast of the NEFC component of steam load is based on the average of 2018 and 2019 consumption in MWh for existing customers (given the limited data set available as service to the NEFC commenced in April 2017) plus the addition of a new customer for whom a full year's load in 2020 is scaled on the basis of its floor area compared to that of an existing, similar building customer. The steam required to serve the NEFC hot water system is then determined by scaling up estimated consumption in MWh by the measured efficiency of the distribution system (97.5%) and the efficiencies of the PARQ Hot Water Plant (88%) and the Aquilini Center Hot Water Plant (85%). Total estimated MWh are converted to M# multiplying through by a conversion factor of 3.14 M#/MWh. This method provides a reliable projection of 2020 steam load based on the underlying factors.

1.3.2 Methodology

While 2019 Projected steam load for the Core system is 3 percent higher than the 2018 Approved level, those increases reflect primarily the impact of colder weather and are not indicative of future results. Thus, and as explained further below, the 2018 approved forecast remains an appropriate starting point for the base forecast for the Core system in 2020, adjusted for additions of new Core customer load.

Table C-5 reports actual and forecast steam load to serve Core customers, not including NEFC steam load. This data is defined as the Core Steam base load, actual and forecast. Five years of data is analyzed to forecast 2020 base load and the associated 2018 Approved load forecast is reported for comparison purposes.

The means to forecast 2020 base load is as follows:

1. *Normalized Core Load* - Derive the base load for existing customers by normalizing the data for customer attrition and entire-year consumption as well as by removing customer loads with unpredictable or otherwise atypical load shape. This is a granular, customer by customer data review. Analyzing the most recent 5 years of customer data is appropriate and representative given current trends in customer consumption and average weather patterns over the period. The effect in any given year is to remove the load data of between 10 to 15 customers from the Normalized Core Load data set.

2. *2020 Forecast of Normalized Core Base Load* - The Normalized Core Load data set is used to calculate both a simple average and a predictive result based on a linear regression of monthly Heating Degree Days (HDD) and monthly steam load over the last 5 years, inputting the average of HDD over that period.

3. *2020 Core Steam Base Load Forecast* – The overall base load forecast is derived by adding back the customer load that was extracted from the data set for the purpose of normalization, as described above.

As shown in Table C-5, both the simple average and the predictive approach yield a Core Steam Base Load Forecast very close to the 2018 Approved Core Base Load Forecast; the results bound the approved level by +0.1% and -0.2% respectively. The 2018 Approved Core Base Load Forecast is therefore shown to be appropriate for developing the overall 2020 Steam load forecast.

Table C-5: Core Steam Base Forecast: 5-Year Average Load and 5-Year Regression

	Normalized Load Data for Analysis	Addition of Customer Load after Normalization and Analysis	Core Steam Actual Load and Base Forecast (not including NEFC Load)	
2018 Approved Base Forecast	n/a	n/a	1,069,572	Variance
2015	938,997	34,150	973,147	-9.0%
2016	995,043	56,826	1,051,869	-1.7%
2017	1,107,894	65,235	1,173,129	9.7%
2018	1,040,021	42,584	1,082,605	1.2%
2019	1,056,463	42,980	1,099,443	2.8%
2020 Forecast	1,026,270	43,302	1,069,572	0.0%
2020 Five-Year Average	1,027,684	43,302	1,070,986	0.1%
2020 Five Year Regression Monthly HDD against Load	1,024,644	43,302	1,067,946	-0.2%

The overall 2020 Steam Load forecast is then derived further as follows, in sequence to the steps described above, with the results referred to in Table C-6 below:

4. *Total Core System Steam Load* – The addition of two customers in July 2020 adds incremental load of 753 M# to the forecast.

   Creative Energy also surveyed its largest customers, 36 customers representing about 60 percent of overall load, as to whether any major changes in building characteristics or operations were anticipated that would affect demand for steam under average weather conditions. Creative Energy learned of no such changes that would affect its 2020 forecast.

   The total Core System Steam Load is therefore equal to 1,070,325 M#, or 1,069,572 M# + 753 M#.

5. *Total NEFC System Steam Load* - The 2020 NEFC steam load forecast is based on the average of 2018 and 2019 consumption in MWh for existing customers, which reflects the limited data set available given that service to the NEFC commenced in April 2017, plus the

addition of a new customer for whom a full year's load in 2020 is scaled on the basis of its floor area compared to that of an existing, similar building customer.

The estimated consumption is then scaled up based on the measured efficiency of the distribution system (97.5%) and the efficiencies of the PARQ Hot Water Plant (88%) and the Aquilini Center Hot Water Plant (85%). Total estimated volumes in MWh are converted to M# multiplying through by a conversion factor of 3.14 M#/MWh.

Total 2020 NEFC Steam Load is therefore equal to 70,309 M#.

6. *Overall 2020 Steam Load Forecast* – The sum of the Core and NEFC Steam load 2020 forecast equals 1,140,634 M#.

   Creative Energy requests approval of this load forecast for the purpose of setting 2020 steam rates.

Table C-6: 2020 Forecast Steam Load

M#	Core Steam	NEFC Steam	Total Steam
Existing Load	1,069,572	57,459	1,127,031
New Load	753	12,849	13,602
Total	1,070,325	70,309	1,140,634

Appendix D

2019 – 2020 Core System Capital Additions

Appendix D – Core System Capital Additions 2019-2020

	2019 Test Year	2020 Test Year	Comments
Steam Production Plant			
Softener Project	92,789		Updated controls to extend life; changed resin to improve efficiency
Built space (asset management and tracking system)	84,602		Logbook system for current and future asset tracking to improve operational efficiency
Boiler 5 Burner	26,012		External casing replace around burner to extend useful life and improve safety
Scavenger Project	54,508		Existing asset was damaged internally, improves the heat recovery related to steam transferred to NEFC
Boiler 2 Controls	13,882		Boiler 2 will be replaced in the redevelopment, but the controls will be repurposed and used by Boiler 3
Other	13,634		
Chemical Handling		100,000	Safety and cost efficiency improvements
Boiler 6 Fan and VFD upgrade		100,000	Reliability and redundancy improvements
Boiler 3 Refractory Front Wall		60,000	Life extension
Deaerator 3 control valves		60,000	Operation efficiency
Softener to Delta V and exterior upgrades		35,000	Life extension
Boiler 6 Turbine Overhaul		30,000	Life extension
Air system upgrade		22,000	Improved filtering for air supplied to control values and instrumentation
Subtotal	285,427	407,000	
Steam Distribution System			
MA 8.5 Drainage	438,867		Sump for collecting drainage water at Georgia and Hornby; tied draining into city's drainage system, life cycle improvement
Planter Replacements	39,415		Removing concrete planters and replacing with flush mount vents on manholes
Alberni Loop	35,196		Connection of steam line on Alberni for redundancy and customer liability
Other	20,005	9,667	
MB-1 Manhole Rebuild		500,000	Life extension
New Vehicle		50,000	Aging vehicle fleet replacement
Subtotal	533,483	559,667	
Building Services			
Remote Metering Project	293,666		Real time monitoring, improved customer service
Meters	102,056	50,000	Replacements, asset upgrades
Pressure Reducing Valves	24,354	113,868	Upgrading customer service connection
Subtotal	420,076	163,868	
Customer Connections			
Vancouver Post Office DPS	868,032	70,000	Relocating existing line due to Post Office construction to maintain service to two existing customers and one new customer
410 West Georgia		249,862	New customer load
402 Dunsmuir		100,920	New customer load
YWCA		97,600	New customer load
Subtotal	868,032	518,382	
Total	2,107,018	1,648,917	

Appendix E

LTRP Update

Appendix E – Long-Term Resource Planning Update

In Creative Energy's approximately 50-year history it has filed one long-term resource plan (**LTRP**) with the Commission, being the 2017 LTRP filed in June 2017. The 2017 LTRP was focused on long-term options and issues for reducing GHG emissions by fully or partially displacing the consumption of natural gas in the existing steam plant with low-carbon and renewable energy sources (referred to as "fuel switching"). The 2017 LTRP included a Fuel Switch Study evaluating the option of a new (supplemental) baseload low-carbon steam plant using clean urban wood waste, which did not alter the ongoing need for the existing gas-fired steam plant as both a distribution centre and as a source of firm peaking and back-up energy.

Pursuant to Order G-147-17 dated September 25, 2017 the Commission adjourned consideration of the 2017 LTRP and directed Creative Energy to file an updated LTRP that satisfies the requirements under section 44.1 of the Act when filing its RRA for the 2020-2021 test period.

Pursuant to Order G-205-18 dated October 25, 2018 the Commission directed Creative Energy to establish a new deferral account titled the Fuel Switch Study and LTRP Deferral Account and to transfer all costs related to the Fuel Switch Study and 2017 LTRP, net of all applicable offsetting grants, to this newly established deferral account. The Commission also determined that in the event that Creative Energy does not file an updated LTRP by December 31, 2019, Creative Energy is directed to file a proposal with the BCUC by January 31, 2020 for reviewing the potential recovery of the balance in the Fuel Switch Study and LTRP Deferral Account.

Creative Energy does not have an updated LTRP at this time due to resource constraints and the ongoing uncertainty with respect to fuel switch planning and funding sources. Creative Energy continues to explore low carbon funding opportunities with the Federal Government, through its Low Carbon Economy Challenge Fund (LCEF) program, and through the Provincial Government. While long-term planning in regards to fuel switching entails uncertainty with respect to funding programs, Creative Energy continues to assess new low carbon generating capacity to serve growth of the Core system and to align with City of Vancouver requirements for new buildings. In these circumstances, Creative Energy is not in a position to commit to any fuel switch projects at this time. Creative Energy continues to file Progress Reports with the Commission in this regard as directed.

Given the current state, Creative Energy proposes to file a general updated LTRP for Commission review as part of its 2021 RRA. As a necessary condition to that effort and as generally contemplated by Order G-147-17, Creative Energy will seek to further review with the Commission staff the requirements of section 44.1 of the Act and whether it would be appropriate for Creative Energy to request to be exempted from any of those requirements given the nature of the services Creative Energy provides and the nature of its customers.

In light of the current status of efforts to update the 2017 LTRP and given the ongoing uncertainty with respect to fuel switch opportunities in particular, Creative Energy confirms that it is not seeking to recover the costs recorded in the Fuel Switch Study and LTRP Deferral Account as part of this Application. Creative Energy proposes to address recovery of the balance in this deferral account at the same time that it files its updated LTRP with the 2021 RRA. Assuming this approach is acceptable to the Commission, Creative Energy at this time seeks formal relief from Directive #4 of Order G-205-18 and extension of the filing requirement of that Directive to December 31, 2020.