SHANNON WALL CENTRE RENTAL APARTMENTS LIMITED PARTNERSHIP INFORMATION REQUEST 1 FOR SHANNON RATEPAYERS GROUP TABONE REPORT DATED APRIL 26, 2017

Abbreviations

BCUC	British Columbia Utilities Commission
CRF	Capital Replacement Fund
ERF	Emergency Repair Fund
FAES	FortisBC Alternative Energy Services Inc.
IR	Information Request
SEFC	Southeast False Creek Neighbourhood Energy Utility
SETES	Shannon Estates Thermal Energy System
SRG	Shannon Ratepayers Group
SWCRA	Shannon Wall Centre Rental Apartments Limited Partnership

1. Reference: Cover letter to EES Consulting Final Submission

1.1 Is the EES Consulting submission tendered as argument in support of SRG's position, or is it tendered as independent expert opinion evidence?

1.2 Please explain why the document is described in the cover letter as a "Final Submission" on behalf of SRG?

2. Introduction and Background (p.1)

2.1. Please confirm or explain otherwise, that in preparing its Final Submission EES Consulting reviewed the complete evidentiary record of the BCUC's proceeding up to and including the documents SWCRA provided in the hearing process as Exhibit B-20 dated March 23,2017.

2.1.1. If confirmed, please explain why the EES Consulting Final Submission references the FAES Final Submission dated July 11, 2016 and describes that "SWCRA did not address the inadequacies pointed out by FAES" but does not refer to SWCRA's subsequent filings which include submissions addressing the FAES statements and further responses to IR's.

2.2. Please confirm or explain otherwise, that the amended SETES rates application includes a change to the mechanisms for recovery of capital replacement costs and emergency repair costs, and a revised tariff in addition to the request for a regulatory costs deferral account and rate rider.

3. Ratemaking Guidelines for SETES (p.1-2)

3.1. Please enumerate the "specific components of the Guidelines" the EES Consulting Final Submission is analyzing SETES' rates against.

3.2. Please explain why the proposed rates are not transparent when SWCRA has provided a rates schedule which includes among other things, the rate for space heating, space cooling, domestic hot water heating, the monthly metering charge, the service start charge, and the monthly capacity levy. Furthermore, as set out in BCUC orders G-77-16, G-77-16A, G-161-16, G-161-16A, G-193-16 and G-52-16; please explain EES's position of lack of transparency as all intervenors were provided fair opportunity to file information requests.

4. Rate Competitiveness (p. 2- 3)

4.1. Please confirm or explain otherwise that rate competitiveness relative to other utilities is not a factor that determines whether the utility's rates are unjust or unreasonable under the B.C. *Utilities Commission Act*.

4.2. Please explain why "it is natural to compare the rates to these two alternatives, SEFC and BC Hydro, in their entirety" to SETES given that SETES offers different services, and has different facilities and a different customer base.

4.2.1. Please include in your discussion: what kinds of energy products are provided by SETES, SEFC, and BC Hydro; the current (or most currently known) number of customers of SETES, SEFC, and BC Hydro; the number of customers at full-buildout of SETES, SEFC, and BC Hydro (or for BC Hydro the number of customers in 5-years); capital investment to date by SETES, SEFC, and BC Hydro;.

4.2.2. Please provide from historical data or estimate the ratio of revenue attributable to heating of spaces / domestic hot water and space cooling.

	Fraction of Energy Sales	Creative Energy	Corix	SWCRA	SEFC
Revenue attributable to heating of spaces / domestic hot water	[%]				
Revenue attributable to cooling of spaces	[%]				

4.3. Please confirm or explain otherwise, that BC Hydro supplies electricity and not thermal energy and that persons converting electricity to thermal energy will need to own, operate, and maintain equipment to do so.

4.4. Please confirm or explain otherwise, that Creative Energy in downtown Vancouver, Corix in UBC, and SEFC do not provide space cooling.

5. **Determination of SWCRA Earnings (p.3-4)**

5.1. Please confirm or explain otherwise, that the EES Consulting Final Submission has been prepared in accordance with the financial model submitted to Mr. Dean Thomas Fox on December 6, 2016 – the rate riders are zero because they are not being collected in the financial model and the earnings (or internal capital) are being used to pay for capital replacement.

5.2. Please confirm or explain otherwise, that the EES Consulting Final Submission reflects an understanding of the CRF and the ERF which is inconsistent with what SWCRA is requesting in the amended SETES rate application.

5.2.1. If confirmed, please update paragraph 4 of section "Determination of SWCRA Earnings", Page 3 of "EES Consulting Final Submission" report

5.2.2. If confirmed, please provide your updated understanding and any updated calculations including for profit/revenue/IRR.

5.3. Please explain how the "carrying cost of 3% on $4.3 million in debt" was derived, which entity is offering to borrow that quantity of money at that rate, what type of entity may access this borrowing rate, and how SWCRA compares to the types of entity who may access this borrowing rate.

6. Issues with Specific Assumptions (p. 4-6)

6.1. Please confirm or explain otherwise, that SWCRA also stands to "lose" if actual earnings are lower than forecast based on its current submission as it does not have a load forecast deferral account or related structure. SWCRA's reply to BCUC Panel IR-1.2.6 has established advantages and disadvantages to the load forecast deferral account.
Please provide calculations to demonstrate that SWCRA's estimates of loads are conservative. Please include references to documents, technical manuals and codes used as the basis for assumptions used in these calculations. Factor in SETES IR response to BCUC Panel IR 1.4 when normalizing data from the latter half of 2016 to future years.

6.2. Please calculate, the revenue for the sale of thermal energy provided in response to SRG assuming all invoices were fully paid at the interim rate.

6.3. Please calculate, the individual revenue ratio of space heating / domestic hot water heating / space cooling to the collective revenue of space heating / domestic hot water heating / space cooling with the same assumptions as 6.2.

6.4. Please provide calculations on how ratios for recorded sales vs. predicted were determined.

6.5. Please explain whether, and if so why, EES Consulting believes that the historical 2016 sales and purchases are a valid basis for forecasting all future years of SETES operation. Please include in your response the rationale for extrapolation of 6 months of usage data over 25 years, include the major driving factors for thermal energy consumption.

6.6. Please provide the calculations used to derive COP of electricity and natural gas. Specify whether this COP includes pumping and transmission energy.

6.7. Please provide the types of solar installations the 0.5% average degradation factor was found to apply and how those types of solar installations compare to the SETES thermal energy plant.

6.8. Please confirm or explain otherwise, that the 0.5% proposed average degradation factor also includes the effects of climate change, human behavior, and building envelope degradation.

6.8.1. If not confirmed, please provide an alternate proposal to account for the combined effect of equipment change, climate change, human behavior, and building envelope degradation which is applicable to SETES.

6.9. [Reference Paragraph 4 of page 5 with respect to BC Hydro rate escalation] Please provide rationale SRG's estimation on BCH rate escalation. Provide evidence to substantiate claims that BCH is resorting to "more expensive generating resources" while facing reducing load. Please elaborate if reduction in average use per customer has translated into reduced forecasted electrical demand for the province. How does SRG's estimates compare to BC Hydro's own estimates for demand (such as BCUC proceeding "BC Hydro F2017-F2019 Revenue Requirements" filing B-1-1 section 1.3.4)

6.10. Please provide the calculations used to determine the 3.2% per year increase which is specific to the SEFC monthly capacity levy. Appendix A (SEFC NEU 2017 Customer Rates) of Exhibit B-17 indicated a "3.2% increase is to be achieved by increasing the Fixed Capacity Levy by 2.7% and the Variable Energy Charge by 4.0%."

6.11. Please explain why the 8% CCA Alternative is applicable to SWCRA including any assumptions related to the Income Tax Act and Canada Revenue Agency regulations, and why this is appropriate for rate setting.

6.12. Table 1 of the EES Consulting Final Submission provides a single figure for earnings under each of the Low, Medium and High cases posited by EES Consulting. Does EES Consulting believe that SWCRA would earn the identified ROE each and every year of the modelled period, or are these figures averages over a period of time? Please explain what period of time the ROE figures in Table 1 have been calculated for.

6.13. Please calculate and provide the Low, Medium, and High case ROEs for each year of 2016 to 2026 and calculate the average ROE over each of the period 2016 to 2022 and the period 2016 to 2026. Please explain what type of mathematical average was calculated.

7. Issue with Avoided Capital Cost (p.6-7)

7.1. Please provide the detailed calculation of the $4.95 million figure identified in the EES Consulting Final Submission at page 6.

7.2. Please explain the basis for the claim that "the sales price likely reflects the market value of alternative units that did include the cost of space and water heating appliances"? Please define the term "likely" as used in the statement. Please provide all evidence considered in forming this opinion.

7.3. Please explain, with specific reference to regulatory principles (e.g., extracts from texts by James Bonbright, Alfred Kahn, etc.) and regulatory decisions (by BCUC or other regulators), the basis for the claim that "it is not appropriate for SWCRA to then earn profit through rates on the full $7.5 million cost of the SETES". Please provide any references to provisions of the B.C. *Utilities Commission Act* that provide for the treatment proposed by EES Consulting in relation

to "avoided capital costs". If EES Consulting is not able to identify any regulatory principles, decisions or statutory provisions supporting its opinion, please clearly state that for the record.

7.4. Please confirm or explain otherwise that EES Consulting's proposed treatment in relation to "avoided capital costs" would deny the SWCRA utility the opportunity to recover costs it reasonably and actually incurred to construct the thermal energy system and provide thermal energy service to customers.

7.5. Please confirm or explain otherwise, that space conditioning equipment (e.g. fan coils) and water supply and return lines for space conditioning and domestic hot water are are included in the strata buildings and are the property of the strata unit / strata corporation as the case may be.

7.6. [Reference Line 2 of "Issue with Avoided Capital Cost, Page 6] For real estate in Vancouver, BC: Please elaborate on what HVAC/service water heating equipment should be considered "traditionally" included in the purchase price of a home, specifically for a condominium in an area serviced by a district energy system.
Please quantify the effect on the sale price of a unit in $/area of having in-suite heating/cooling/service water heating equipment vs. thermal transfer stations with individual metering. Please explain the basis for assumptions used for the calculation.
Please explain the extent to which the presence or absence of heating/cooling/service water heating equipment inside the unit vs. district energy is a significant factor on the purchase price over other factors such as location, age, quality and time of purchase? Please clearly identify the facts and assumptions supporting the response.

7.7. Please explain whether, and if so how, the $4.95 million "avoided capital costs" accounts for the cost borne by the developer to provide space conditioning equipment and domestic hot water supply lines to the strata units and common areas.

7.8. Please provide the area in square feet that would have had to be used for the installation of the space, water heating and cooling appliances suggested in the proposed $4.95 million of equipment. Please include in your response the area used for manufacturer recommended service and operational clearances.

7.9. Please provide the ratio of assessed value of the strata units for the 2016 and 2017 years to the strata unit area (as in any strata corporation / purchase agreement) in dollars per square foot.

7.10. Please provide the dollar value for the area which would be used in the strata property for space, water heating and cooling appliances on the basis of the responses to 7.8 and 7.9 for the 2016 and 2017 years.

7.11. Please explain whether, and if so how, the $4.95 million "avoided capital cost" accounts for any measures the developer installed to address risks related to refrigerant exposure.

7.12. Please explain whether, and if so how, the $4.95 million "avoided capital cost" accounts for the cost of energy meters necessary to report to the City of Vancouver for Performance Monitoring and Reporting as outlined in the development permit conditions.

7.13. How are rental units reflected in the $4.95 million calculation?

7.14. Please provide calculations and engineering documentation or explain otherwise that the $4.95 million of equipment proposed would have actually been realizable in the Shannon Estates development.

7.14.1. Please include in your calculations and engineering documentation on the proposed solutions ability to meet the Vancouver Building Bylaw, development requirements including meet building code and development requirements to meet "optimize energy performance points."

8. SRG Proposal for SETES Rates (p. 7-8)

8.1. Please confirm or otherwise explain, that to "ensure that the ROE is no more than 9.5%" measures like those described in SWCRA's response to BCUC Panel IR-2.6 would have to be used.

8.1.1. Please explain fully the basis of any objections and discuss the advantages and disadvantage of such a variance deferral account.

8.1.2. Please estimate the cost if EES Consulting was to undertake the data collection, data processing, preparation and submission of filings to the BCUC, and response to BCUC and intervener inquiries as would be necessary to maintain and/or verify a constant ROE each year for at least the period spanning 2016 to 2026.

8.1.2.1. Please relate the cost to provide these services on a per customer basis from 2016 to 2026.

8.2. Please compare the cost of providing energy service in 2016 to the potential space heating / space cooling / domestic hot water heating revenue in 2016. Please recalculate the cost of providing energy service in 2016 to the rates proposed in the SRG Proposal for SETES Rates paragraph 2. Please compare if the variable rates will recover the variable costs in either case.

8.3. Please explain the process of establishing the capacity levy to achieve the ROE of 9.5% recommended and whether it is established on a yearly-basis or if over a period of time, and the averaging method applied.

8.4. Please confirm or explain otherwise, that EES Consulting understands SWCRA proposes to charge rate riders only in the circumstances repeated in SWCRA question 4.3.

8.4.1. If confirmed, please provide any amendments necessary to the paragraph in SRG Proposal for SETES Rates starting with "As the variable rate is set to recover variable…"

9. Regulatory Costs (p.8-9)

9.1. EES Consulting suggests that regulatory costs for rate setting should have been included in the CPCN application project cost estimate.

9.1.1. Please explain where in the BCUC's Order G-27-15 Guidelines it says that the CPCN application project costs should include the costs of future regulatory proceedings to determine rates.

9.1.2. Please explain where in the BCUC's Order G-20-15 CPCN Application Guidelines it says that the CPCN application project costs should include the costs of future regulatory proceedings to determine rates.

9.1.3. Please provide copies of any CPCN applications EES Consulting has worked on where the project costs included the costs of future regulatory proceedings to determine utility rates.

9.1.4. Please confirm or explain otherwise that a utility will have to incur regulatory costs for rate setting regardless of project design at the certification stage.

9.2. Please further explain the following statement at page 8 of the EES Consulting Final Submission: "…as the SEFC fixed cost is being used as a proxy to cover the capital costs of the SETES project, SWCRA should not be allowed to recover the fixed charges from SEFC and then start adding costs to it." Does the statement mean that, in EES Consulting's view, as SEFC's fixed charge is sufficient to recover SEFC's fixed costs for the services SEFC provided to its customer base, then this charge, unmodified, should be sufficient for SWCRA to recover its fixed costs for the services it provides to its customer base? Please explain.

9.3. Please explain why SWCRA should not be allowed to recover costs incurred which are essential to the utility's operations such as the regulatory costs.

9.4. Please explain why irregular operating costs (such as regulatory costs for rate setting) should not be recovered through a deferral account and rate rider, and how this relates to the fixed charge which is for typical, predictable costs.

9.5. Please calculate the interest paid to maintain the regulatory deferral account over a 60-month period and over a 120-month period (10 years) assuming the applied for regulatory account amount is approved and recovered from customers over such time period.

10. Summary and Conclusions (p.9)

10.1. Please confirm or explain otherwise, that neither the TES guidelines nor the Utilities Commission Act require any utility in the province to have the same rates as BC Hydro or any other utility.

10.2. Please confirm or explain otherwise, that SWCRA provided additional calculations for return on equity according to means relevant to BCUC ROE calculations and the confidential financial model provided no assurances that the earnings calculation were intended for BCUC ROE relevant calculations.

10.3. Please confirm or explain otherwise, that SWCRA has indicated that "SWCRA has no expectation that the calculated returns will be achieved over the 30 years presented and there is no reason to assume that either BCUC or SWCRA would not take action if the rates and costs become too misaligned."

11. Financial model submitted confidentially

11.1. Please confirm or explain otherwise that in EES's financial model, thermal energy demand is an extrapolation of the reported energy consumption from the period of June – December 2016.

11.1.1. If confirmed, please discuss why EES feels it is appropriate to extrapolate 25 years of consumption from the initial 6 months of operation. Please include factors such as occupancy, resident composition, plant and distribution expansion, short and long term weather.

11.1.2. Please explain what if any corrective factors where applied when extrapolating the usage data. If corrective factors were used, specify the technical manual or studies cited.

11.2. Please confirm or explain otherwise that the rate reductions recommended in the report is derived from calculations based on extrapolated usage.

11.3. Please confirm or explain otherwise that no capital replacement costs have been included in EES's financial model.

11.4. Please confirm or explain otherwise that no depreciation of capital was included in EES's financial model; given that the claimed Capital Cost Allowance was 8%.

11.4.1. Please explain why it is reasonable or likely that SETES can claim or be granted an 8% CCA.