

YUKON UTILITIES BOARD

IN THE MATTER OF the *Public Utilities Act*

YUKON ENERGY CORPORATION (YEC)
2021 General Rate Application

EVIDENCE OF RUSS BELL, CPA, CMA

Submitted on behalf of:

The City of Whitehorse

September 10, 2021

Q1. Please state your name, affiliation and address.

A1. My name is Russ Bell, and I am located in Edmonton, Alberta. I was retained by the City of Whitehorse.

Q2. Please summarize your qualifications.

A2. I hold a Bachelor of Commerce Degree from the University of Alberta, and am a CPA, CMA. I have over 40 years' experience in the utility industry. My qualifications are attached as Appendix A.

Q3. What is your business and regulatory experience in the regulated natural gas and electrical industry?

A3. I have worked in the utility industry for over 40 years. The first 20 years of my career were in Canadian Western Natural Gas, a natural gas distribution and transmission utility in Calgary. The last 20 years have been spent as a consultant mainly representing the interests of small customers in utility proceedings. Over the last 20 years, I have participated in over 140 proceedings. I have appeared as a witness 38 times before the Alberta Utilities Commission (AUC), and its predecessors, the British Columbia Utilities Commission (BCUC), the Northwest Territories Public Utilities Board (NWTPUB), and the Yukon Utilities Board (YUB). In addition, I have prepared 26 pieces of evidence where no appearance was required.

I have been involved in most Performance Based Ratemaking (PBR) proceedings in Alberta since 2002 and have been involved many Phase I and Phase II cost of service proceeding as well. I have also participated in many inquiries, such as the AUC distribution inquiry.

Q4. On whose behalf is this written evidence prepared?

A4. This evidence is written on behalf of the City of Whitehorse (the "City"). The City engaged Russ Bell & Associates Inc. to review the Yukon Energy Corporation (YEC) 2021 General Rate Application, and to provide an independent review and its

recommendations. Further, Russ Bell acknowledges, that as an independent witness, he has a duty to prepare his evidence in a way that is fair, objective and non-partisan, and Russ Bell confirms that he has prepared his evidence in a manner that is consistent with this duty.

Q5. Please summarize the issues you will discuss in this evidence.

A5. I will focus on three areas in this evidence. These are:

- Diesel Generation Rentals.
- Normalization of Sales
- Brushing Costs

Diesel Generation Rentals

Q6. Please describe the evidence filed related to business cases related to diesel generation.

A6. In its application, YEC indicates that diesel rental costs will increase to \$3.834 million in 2021.¹ This is an increase of \$2.768 million (266%) over 2018 actual results of \$1.048 million.² Also, the 2018 approved costs included \$0³ for diesel rental. The City sought information to assess the decision for increased diesel rental costs. In CW-YEC-1-17 (a), the City asked:

Please provide copies of all analysis or business cases that YEC has done or prepared comparing the cost of owning diesel generation compared to rentals. If no such analysis or business cases have been prepared, please fully explain why not.

YEC did not provide the requested analysis, and instead it stated:

- YEC decided not to pursue a new 20 MW thermal plant at this time,⁴
- YEC ran a competitive procurement tender process for procurement of diesel rentals,⁵
- YEC is forecasting 17 diesel units,⁶

¹ YEC Application, page 3-14, line 6

² Ibid, line 6

³ Ibid, lines 6-7

⁴ CW-YEC-1-17 (a)

⁵ YUB-YEC-1-40

⁶ CW-YEC-1-17 (b)

- Diesel units are rented based on a 28 day cycle for the winter heating season,⁷
- Each diesel unit has a capacity of 1.8 MW,⁸
- YEC is responsible for periodic operations checks including monitoring and maintaining consumables (fuel, oil, antifreeze, etc.).⁹
- YEC is not charged maintenance if the individual units are run less than 100 hours per 28-day rental cycle.¹⁰
- At the end of the contract, YEC pays a maintenance charge based on the pro rata hours run. CAT is responsible for the cost of any breakdowns,¹¹
- The units are installed at the beginning of the rental period (November/December) in two locations and decommissioned at the end of the rental period (April)¹² and
- YEC is not planning to purchase the units and the vendor is not offering these units for sale, as far as YEC knows.¹³

The City then followed up in the second round of information requests. In this regard, the City asked:

Please confirm that no “analysis or business case” comparing the cost of owning generation and renting diesel generation exists. If not confirmed, please provide copies of all analyses or business cases that YEC has done or prepared comparing the cost of owning diesel generation to the cost of rentals.¹⁴

In its response YEC replied “Not confirmed.” and went on to state:

During the 2017/18 GRA proceeding it was noted that rented diesels were being adopted as the only option available to address the identified N-1 dependable capacity shortfall, i.e., there was no time available to develop any permanent or owned resource option. The business case assessment in this instance was very simple, i.e., rented diesel were required to meet the N-1 criterion and there was no other reasonable alternative at the time given YEC’s mandate to ensure safe and reliable service to customers.

The initial diesel rentals were implemented as a near term solution, and YEC has carried out ongoing assessments of options to displace reliance on rented diesels, including various YEC-owned diesel plant options. The alternatives

⁷ CW-YEC-1-17 (c)

⁸ CW-YEC-1-17 (d)

⁹ CW-YEC-1-17 (e)

¹⁰ Ibid

¹¹ Ibid

¹² CW-YEC-1-17 (f)

¹³ CW-YEC-1-17 (g)

¹⁴ CW-YEC-2-6(a)

considered are summarized below. Please see also Yukon Energy's most recent resource plan provided as CW-YEC-1-36(a) Attachment 1 for details regarding renewable energy options considered.¹⁵

In the same response, YEC provides the following additional information regarding "Levelized Cost of Capacity (LCOC) cost comparisons":

1. Diesel Rental LCOC costs (2022\$) of \$211 per kW-yr for a 20-year life (comparable to BESS), and \$243 per kW-yr for a 40-year life (comparable to new owned diesel): These LCOC costs assume diesel rental costs [includes cost of spares] of \$162,400/MW (2021\$) connected for winter 2021/22 to provide 27MW of operating capacity, 4% per year escalation of diesel rental costs over an assumed 20 or 40 year life, \$27,000 per year (2022\$) escalated at 2%/yr for variable non-fuel O&M, and \$3.5 million (2022\$) of infrastructure capital costs (based on infrastructure capital costs for existing 17 rentals [30.8 MW] escalated at 2%/year. Excluding the infrastructure capital, the LCOC is \$200.9 per kW-yr for a 20-year life.

2. 12.5MW Owned Diesel plant LCOC costs (2022\$) of \$186/kW-yr without property tax and \$212/kW-yr with property tax: The Midgard estimate for the 12.5 MW new greenfield diesel located at Takhini included 5 units, each 2.5 MW, with a capital cost (2019\$) of \$2.6 million per MW and O&M non-fuel fixed O&M cost (2019\$) of \$64,500 per MW escalated at 2% per year. The assumed diesel plant life was 40 years. The assumed plant location at Takhini meant that this new diesel LCOC did not include any property tax.

YEC has updated the above LCOC for a new diesel plant within Whitehorse City limits, with Whitehorse property tax is included, to address public concerns identified with locating a new diesel plant at Takhini. The updated new diesel plant LCOC is \$212/kW-year (2022\$), based on 2019\$ LCOC of \$199.8/kW-year escalated at 2% per year to 2022.¹⁶

Q7. Please explain your concerns with the YEC evidence.

A7. In the end, YEC did not provide anything that looks like a business case. All that was provided were disparate notes. I note that YEC states:

¹⁵ CW-YEC-2-6(a) page 2 of 5 lines 8-21

¹⁶ CW-YEC-2-6(a) page 3 of 5 line 26 – page 4 of 5, line 16

During the 2017/18 GRA proceeding it was noted that rented diesels were being adopted as the only option available to address the identified N-1 dependable capacity shortfall, i.e., there was no time available to develop any permanent or owned resource option. The business case assessment in this instance was very simple, i.e., rented diesel were required to meet the N-1 criterion and there was no other reasonable alternative at the time given YEC's mandate to ensure safe and reliable service to customers.¹⁷

First, YEC indicates only that "it was noted" in the 2017/18 GRA, and not that there was any explicit approval provided by the YUB. Second, I note that in fact, there were zero dollars approved for 2018.¹⁸

I also note that rental was a short-term solution, and rental was the only alternative at the time. This is now 2021, some 4 years later than the 2017/2018 GRA.

Even the costs between rental and ownership at the time are not that different.

- Diesel Rental LCOC costs (2022\$) of \$211 per kW-yr for a 20-year life,
- Diesel Rental LCOC costs (2022\$) of \$243 per kW-yr for a 40-year life,
- 12.5MW Owned Diesel plant LCOC costs (2022\$) of \$186/kW-yr without property tax, and
- 12.5MW Owned Diesel plant LCOC costs (2022\$) of \$212/kW-yr with property tax.¹⁹

There was adequate time since 2017 to prepare a detailed business case and implement a more cost-effective solution.. In fact, given that the rental option appears to have been adopted as it was the only one that could be implemented in a short period of time, one must ask why, after rental was commenced, YEC did not actually conduct a more detailed assessment of other options that may be more permanent.

Q8. What should a business case contain?

¹⁷ CW-YEC-2-6(a) page 2 of 5 lines 10-15

¹⁸ YEC Application, page 3-14, line 6

¹⁹ CW-YEC-2-6(a) page 3 of 5 line 26 – page 4 of 5, line 10

A8. In a utility context, a business case should demonstrate that the chosen option provides safe and reliable service as the least cost option over the life of the assets. In this case, there should be at least two scenarios, and possibly three.

- The base case could be the rental option as included in the application.
- The second scenario could be that of YEC purchasing the assets it is renting.
- The third option could be the construction and ownership of a larger generating station.

The business case should include detailed cost estimates of each scenario for the life of the assets in the longest scenario. As an example, if ownership option in scenario 3 had a 40-year life, then the estimates for each option should be over a 40 year period. The revenue requirement for each option should be developed and the present value of revenue requirement should be determined for each option. The lowest cost alternative of each viable option should be the one that is allowed in customer rates.

There should also be a robust discussion of the risks and feasibility of each option. If two options are close in cost, but one is significantly riskier, this may sway any decision to a more expensive option to mitigate significant risks.

As I noted, YEC has not provided any such analysis, and the data provided appears to be dated.

Q9. Do you have any other observations?

A9. Yes, I note that estimated annual costs are \$3.834 million in 2021.²⁰ One could construct a simple revenue requirement model using:

- Return on rate base of 5.17%,²¹
- A 40-year life, and
- Solve for annual revenue requirement of \$3.834 million.

²⁰ YEC Application, page 3-14, line 6

²¹ TAB 7 Schedules, Schedule 5

The model shows that this annual revenue requirement would support a capital expenditure of approximately \$50 million. While this may be on the high side as I have not included any maintenance or property taxes, it does demonstrate that the proposed \$3.8 million per year of rental costs would support a significant investment in generation assets.

Q10. Please explain your experience with Business Cases.

A10. While working at Canadian Western Natural Gas (CWNG) as Manager, Business Systems, I was responsible for business cases for all information technology projects within CWNG. Prior to my work as manager, I was involved in budgeting and business planning. As a part of this role, I worked on several acquisition projects where I was responsible for all financial modelling. The largest project I worked on had a value of slightly under \$100 million.

As Controller of ATCO I-Tek, I was responsible for all information technology related business cases, including software implementations such as Oracle Financials.

Over the last 20 years, as a consultant representing customer interests, I have reviewed the business cases of numerous utilities.

Q11. Please fully explain your recommendations.

A11. YEC has not provided adequate evidence that rental is the most cost-effective option to provide safe and reliable service over the life of the assets. It has relied on superficial and possibly dated evidence.

Absent a proper business case, I recommend that the costs of diesel rental not be allowed in revenue requirement.

I am recommending that the YUB not include the rental costs in rates, as YEC has not provided adequate evidence that it has selected the least cost alternative. Should the YUB agree with me, that would not relieve YEC from its obligation to provide safe and

reliable service. Whether or not certain costs are in rates does not relieve the utility from maintaining service quality. All utilities are required to adequately support any request in a GRA with evidence. If the utility does not provide adequate evidence, that is a risk that the utility takes.

Normalization of Sales

Q12. Does YEC normalize its sales for weather?

A12. No. In its 2021 General Rate Application, Tables 2.1 YEC provides actual sales volumes. The City asked:

Please provide an updated Table 2.1, with sales, sales per customer, revenues, and cents per KWh normalized for weather.²²

YEC responded:

YEC does not prepare weather normalized version of its actual sales to retail and industrial customers. Therefore, YEC is unable to provide updated version of Table 2.1 as requested.²³

In the second round of information requests, the City then requested an explanation of why YEC does not use weather normalized data to derive sales forecasts, to which YEC responded:

The response to CW-YEC-1-2 states YEC does not provide a weather normalized version of its actual sales to retail and industrial customers. As reviewed in Tab 2 of the Application, YEC directly serves customers only in seven separate communities, accounting for only 10% of 2021 forecast firm YEC energy sales – separate weather normalized analysis for each community's retail sales by customer class has not been considered to be a worthwhile exercise. With respect to industrial sales forecast, forecasts are based on information from each customer and weather normalization is not a relevant factor for consideration.²⁴

Q13. What is your view of the YEC response?

A13. The YEC response appears to be saying it is too much work. I do not agree. I have been involved in the utility industry for over 40 years. In my career, at CWNG, I was

²² CW-YEC-1-2

²³ Ibid

²⁴ CW-YEC 2-1 (a)

responsible for the weather normalization calculations. This was done using a simple linear formula, correlating use per customer to weather. This was done by calculating the actual monthly use per customer and correlating that to the heating degree days in that month. For residential sales, the correlation coefficient was well in excess of 90%. Now ATCO Gas uses a much more robust multivariate regression analysis. For the number of customers and size of load, it may well be too onerous to conduct a multivariate regression analysis such as the one ATCO Gas does, but it would be well within the capability of YEC.

Q14. What is the benefit of normalizing use per customer?

A14. In deriving a normal use per customer, YEC would readily identify trends. This would facilitate the review of use per customer, and sales, and in fact reduce the regulatory burden of a rate application.

Q15. Please summarize your recommendations.

A15. I recommend that, for its next GRA, YEC be directed to investigate the use of a simple linear regression to normalize retail sales and use per customer, and to forecast use per customer.

Brushing Costs

Q16. Please explain your concern with Brushing Costs

A16. In its Application, YEC indicated that the 2019 Distribution Brushing costs were only \$28,000, much lower than the 2018 forecast of \$331,000, the 2018 actual of \$212,000 and the 2020 forecast of \$249,000.²⁵

In response to an information request, YEC then provided its brushing policy. It included the following recommendations from ECI (a contractor):

1. Remove trees under the conductors in locations designated as Critical as soon as possible.

²⁵ YEC Application, Table 3.6.1

2. Remove trees under the conductors in locations designated as Priority before the next growing season (June 2011).
3. Remove all trees designated as Hazard over the next two years.
4. Establish a schedule of cyclic maintenance by right-of-way including separate schedules for Critical, Priority and Hazard tree locations.
5. Budget funds to address Critical locations as they are identified. This will be reduced each subsequent year of the maintenance cycle.
6. Establish a list or database of danger and hazard tree locations and develop a priority program to determine which trees should be removed first.
7. Develop vegetation maintenance clearance specifications for transmission and sub-transmission voltages and policy and standards specific to YEC needs and conditions. ECI has developed a draft TVMP for YEC's consideration.
8. Consider contracting alternatives to reduce maintenance cost as well as developing additional qualified vendors to perform vegetation maintenance on the YEC system (including herbicide application).
9. Implement Integrated Vegetation Management (IVM) as the guiding maintenance principle on the YEC system.
10. Establish an herbicide test plot area. Develop specification and guidelines on the use of herbicides on the YEC system. After an initial test period of various products and application methods and upon development of specification/procedures for herbicide use, (2012-2013), integrate the use of herbicides as a major component of the YEC vegetation maintenance program.²⁶

YEC then explains that the reduction in costs was based on the need to prioritize brushing work on the transmission system.²⁷ This was confirmed in response to CW-YEC-2-7. The areas of reduction relate to:

- Dawson – 2017 actual of \$146,575, zero in 2018 and 2019 actual of \$2,085, It appears there is significant spending in Dawson Creek in some years and no spending or negligible spending in other years.
- Faro – 2017 actual of \$37,371, zero in 2018 and 2019 actual of \$3,265, It appears there is significant spending in Faro in some years and no spending or negligible spending in other years.

²⁶ CW-YEC-1-18

²⁷ Ibid

- Mayo (incl Keno) – 2017 actual of \$64,446, and 2019 actual of \$1,075, It appears there is significant spending in Mayo in some years and no spending or negligible spending in other years.²⁸

Q17. Please explain your concern with the YEC approach.

A17. YEC appears to be managing total brushing costs to meet a budget rather than doing the required work. YEC admitted that distribution brushing costs in 2019 were lower due to a prioritization of work. There is no reference to any analysis of the distribution system, based on line patrols, that would indicate that a reduction in distribution brushing would be warranted.

I have experienced this in the past. Early in my career as a consultant, utilities in Alberta routinely forecast brushing costs based on a vegetation management plan, then did not do the work to save money. Over the years, intervener groups were instrumental in having the utilities adhere to their plans. I believe that it is more important to avoid tree strikes, resulting in outages or fires, than to save a few dollars.

Brushing is an important portion of maintaining a safe and reliable system. If vegetation is not properly managed, it can result in trees striking power lines, causing outages, and even worse, fires. One does not have to look far to see the devastating fires in California as a result of Pacific Gas and Electric assets causing wildfires.

Q18. Please explain your recommendations related to brushing costs.

A18. I recommend that the YUB provide clear direction to YEC that it is to adhere to its brushing strategy and not allocate funds away from one function unless there is explicit evidence that such an allocation would not increase the risk of tree strikes. If following the brushing strategy results in higher costs, that are not included in rates, that is a risk that any utility assumes.

²⁸ CW-YEC-2-7

Q19. Does this conclude your evidence?

A19. Yes, at this time.