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May 13, 2021

Yukon Utilities Board
Box 31728
Whitehorse, Yukon Y1A 6L3

Attention: Deana Lemke, Executive Secretary

**Re: Yukon Energy Corporation – Battery Energy Storage System
Energy Project Certificate and Energy Operation Certificate Application
UCG Final Arguments Submission**

Dear Ms. Lemke:

Pursuant to Board Order 2021-06, the Yukon Utilities Consumers' Group (UCG) hereby submits its final arguments in the above noted proceeding.

If the YUB requires any clarification with respect to this submission, please direct all inquiries to me by email at rondeau@northwestel.net.

Yours truly,

Roger Rondeau
for Yukon Utilities Consumers' Group

YUKON UTILITIES BOARD

IN THE MATTER OF the *Public Utilities Act*
Revised Statutes of Yukon, 2002 c.186, as amended

and

IN THE MATTER OF an Application by Yukon Energy Corporation for an
Energy Project Certificate and an Energy Operation Certificate regarding
the Proposed Battery Energy Storage System (BESS) Project

FINAL ARGUMENTS SUBMISSION OF

UTILITIES CONSUMERS' GROUP

May 13, 2021

Table of Contents

	Page
Introduction and Overview	3
General Background	4
General Purpose of Review and Hearing.....	5
Public Need for the BESS Project	7
Capability of Existing and Planned Generation and Transmission	8
Risks for the BESS Project and Potential Impacts on Rates.....	9
Reasonable Alternatives to the BESS Project.....	12
Impacts on YEC and Ratepayers of Debenture Investments	13
Prudency to Build the BESS Project Now	15

Introduction and Overview

1. The Yukon Utilities Consumers' Group (UCG) is a not-for-profit organization registered as a society in the Yukon since 1993. UCG represents residential and small business ratepayers in regulatory proceedings, conducts research, makes submissions, communicates with active stakeholders, including government, and helps consumers with issues they have with utility service providers.
2. This submission summarizes positions of UCG for the Yukon Utilities Board's (YUB) consideration. While UCG has attempted to be as thorough as possible, it should not be assumed that UCG agrees with Yukon Energy Corporation's position on any issue for which UCG has not provided specific comment in this argument. Where UCG has not specifically addressed an issue, it is believed that the YUB has the benefit of arguments of other intervenors and the record in this proceeding to make informed decisions.
3. In UCG's opinion, the purpose of the YUB's review of the proposed Battery Energy Storage System (BESS) project is to ensure that there is enough information available to support and provide a recommendation on whether Yukon Energy Corporation (YEC) should be granted an Energy Project Certificate and an Energy Operations Certificate for the proposed BESS project and, if so, whether the certificates should be subject to any terms and conditions.
4. UCG does not believe that enough information has been provided to adequately understand the near-term and longer-term costs associated with the proposed BESS project and the burden being placed on Yukon ratepayers. There are still too many components of this project to finalize and decisions made on the location of the project need to be reviewed considering the potential impacts on ratepayers. In UCG's opinion, it is too early to recommend that YEC proceed with the proposed project.
5. An ongoing concern for UCG is the lack of a comprehensive and multi-stakeholder approach to the development of requests for Energy Project Certificates and Energy Operation Certificates. UCG submits that, as part of its decision in these proceedings, the YUB should make very specific directions to YEC with regards to the need for comprehensive stakeholder consultations and reviews of resource plans and specific project plans while these types of applications are being developed and drafted for submission to the YUB. It is during this development phase that all stakeholders should be given an opportunity to provide the utilities with not only feedback on what the utility is thinking of proposing but also views on issues that need to be addressed from a ratepayer perspective.
6. UCG would like to commend YEC for the cooperation it displayed during the hearing with respect to providing requested information in a prompt manner through its responses to undertakings. However, UCG is concerned with the limitation of the information that YEC determines to be relevant to proceedings such as this through the interrogatory process.
7. UCG submits that the YUB should seriously consider maintaining the attributes of virtual hearings as a way to help control the costs of these regulatory proceedings. UCG submits that allowing more parties to participate virtually can be a significant savings for Yukon ratepayers.
8. According to Section 6 of the Transfer Payment Agreement, YEC is required to submit to YDC, no later than January 31, April 30, July 31 and October 31 of each year, a Financial Report as laid out in Schedule F and accompanied by:
 - copies of invoices, receipts and vouchers; and
 - certification by an officer of the YEC

9. According to Section 8 of the Transfer Payment Agreement, YEC must submit to YDC a quarterly Project Report and a final Project Report and provide data to demonstrate the Community Employment Benefits of the project.
10. While YEC testified that they don't believe that it is a requirement for them to submit those reports to the YUB,¹ UCG submits that it would be a valuable condition to any certificate that the YUB may recommend be issued related to the proposed BESS project to have these reports made public, especially to allow the YUB and ratepayers an opportunity to become aware of concerns well before YEC attempts to apply to recover costs in rates.

General Background

11. On June 22, 2017, Yukon Energy Corporation (YEC) filed its 20-Year Resource Plan (2016-2030) as part of its 2017-2018 General Rate Application. The 2016 Resource Plan identified a grid scale Battery Energy Storage System (BESS) as a medium-term solution to partially address a dependable capacity shortfall for the Yukon Integrated System under its single contingency (N-1) capacity reliability criterion that at the time approximated 6 MW in 2017, increasing to about 13 MW by 2020 and 23-24 MW by 2021 as forecast at that time by YEC.
12. In its Board Order 2018-10 issued December 27, 2018, the YUB noted several risks and concerns regarding proceeding with a grid scale BESS including concern that the technology had not been demonstrated in a northern climate and further that it would be risky to undertake such a project absent third party funding. Of note is that the YUB was reviewing a proposed BESS project near the Takhini substation that was identified as one of the options for addressing a portion of the dependable capacity gap along with the options of a third LNG engine and a new thermal plant.
13. At the time of Board Order 2018-10, depending on the type of battery selected, YEC was forecasting the costs for the BESS project to be between \$21.7 million and \$27.4 million for an initial 15- to 20-year life, after which battery replacement was estimated to cost between \$17.4 million and \$22.1 million. The YUB was of the view that the estimated cost (\$21.7 million - \$27.4 million) for 4 MW of battery storage did not compare favourably to the \$6.2 million cost of the 4.4 MW third LNG engine or the \$60 million cost of a 20 MW thermal plant on a dollar-per-MW basis.
14. The YUB found that expenditures on the BESS project were not warranted because of the costs and the unproven nature of the technology in a northern environment.²
15. On September 5, 2019, the Government of Canada committed to contribute “an amount not to exceed”³ \$16.5 million towards development of the BESS project by YEC in the Whitehorse area on the overlapping Traditional Territory of Ta’an Kwach’an Council (TKC) and Kwanlin Dun First Nation (KDFN). In its news release, the Government of Canada indicated that once completed “*the new system will store the excess electricity generated by renewable sources during off-peak periods in order to meet demand during peak electrical loads. This new energy storage system will create a more reliable power supply and allow Yukon Energy Corporation to reduce fossil fuel consumption*”. The Government of Canada news release also indicated that YEC was contributing \$8.5 million towards the proposed BESS project consisting of an 8 MW battery with the energy storage of 40 MWh.

¹ Transcript Volume 1 – May 4, 2021, page 85

² Appendix A to Board Order 2018-10: Reasons for Decision, pages 87-88

³ Transfer Payment Agreement – Section 5.1, page 3 (YUB-YEC-1-47(a), Attachment 1)

16. YEC completed a feasibility study for the BESS project, including engagement with TKC and KDFN and a very small sampling of the public on three site options owned by either TKC or KDFN in the Whitehorse area, and has also concluded a Term Sheet with TKC and KDFN for their support for and benefits from the BESS project that includes a debenture investment opportunity for both TKC and KDFN.
17. A proposal for the BESS project was submitted in March 2021 to the Yukon Environmental and Socio-economic Assessment Board (YESAB) as part of the process to acquire a recommendation by the Designated Office, and a response by the Yukon Government, KDFN and other decision bodies in the form of a “decision document”. Results of this review are still pending.
18. The BESS project was designated, in OIC 2020/180, as a Regulated Project under Part 3 of the *Public Utilities Act* pursuant to section 36 of that Act. On January 21, 2021, YEC applied under Part 3 of the *Public Utilities Act* for an energy project certificate and an energy operation certificate regarding the BESS project.

General Purpose of Review and Hearing

19. The general purpose of this review and hearing is to obtain the YUB’s report and recommendations on the potential benefits, costs, risks and customer impacts that influence whether the proposed BESS project should proceed as proposed by YEC, and any terms and conditions which the YUB considers should apply.
20. In UCG’s view, taking public interest into account is a balancing of competing interests that must be weighed considering the specific circumstances and facts related to the proposed BESS project. In broad terms, UCG believes that the public interest will be satisfied by an undertaking or action that will result over time in an enhancement of the economic or general welfare of the public. Public interest can be interpreted as the best possible accommodation of conflicting interests.
21. The YUB was created by an act of the Yukon legislature and therefore it follows that in determining the public interest, the YUB must consider the interests of the Yukon amongst others. Public interest and public convenience are referenced several times within the *Public Utilities Act* which governs the YUB and, in turn, YEC. The YUB must exercise judgment as to the specific values of conflicting interests and must decide whether the public interest would be done any disservice in the event that the particular proposal was or was not approved.
22. In UCG’s view, the YUB must carefully consider the risks that YEC is downloading to Yukon ratepayers because of being pushed by the Yukon government to move the BESS project forward despite the uncertainties surrounding the overall short-term and longer-term costs of the project. What is particularly concerning is the lack of knowledge of many ongoing costs once the project is up and running because of incomplete negotiations and project scoping.
23. In UCG’s view, legislation makes it crystal clear that all matters relating to or incidental to the production, distribution and transmission of electricity are under the jurisdiction of the YUB and that these are all matters that are to be considered in the light of the general, broad public interest that must be served. UCG submits that it is vital to consider the rate impacts on Yukon ratepayers and, if there is not enough information on the record to clearly understand the short-term and longer-term costs, there is not enough information upon which to allow the project to move forward at this time.

24. It was confirmed during the public hearing that between September 8 - 17, 2020, YEC conducted five public meetings attended by a total of 43 members of the public with some people attending multiple meetings.⁴ YEC witnesses were unable to identify how many individuals actually attended these public information meetings⁵, but it was obviously less than a total of 43 people.
25. YEC witnesses also confirmed that between September 3 and October 13, 2020, YEC received 134 comments regarding the BESS project proposal either through email (59), submitted online (54) or gathered during door-knocking (21).⁶ No detail was provided on whether any of these comments supported the proposed BESS project nor if YEC incorporated any results of this stakeholder engagement into its proposal to the YUB.
26. At a maximum, YEC received comments from less than 150 Yukoners regarding the proposed project. UCG submits that the level of stakeholder / ratepayer engagement was minimal and cannot be relied upon as a strong representation of the views of the majority of ratepayers.
27. UCG submits that YEC did not conduct effective and comprehensive stakeholder consultations with ratepayers, municipalities, and other interested parties on the specifics of its proposed BESS project prior to submitting the project to the YUB. YEC went through the motions of stakeholder engagement but implemented limited consultations on the financial impact of the proposed project and the potential impacts if actual costs incurred turn out to be significantly more than projected.
28. YEC's evidence and testimony confirms that they do not understand the concept of stakeholder engagement nor how this engagement is supposed to form the basis of attributes of a proposed project.
29. UCG submits that YEC's approach to its regulation ignores the fact that consultations are an important part of regulatory effectiveness and appears to require firm direction from the YUB to meaningfully consult affected stakeholders prior to submitting applications to the regulator. Given the widespread acceptance in other jurisdictions of stakeholder consultations as applications are being developed, UCG submits that this is a normal principle to apply to the Yukon's regulatory processes.
30. UCG submits that the while YUB should not have to direct a regulated utility to consult and inform their applications with views from stakeholders directly impacted by the proposals, the behaviour of the Yukon's utilities over the last several years implies that specific direction from the YUB in this regard is needed. Without consultations, the utilities are encouraging a more confrontational approach to regulatory proceedings than is warranted. This, of course, puts under-resourced intervenors like UCG at a distinct disadvantage.
31. UCG submits that one of the key improvements needed is a comprehensive review of YEC's resource plans before getting to the current stage of considering the regulatory requirements of individual projects. YEC's practice is to include new resource plans in the evidence submitted within a general rate application as well as updates to previous resource plans. This practice exponentially increases the number of issues that need to be addressed during the review of a general rates application which puts an enormous strain on the limited resources of stakeholders like UCG.

⁴ UCG-YEC-1-16(c) and YUB-YEC-1-46(a), Attachment 1

⁵ Transcript Volume 1 – May 4, 2021, page 91

⁶ Response to Transcript Undertaking #1

32. UCG submits that these resource plans need to be reviewed on their own in advance and in more detail so that alternatives can be properly identified and evaluated before YEC moves forward with any project. If done properly, this can keep the costs of studies and consultants down. This process would also allow for a reference point for variances to work plans brought forward by YEC for cost recovery.
33. UCG submits that planning for an efficient and effective regulatory review of proposed projects and their impact on utility revenue requirements and rates should include comprehensive stakeholder input, not only in the review stages of a proposed filing, but also during the development of a filing. UCG submits that YEC was negligent in this regard, especially in regards to input from ratepayers.

Public Need for the BESS Project

34. The YUB has been directed to report on, and make recommendations about, the necessity for the BESS project and its timing and design, with particular regard to the public need for the BESS project under various reasonable electricity load forecasts, including near term requirements related to industrial and non-industrial loads, and the effect of the proposed project on the rates of customers and the reliability of electricity service provided to customers.
35. At the start of the oral hearing of this application, YEC's President stated that the proposed BESS project responds to the current need for installed dependable capacity and that continued reliance on rented diesel units is not a feasible alternative.⁷
36. YEC also confirmed during the hearing that it was YEC's board of directors that made a very deliberate decision not to pursue a permanent solution to the capacity gap on the YEC system (i.e., a permanent large new diesel plant) and instead instructed YEC management to focus on renewable projects. UCG submits that this direction to YEC management has prevented the full evaluation of potential alternatives to satisfy political goals and targets. This ignores the fact that the unknown and potentially higher costs of the chosen direction are pushed down on to the bills of Yukon's ratepayers.
37. UCG has concerns that YEC's current sales forecast (calculated retrospectively but utilized prospectively) can have a significant impact on energy prices paid by Yukon ratepayers as well as the justification for projects like the BESS.
38. YEC has openly acknowledged that there is a significant uncertainty created by changing plans of industrial customers, which leads to the conclusion that YEC continues to make the same error of continually applying the sales growth rates experienced over the previous time periods to derive the weather-normalized use per customer forecast. UCG submits that the uncertainty of the longer-term impacts of DSM efforts and the ripple effect of a struggling economy will have a greater impact on YEC's sales levels and the need for projects like the BESS.
39. This ongoing uncertainty also raises the question of why YEC is not pursuing the installation of on-site generation for these interim mining loads rather than spending millions of ratepayers dollars on system expansion and reinforcement to cater to companies that just want to make their money quickly and move out of the Yukon. UCG submits that onsite generation combined with guaranteed upfront payment by these industrial loads for current and future costs would protect the interests of other Yukon ratepayers.

⁷ YEC Opening Statement

40. UCG submits that the YUB must satisfy itself that YEC has used an appropriate industry standard methodology to assess energy requirements. The most significant factor for the Yukon is the lack of economies of scale. UCG submits that YEC must also do more extensive customer engagement to ensure that a more realistic picture is identified of the energy use plans of all customer types.
41. To the extent that industrial and or larger commercial loads make up part of YEC's load requirement, UCG submits that the needs of those loads must necessarily be treated separate and apart from YEC's non-industrial load. UCG submits that utility revenue volatility and uncertainty of system load levels created by transient industrial loads in the Yukon are significant issues.
42. YEC has previously indicated that DSM is a mechanism, or suite of options for reducing, shifting or reallocating electricity demand. UCG submits that there is no evidence provided by YEC that their proposed DSM programs will do anything other than shift energy consumption rather than actually reduce it, so factual claims to the contrary are not supportable.

Capability of Existing and Planned Generation and Transmission

43. The YUB has been directed to report on, and make recommendations about, the necessity for the BESS project and its timing and design, with particular regard to the capability of existing and currently committed and expected generation and transmission facilities including thermal generation facilities to provide reliable electric power generation to meet the forecast load requirements and YEC's capacity planning criteria, and the effect of the BESS project on this capability.
44. The proposed 7.2 MW of dependable capacity provided by the proposed BESS project will reportedly reduce YEC's need to rely on the rental of diesel generators during the winter months to address capacity shortfalls. The BESS will also reportedly provide other benefits including operating reserve that reduces thermal generation requirements; enhanced black start capability; opportunities for diesel-peak shifting; and other system benefits.
45. On June 22, 2017, YEC filed its 20-Year Resource Plan (2016 to 2030) as part of its 2017-2018 General Rate Application. The 2016-2030 Resource Plan identified a grid scale BESS as a medium-term solution to partially address a dependable capacity shortfall for the Yukon Integrated System under its single contingency (N-1) capacity or reliability criterion that at the time approximated 6 MW in 2017, increasing to about 13 MW by 2020 and 23 to 24 MW by 2021.
46. In its opening statement at the hearing⁸, YEC stated that it was facing a challenge of meeting continued growth in demand for electricity in the Yukon, at a time when both the federal and territorial governments have committed to ambitious targets to reduce greenhouse gas emissions, and these targets directly impact YEC's strategy and operations.
47. YEC indicated in its opening statement that it was facing a shortfall in dependable capacity to meet peak demand under emergency conditions and that this shortfall is forecast to increase significantly in future years as a result of continued economic growth in the Yukon and a drive towards electrification to address climate change.

⁸ Transcript Volume 1 – May 4, 2021, page 31

48. According to past submissions by YEC, expected thermal generation for any calendar year is determined using a table derived from the power benefits simulation model (YECSIM model) as used in YEC's general rates applications. The YECSIM model was developed in 2007 by KGS Group Consulting Engineers based in Winnipeg, Manitoba and is used to develop expected hydro plant capabilities for each load scenario. YEC's "Hydro Generation" forecast is long-term average hydro generation as estimated by the YECSIM model.
49. It is not clear from YEC's evidence whether the forecasts used to justify the need for the BESS project have been significantly influenced by climate change impacts that have evolved in more recent years. Climate changes are related to air temperature, relative humidity, wind speed and precipitation level (among other variables) which have a significant effect on short-term and medium term electricity demand.
50. According to YEC, the structure of the YECSIM model was custom-made by KGS Group to consider all significant factors that affect the operation of the YEC power system including complex rules of operation and regulatory demands on YEC.
51. UCG submits that the YECSIM model and the continuation of even new forecasting models have proven to be very costly for Yukon ratepayers and there continues to be a lack of evidence that clearly shows that these models provide accurate forecasts for rate setting purposes.
52. The biggest problem that UCG has with the YECSIM model is the lack of retrospective verification (i.e., comparing actual with forecasts made using the model). It does not make any sense to UCG that any model would be used that does not allow for a comparison to actual results to determine accuracy and determine whether model upgrades and improvements are required, especially when a specific run of this model is being used to establish rates for a specific year. It is not clear how the YUB can approve the continued use of the YECSIM model if there cannot be a comparison of actual results to the output of the YECSIM model and other comparable models.
53. It is confusing to note that the subject experts at YEC have testified in the past that the results of the YECSIM model cannot be tested against actual results. Inconsistent testimony and lack of evidence serves only to muddy any benefit of continuing to use the YECSIM model without testing alternative models.
54. While YEC is convinced that the YECSIM model is the best tool for making predictions of system performance, there is no evidence showing that forecasts made using the YECSIM model are accurate nor is there any evidence that there aren't other forecast models available that produce results that can be tested.

Risks for the BESS Project and Potential Impacts on Rates

55. The YUB has been directed to report on, and make recommendations about, the necessity for the BESS project and its timing and design, with particular regard to the risks for the BESS project and their potential impacts on rates for customers and on the reliability of electricity service provided to customers.
56. What was surprising to UCG at the hearing was to hear YEC's witnesses declare that, despite the government's direction to consider impacts on ratepayers, YEC was not at the hearing to talk about

the ultimate impact on ratepayers.⁹ From UCG's perspective, the potential impact on ratepayers and the risks that ratepayers are being asked to absorb without complete knowledge of the extent of these risks are key considerations on whether YEC should move forward with the proposed BESS project.

57. YEC has already taken the opportunity to incur \$700,000 in accumulated spending on this proposed project and plan to come to collect these costs from Yukon ratepayers whether the project moves forward or not.¹⁰ This raises the issue that, pursuant to the Transfer Payment Agreement¹¹, all capital-related costs, including site preparation and construction costs, are classified as ineligible costs until Canada has confirmed that environmental assessment and Aboriginal consultation obligations have been met and continue to be met. YEC testified that the environmental assessment and Aboriginal consultation obligations have not yet been met,¹² so this raises the question of how much of the money spent to date (and continuing to be spent) will be classified as "ineligible" under the Transfer Payment Agreement and how ineligible costs should be treated with respect to a recovery from ratepayers perspective.
58. YEC confirmed that the current cost estimate for the proposed BESS is between \$22.19 million and \$41.21 million. After the \$16.5 million funding from the Federal Government's Investing in Canada Infrastructure Program, YEC states in its IR responses that the preliminary net capital cost estimate for YEC is \$15.2 million.¹³
59. This is a significant increase in project costs from the cost estimate originally reviewed by the YUB in 2018 (which was between \$21.7 million and \$27.4 million) and what appears to have been the project cost evaluated by the Government of Canada (\$25 million) when it made the decision in 2019 to offer funding assistance of up to \$16.5 million.
60. The preliminary net capital cost estimate for YEC and Yukon ratepayers of \$15.2 million also clouds the reality that the actual net capital cost for YEC could be as high as \$24.71 million (\$41.21 million less \$16.5 million) which is nearly 3 times the \$8.5 million that the Government of Canada has assumed was YEC's contribution towards the proposed BESS project.
61. Given that the YUB has already found that expenditures on the BESS project of between \$21.7 million and \$27.4 million for an initial 15- to 20-year life were not warranted, UCG submits that potential expenditures (even after government subsidies) of \$24.71 million is equally not warranted and puts Yukon ratepayers at risk of footing the bill on a project that will in all likelihood go over the existing budget given the current uncertainty of the total costs associated with key cost drivers such as the battery hardware and the transformer.¹⁴
62. Table 4-3 in the application (page 39) illustrates annual costs and savings from the proposed project, assuming operation in 2022 and an assumed project capital cost of \$27.751 million. This table indicates an annual savings to Yukon ratepayers every year that the BESS is operating.
63. UCG submits that there is confusion regarding the impact analyses that YEC has provided when asked to vary the fuel and capital costs associated with the proposed BESS project.

⁹ Transcript Volume 1 – May 4, 2021, page 76

¹⁰ Transcript Volume 1 – May 4, 2021, pages 78-79

¹¹ YUB-YEC-1-47

¹² Transcript Volume 1 – May 4, 2021, page 84

¹³ UCG-YEC-1-2(b),

¹⁴ Transcript Volume 2 – May 5, 2021, page 236

64. When YEC updated Table 4-3 to use project capital cost 30% above the estimate included in the application¹⁵, YEC testified that the capital cost was increased to \$41.21 million from the originally assumed \$31.7 million¹⁶. The updated Table 4-3 provided in response to JM-YEC-1-33(d) indicates that Yukon ratepayers are left paying higher costs overall for the first 7 years of BESS operations. UCG questions how ratepayers are expected to incur these higher costs for nearly half of the expected useful life of the BESS on top of what are already unaffordable electricity costs.
65. UCG submits that this is an undeniable risk that Yukon ratepayers should not have to bear given that they are already supporting the Government of Canada's contribution through their tax dollars. How does this support YEC's claim that the proposed BESS project is "very attractive for Yukon ratepayers"?¹⁷
66. YEC states that ATCO Electric Yukon (AEY) is supportive of the proposed interconnection route¹⁸ but no formal agreement had been drafted between YEC and AEY, and there no formal letters stating this implied support.¹⁹ UCG questions where the certainty is to assume that AEY will go along with YEC's plan without demanding that the project conforming to AEY's preferences. There is no impact quantified by YEC on the risk of AEY causing project plans to change.
67. YEC states that the proposed BESS has an expected useful life that would max out at 20 years²⁰ and that it plans to recover all costs related to the BESS installation over 20 years.²¹ YEC also states that the 25-year site lease term associated with the proposed BESS project includes one renewal option for an additional 25 years. YEC claimed that 25 year term of the lease agreement was to allow construction time²² but didn't explain why an option for an additional 25 years is included nor what the total impact the costs of a long term site lease will have on ratepayers.
68. YEC continually argues that the YUB will get an opportunity to review the prudence of the costs incurred for the BESS project when YEC applies to start recovering the costs.²³ UCG submits that not only will the BESS already be operating by the time the YUB is asked to allow recovery of the capital costs in rates, but by that time, YEC will already be incurring O&M costs associated with and impacted by the BESS project that they will already be recovering in rates.
69. YEC testified at the hearing²⁴ that adding the BESS to its integrated system will result in the hydro generation units being operated more efficiently which will result in energy being generated for the same volume of water. UCG submits that there is no evidence on the record of this proceeding that quantifies or justifies such an assumption and there is no identification of the impact of this added efficiency being driven by the proposed BESS.
70. Property taxes are paid by YEC to the communities annually for office buildings, generation facilities, substation properties and power lines. These taxes typically increase annually based on inflation pressures and cost pressures within the communities. YEC confirmed during the hearing

¹⁵ JM-YEC-1-33(d)

¹⁶ Transcript Volume 1 – May 4, 2021, page 98

¹⁷ Transcript Volume 1 – May 4, 2021, page 32

¹⁸ JM-YEC-1-1

¹⁹ Transcript Volume 1 – May 4, 2021, page 92

²⁰ JM-YEC-1-9(a)

²¹ Transcript Volume 1 – May 4, 2021, page 93

²² Transcript Volume 1 – May 4, 2021, page 96

²³ Transcript Volume 3 – May 6, 2021, page 309

²⁴ Transcript Volume 1 – May 4, 2021, pages 67-68

that they will have to pay City of Whitehorse taxes on any development on the Kwanlin Dun site and that taxes are on the rise.²⁵

71. In accordance with the legislation and mandate, the Property Assessment & Taxation Branch of the Yukon's Department of Community Services reviews and reassesses land and improvement values every two years. The market value of land is reviewed and any changes in value noted from market evidence may lead to a change in land value for property tax purposes. The cost to build is also reviewed and any changes noted in building costs from the time of the last reassessment may necessitate a change in the building property tax assessment.²⁶
72. In response to transcript undertaking #9, YEC provided evidence of the impact that property taxes have on the costs of the proposed BESS project. What is not clear from this analysis is whether YEC has considered whether and how often the market value of its proposed BESS assets will be reviewed during their life and if any changes in value are expected.
73. UCG submits that the property tax impacts of this proposed project over its productive life are another unknown risk that Yukon ratepayers are being asked to absorb. Without a full review of the range of impacts that property taxes could have over the next couple of decades, this is yet another concern that works against approving the proposed project to move forward at this time.
74. YEC testified at the hearing that there is a possibility that vendors will recommend a lower or non-existent level of overbuild for the BESS versus the costs of the 20% overbuild that YEC is preparing to recover from ratepayers.²⁷ UCG submits that the 20% overbuild is a cost component that has not be adequately justified given the uncertainty related to pending proposals from vendors.

Reasonable Alternatives to the BESS Project

75. The YUB has been directed to report on, and make recommendations about, the necessity for the BESS project and its timing and design, with particular regard to what, if any, reasonable alternatives exist to the BESS project, or alternative ways of undertaking the BESS project with its selected technology might be advisable given reasonable load assumptions and risk assessments.
76. YEC indicates in IR responses²⁸ that it is pursuing the replacement of retired diesel engines with new diesel engines, including 5 MW to replace the retired generation at the Whitehorse Rapids Generating Facility diesel plant. Overall, 12.5 MW of diesel to replace diesel unit retirements is included in YEC's 10-Year Renewable Electricity Plan with installation in Whitehorse and other communities (e.g., Faro). YEC also noted that additional capacity, currently provided by rental diesel units, is still required beyond these additions.
77. YEC confirmed during the hearing²⁹ that it is not a matter that there isn't room in the Whitehorse diesel plant to add replacement generators. YEC believes that it makes more sense to spread them out to other communities.

²⁵ Transcript Volume 1 – May 4, 2021, page 55

²⁶ Frequently-Asked Questions about Property Assessment and Taxation, Property Assessment & Taxation Branch Web Site

²⁷ Transcript Volume 1 – May 4, 2021, page 103

²⁸ JM-YEC-1-24

²⁹ Transcript Volume 1 – May 4, 2021, page 57

78. YEC also confirmed during the hearing that it was YEC's board of directors that made a very deliberate decision not to pursue a permanent solution to the capacity gap on the YEC system (i.e., a permanent large new diesel plant) and instead instructed YEC management to focus on renewable projects.³⁰ UCG submits that YEC's board of directors has circumvented the consideration of legitimate diesel or LNG-fueled generation alternatives to the BESS project.
79. UCG submits that there does not appear to be any logical reason why YEC did not establish a plan years ago to pursue overhauling all of their diesel generators in Whitehorse, Faro, Dawson and other communities, a comprehensive plan to replace these generators as they have been retired and using generator owned by ATCO Electric Yukon in an efficient manner. This has been an ongoing issue for many years and if YEC had established an efficient plan of plant overhaul and replacement, they would not find themselves in the position of having to use and replace rented diesel generation equipment and having N-1 capacity backup issues.
80. Prudent investment is the original proposed cost minus any fraudulent, unwise, or extravagant outlays that should not be a burden on ratepayers. "Prudent" imports the requirement that the investment, in order to gain recognition in the rate base, must have been prudently incurred in the light of foresight rather than of hindsight. UCG submits that the onus is on YEC to prove that its proposed capital expenditures are prudent and not the job of intervenors to prove that they are not prudent. Advance planning and sticking to the plan are key attributes of prudent investment.
81. UCG is concerned with the significant expenditures over approved budgets for many of the capital projects that have received previous approvals from the YUB. YEC has previously testified that when YEC submits its capital expenditures and capital project budgets to the YUB for approval in a general rates application, their cost estimates are based on a 100% confidence level. The list of projects with over-expenditures is lengthy. If there is no evidence that these extra costs were prudently incurred, they should not be allowed to be added to YEC's rate base.
82. UCG submits that YEC should be required to submit detailed asset management plans and/or distribution system plans that include the utility's asset management policy, strategy and objectives; an inventory and assessment of the condition of all capital assets whose net book value is material to the utility; and how this inventory informs the utility's plan for capital expenditures and plan for maintenance expenditures. The asset management plan should demonstrate how these elements produce an integrated capital investment, asset maintenance and asset retirement plan that will drive the development of investment and maintenance for the test year(s) and beyond.

Impacts on YEC and Ratepayers of Debenture Investments

83. The YUB has been directed to report on, and make recommendations about, the necessity for the BESS project and its timing and design, with particular regard to impacts on YEC and ratepayers of the debenture investment opportunity that YEC is providing to TKC and KDFN in recognition of the BESS project's location on the overlapping Traditional Territory of TKC and KDFN and the benefits of TKC and KDFN support for this project's development at this time.
84. According to YEC's application³¹, 3 separate battery location options were considered as part of project planning and each was selected for evaluation based on proximity to YEC's existing grid infrastructure in the Whitehorse area:

³⁰ Transcript Volume 1 – May 4, 2021, page 97

³¹ Application, page 34

1. Site on TKC Settlement Land across from YEC's LNG Plant on Robert Service Way;
 2. Site on KDFN Settlement Land on northeast corner of the Alaska Highway and Robert Service Way; and
 3. Site on KDFN Settlement Adjacent to the Takhini Substation on the North Klondike Highway.
85. YEC has proposed that the BESS project will involve the installation of a containerized lithium ion system on a 1.5 hectare site that YEC will lease on undeveloped KDFN Category B settlement land located northeast of the intersection of Robert Service Way and the Alaska Highway (Option 2).
86. The BESS will be connected to the YEC Whitehorse Rapids facility by a new 1.7 km 34.5 kV transmission line that goes north of the KDFN site, following existing easements through forested Crown land until it meets and follows the path of the existing ATCO 34.5 kV line to the Whitehorse Rapids facility.
87. YEC testified that it identified the Takhini substation and its own Whitehorse facility as general locations of interest, but that they looked (at the direction of their government-appointed board of directors³²) for locations where settlement land was available to create an opportunity for a land lease with the affected First Nations.³³
88. YEC hasn't even determined the market value for comparable pieces of land elsewhere outside of settlement land³⁴ and yet they are only proposing to build the proposed BESS on settlement lands no matter what the cost to ratepayers.
89. YEC argues that the settlement land issue is not a factor because YEC is using market-based costs so ratepayers would be indifferent because they would pay the same whether it was on settlement land or not³⁵. UCG submits that there is no logic to that argument. YEC has no idea what kind of costs will ultimately be imposed by the First Nations for the use of settlement lands nor what type of longer-term commitments will be put in place because of these settlement land use deals. UCG submits that it is absolutely a shift of the cost burden to ratepayers of the decisions that YEC is being asked to work into the cost of the proposed BESS project.
90. UCG submits that YEC and the Yukon government continue to wrongly assume that the costs being thrust upon Yukon ratepayers by their decisions through electricity bills are anywhere near affordable. The average cost for a residential customer living in Whitehorse has risen significantly over the last several years and will increase going forward, especially with the added burden of the proposed BESS project. UCG submits that there is no possible way for the disposable income of Yukon ratepayers to keep up with that sort of cost increase.
91. UCG submits that affordability issues are a significant concern that will not only impact residential ratepayers but also adversely impact potential business expansion and the Yukon economy.
92. UCG submits that YEC is out of touch with what its customers consider affordable when it comes to the cost of electricity. The long-term impact of a series of rate adjustments during a year can be significant. UCG submits that YEC should be directed to not only address bill mitigation but to develop and implement a policy as part of the current and future GRA proceedings.

³² Transcript Volume 2 – May 5, 2021, page 216 and Transcript Volume 3 – May 6, 2021, page 305

³³ Transcript Volume 2 – May 5, 2021, page 214

³⁴ Transcript Volume 3 – May 5, 2021, page 307

³⁵ Transcript Volume 3 – May 5, 2021, pages 308-309

93. Despite the fact that affordability has always been an important issue in the Yukon, YEC has not provided any evidence that it is currently working with any social agencies to address the needs of low income Yukoners nor does YEC appear aware of any low income assistance programs that exist in other jurisdictions. UCG submits that YEC should be directed to address the difficulties faced by low income ratepayers and develop programs in conjunction with Yukon's social agencies to assist these Yukoners.
94. UCG questions YEC's claim that the First Nation debenture investment proposed for this project will enable Yukon First Nation investment without any impact to ratepayers.³⁶ The fact that the net benefits to Yukon ratepayers could easily be negative for the majority of the life of the proposed BESS is obviously a negative impact on ratepayers no matter how YEC spins the form of Yukon First Nation investments.
95. It is a significant concern to UCG and ratepayers that YEC has signed a term sheet with both the Kwanlin Dun and Ta'an Kwach'an Council but is still in the process of finalizing individual project agreements with both First Nations.³⁷ YEC was unable to identify the costs of benefits that will be provided to the First Nations because they have not been finalized.³⁸ UCG submits that YEC has implied that the cost of the First Nations benefits will be in excess of the \$100,000 that is identified in the project budget outlined in Schedule B of the Transfer Payment Agreement because the project budget far exceeds the \$25 million assumed in the Transfer Payment Agreement.
96. UCG notes that when YEC witnesses were asked whether the stipulation to involve First Nations in the proposed BESS project is, at least partly further to the obligations set out under Chapter 22 of the Umbrella Final Agreement or the applicable settlement agreements, YEC could only confirm that it is consistent with the spirit and intent of Chapter 22.³⁹ UCG submits that there is no direct obligation to First Nations being addressed by the proposed involvement in this proposed project and the leasing of settlement lands increases costs significantly over taking the time to consider developing the project on Crown lands.
97. While YEC testified that it is "very hard" to find a development site that's actually better situated or on Crown land,⁴⁰ that doesn't mean that more time shouldn't be put into keeping site-related costs as low as possible. It appears YEC is trying to avoid taking the time necessary to fully examine all options available. The unknown impact over the next couple of decades of property taxes (starting at \$7 million) is a significant issue for ratepayers.

Prudency to Build the BESS Project Now

98. The YUB has been directed to report on, and make recommendations about, the necessity for the BESS Project and its timing and design, with particular regard to whether it is prudent to build the BESS Project as proposed at this time.
99. As noted earlier in these arguments, in its Board Order 2018-10 issued December 27, 2018, the YUB noted several risks and concerns regarding proceeding with a grid scale BESS including concern that the technology had not been demonstrated in a northern climate. In response, YEC

³⁶ Transcript Volume 1 – May 4, 2021, page 33

³⁷ Transcript Volume 1 – May 4, 2021, page 87

³⁸ Transcript Volume 1 – May 4, 2021, page 88

³⁹ Transcript Volume 3 – May 6, 2021, pages 304-305

⁴⁰ Transcript Volume 3 – May 6, 2021, page 310

testified that it made references to BESS-type projects operating in Northern Quebec and the Northwest Territories in its application in order to address that concern of the YUB and to illustrate that there is now significant operating experience of battery projects in northern climates.⁴¹

100. UCG submits that YEC has not addressed the YUB's concern at all. The issue is not whether there are any other BESS-type installations being operated in northern regions. The issue is how successful have they been in achieving anticipated benefits and what issues have arisen with these installations that need to be addressed when considering what has been proposed and used as justification for YEC's proposed BESS project.

101. YEC has not provided any specific information regarding these other northern projects and instead have determined that detailed information regarding costs, alternatives considered or operating experience with these other northern projects will not provide any material assistance to the YUB in its review of YEC's current application.⁴² UCG submits that this simply disregards the concerns that the YUB had in 2018 when it first considered a BESS project and leaves this as an open issue with respect to the current BESS proposal.

⁴¹ Transcript Volume 1 – May 4, 2021, page 77

⁴² UCG-YEC-1-2(h)